



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة



2025- 2026

Civil Engineering Program Specifications (الفصول الدراسية)



وزارة التعليم العالي
المعهد العالي للمهندسة والتكنولوجيا
بدمياط الجديدة
قسم المهندسة المدنية



وثيقة اعتماد
برنامج "الهندسة المدنية"
الفصول الدراسية

لائحة الفصول الدراسية قرار رقم 1328

بتاريخ 14/4/2019

مجلس القسم العلمي

إعتماد توصيف البرنامج والمقررات

بتاريخ 26/07/2025

مجلس علمي

إعتماد توصيف البرنامج و المقررات

بتاريخ 29/07/2025

مجلس إدارة المعهد

إعتماد توصيف البرنامج والمقررات قرار رقم 120

بتاريخ 30 /07/2025



Program Coordinator	Vice Dean for Education and Student Affairs
Mohamed Gabr	خالد سامير
Assoc. Professor Dr. Mohamed Gabr	Prof. Dr. Khaled Samir
وحسنة ضمان الجودة	وزارة التعليم العالي الجمهورية العربية السورية مباني الجامعة دمشق



وحدة ضمان الجودة



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة

توصيف برنامج الهندسة المدنية

Program Specification

(2025-2026)

1. Basic Information

Program Title:	Civil Engineering
Total number of hours of the program (Terms Regulation):	264 contact hours
Number of academic years (expected program duration):	5 years
Department (s) Participating (if any) in teaching the program:	Civil Engineering
Institute:	The Higher Institute for Engineering and Technology in New Damietta
University:	Ministry of Higher Education & Scientific Research
Program majors/divisions/tracks/specialties in the final year:	Not exist
Partnerships with other parties and the nature of each:	Not exist
Name of the program coordinator (attach the assignment decision):	Assoc. Prof. Dr. Mohamed Gabr
Program Specification Approval Date:	26/7/2025
Council responsible for Program Specification Approval (Attach the Decision / Minutes):	29/7/2025

2. Program Aims (Brief description of the overall purpose the program)

This program aims to develop highly competent civil engineers equipped with comprehensive technical knowledge and the ability to solve complex engineering problems across diverse domains (structures, geotechnics, transportation, water resources, environmental systems, and construction). Graduates will be proficient in applying analytical methods, modern tools, and sustainable design principles to create optimal infrastructure solutions. The program fosters essential professional skills, including effective communication, ethical leadership, project and team management, contract administration, and entrepreneurial thinking. Graduates will be prepared for lifelong learning, committed to public welfare, environmental stewardship, and contributing significantly to the advancement of the profession and society.

3. Program Structure (Curriculum)

Requirement Category/Type		Number of Courses	Number Hours	Percentage from the total number of hours
University Requirements		7	21	8%
Institute Requirements		17	76	28.8%
Program Requirements		41	167	63.2%
Requirements of the majors/ divisions/ tracks/ specializations in the final year		-	-	-
Other requirements	Field Training	2	-	
	Graduation Project	2	11	
	Mandatory training year	-	-	
	Other (to be mentioned)	-	-	
Total Compulsory Courses		61	248	93.9%
Elective Courses		4	16	6.1%
Total		65	264	100%

* The student should make Training 1 in the summer following the 2nd semester for 4 weeks.

* The student should make Training 2 in the summer following the 2nd semester for 4 weeks.

- **Program Components**
- **Program courses according to the expected study plan**

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Total Number of Hours	Number of Weekly Hours				
							Theoretical	Practical training	Teaching Exercise	Contact hours	Student load
Level 0	First Semester	BAS011	Mathematics 1	Compulsory	Institute	8	2	-	2	4	4
	First Semester	BAS012	Mechanics 1	Compulsory	Institute	8	2	-	2	4	4
	First Semester	BAS013	Physics 1	Compulsory	Institute	10	2	2	2	6	4
	First Semester	BAS014	Engineering Chemistry	Compulsory	Institute	8	2	2	-	4	4
	First Semester	BAS015	Engineering Drawing and Projection	Compulsory	Institute	9	1	2	2	5	4
	First Semester	BAS016	Int. to Computer Systems	Compulsory	University	7	2	2	-	4	3
	Second Semester	BAS021	Mathematics 2	Compulsory	Institute	8	2	-	2	4	4
	Second Semester	BAS022	Mechanics 2	Compulsory	Institute	8	2	-	2	4	4
	Second Semester	BAS023	Physics 2	Compulsory	Institute	10	2	2	2	6	4
	Second Semester	BAS024	Production Engineering	Compulsory	Institute	9	3	2	-	5	4
	Second Semester	BAS025	Int. to Engineering and Environment	Compulsory	University	4	2	-	-	2	2
	Second Semester	BAS026	Technical English Language 1	Compulsory	University	7	2	2	-	4	3
	Second Semester	BAS027	Human Rights	Compulsory	University	4	2	-	-	2	2
Level 1	First Semester	BAS111	Mathematics 3	Compulsory	Institute	8	2	-	2	4	4
	First Semester	BAS112	Electrical Engineering Fundamentals	Compulsory	Institute	9	3	-	2	5	4

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Total Number of Hours	Number of Weekly Hours				
							Theoretical	Practical training	Teaching Exercise	Contact hours	Student load
Level 1	First Semester	BAS113	Engineering Thermodynamics	Compulsory	Institute	9	3	-	2	5	4
	First Semester	BAS114	Technical English Language 2	Compulsory	University	7	2	2	-	4	3
	First Semester	CIE111	Structures Analysis 1	Compulsory	General	9	3	-	2	5	4
	First Semester	CIE112	Civil Engineering Drawing 1	Compulsory	General	7	2	-	2	4	3
	Second Semester	BAS121	Mathematics 4	Compulsory	Institute	8	2	-	2	4	4
	Second Semester	BAS122	Technical Report Writing	Compulsory	Institute	8	2	2	-	4	4
	Second Semester	BAS123	Int.to Information Technology	Compulsory	Institute	8	2	2	-	4	4
	Second Semester	BAS124	Strength of Materials	Compulsory	General	8	2	-	2	4	4
	Second Semester	CIE121	Structures Analysis 2	Compulsory	General	10	3	-	2	5	5
	Second Semester	CIE122	Civil Engineering Drawing 2	Compulsory	General	7	2	1	1	4	3
Level 2	First Semester	BAS211	Engineering Probability and Statistics	Compulsory	Institute	8	2	-	2	4	4

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Total Number of Hours	Number of Weekly Hours				
							Theoretical	Practical training	Teaching Exercise	Contact hours	Student load
	First Semester	BAS212	Fluid Mechanics	Compulsory	General	8	2	1	1	4	4
Level 2	First Semester	BAS213	Engineering Economy	Compulsory	General	7	2	-	1	3	4
	First Semester	BAS214	Computer Programming	Compulsory	General	8	2	2	-	4	4
	First Semester	CIE211	Structures Analysis 3	Compulsory	General	8	2	-	2	4	4
	First Semester	CIE212	Properties and Strength of concrete Materials	Compulsory	General	8	2	1	1	4	4
	First Semester	CIE213	Surveying 1	Compulsory	General	8	2	1	1	4	4
	Second Semester	BAS221	Numerical Methods in Engineering	Compulsory	Institute	9	2	-	2	4	5
	Second Semester	CIE221	Hydrology and Irrigation Engineering	Compulsory	General	8	2	-	2	4	4
	Second Semester	CIE222	Reinforced Concrete 1	Compulsory	General	11	4	-	2	6	5
	Second Semester	CIE223	Surveying 2	Compulsory	General	8	2	1	1	4	4
	Second Semester	CIE224	Traffic and Transportation Engineering	Compulsory	General	8	2	-	2	4	4
	Second Semester	CIE225	Principles of Building	Compulsory	General	8	2	-	2	4	4

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Total Number of Hours	Number of Weekly Hours				
							Theoretical	Practical training	Teaching Exercise	Contact hours	Student load
			Constructions								
Level 2	Second Semester	CIE226	Training 1*	Ccompulsory	Specific	-	-	-	-		-
Level 3	First Semester	CIE311	Reinforced Concrete 2	Ccompulsory	Specific	10	4	-	2	6	4
	First Semester	CIE312	Geology and Soil Mechanics1	Ccompulsory	General	8	2	1	1	4	4
	First Semester	CIE313	Open Channel Hydraulics	Ccompulsory	General	8	2	1	1	4	4
	First Semester	CIE314	Steel Structure Design1	Ccompulsory	Specific	10	4	-	2	6	4
	First Semester	CIE315	High ways and Airport Engineering	Ccompulsory	Specific	8	2	-	2	4	4
	First Semester	CIE316	Water supply Engineering	Ccompulsory	Specific	8	2	-	2	4	4
	Second Semester	BAS321	Project Management and Control	Ccompulsory	General	8	2	-	2	4	4
	Second Semester	CIE321	Reinforced Concrete 3	Ccompulsory	Specific	9	3	-	2	5	4
	Second Semester	CIE322	Soil Mechanics and Foundation	Ccompulsory	General	8	2	-	2	4	4
	Second Semester	CIE323	Computer Applications in Civil Engineering	Ccompulsory	General	8	2	2	-	4	4

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Total Number of Hours	Number of Weekly Hours				
							Theoretical	Practical training	Teaching Exercise	Contact hours	Student load
Level 3	Second Semester	CIE324	Steel Structure Design 2	Compulsory	Specific	9	3	-	2	5	4
	Second Semester	CIE325	Training 2*	Compulsory	Specific	-	-	-	-		-
	Second Semester	CIE326	Water and wastewater treatment	Compulsory	Specific	7	2	-	2	4	3
Level 4	First Semester	CIE411	Foundation Engineering 1	Compulsory	Specific	9	2	-	2	4	5
	First Semester	CIE412	Inland Navigation and Harbor Engineering	Compulsory	Specific	8	2	-	2	4	4
	First Semester	CIE413	Design of Irrigation Works	Compulsory	Specific	8	2	-	2	4	4
	First Semester	CIE414	Project 1*	Compulsory	Specific	9	3	2	-	5	4
	First Semester	CIE415	Elective 1	Elective	Specific	8	2	-	2	4	4
	First Semester	CIE416	Elective 2	Elective	Specific	8	2	-	2	4	4
Level 4	Second Semester	BAS421	Research and Analytical Skills	Compulsory	University	4	2	-	-	2	2
	Second Semester	BAS422	Environmental Management	Compulsory	General	6	2	-	1	3	3
	Second Semester	CIE421	Legislation and contracts	Compulsory	University	7	2	-	1	3	4

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Total Number of Hours	Number of Weekly Hours				
							Theoretical	Practical training	Teaching Exercise	Contact hours	Student load
	Second Semester	CIE422	Reinforced concrete 4	Compulsory	Specific	8	2	-	2	4	4
	Second Semester	CIE423	Project 2*	Compulsory	Specific	11	2	-	4	6	5
	Second Semester	CIE424	Elective 3	Elective	Specific	8	2	-	2	4	4
	Second Semester	CIE425	Elective 4	Elective	Specific	8	2	-	2	4	4

Sschedule of elective courses of the Civil Engineering Program

Elective 1	Course Code	Course Title	Requirement Category/ Type	Ttotal Number of Hours	Number of Weekly Hours			
					Theoretical	Practical training	Teaching Exercise	Student load
	CIE415A	Bridge Engineering	Specialized	8	2	-	2	4
	CIE415B	Coastal Engineering Fundamentals	Specialized	8	2	-	2	4
	CIE415C	Concrete Structures Technology	Specialized	8	2	-	2	4
	CIE415D	Construction Contraction	Specialized	8	2	-	2	4
	CIE415E	Coast Analysis for Structure Projects	Specialized	8	2	-	2	4
	CIE415F	Highway Materials and Construction	Specialized	8	2	-	2	4
	CIE415G	Modern Structure Materials	Specialized	8	2	-	2	4
	CIE415H	Planning of Buildings Maintenance and Protection	Specialized	8	2	-	2	4
	CIE415I	Reliability of Structures	Specialized	8	2	-	2	4
	CIE415J	Environmental Pollution Control	Specialized	8	2	-	2	4

Elective 2	Course Code	Course Title	Requirement Category/ Type	Ttotal Number of Hours	Number of Weekly Hours			
					Theoretical	Practical training	Teaching Exercise	Student load
	CIE416A	Design of Earthquake Structures	Specialized	8	2	-	2	4
	CIE416B	Design of Marine Platforms	Specialized	8	2	-	2	4
	CIE416C	Design of Shell Structures	Specialized	8	2	-	2	4
	CIE416D	Engineering Project Evaluation	Specialized	8	2	-	2	4
	CIE416E	Fiber Reinforced Cement Composites	Specialized	8	2	-	2	4
	CIE416F	Project Decision Analysis	Specialized	8	2	-	2	4
	CIE416G	Project Financial Management	Specialized	8	2	-	2	4
	CIE416H	Risk Management and Constructions Safety	Specialized	8	2	-	2	4
	CIE416I	Air conditioning Systems for Building	Specialized	8	2	-	2	4
	CIE416J	Construction Estimating and Tendering	Specialized	8	2	-	2	4

Elective 3	Course Code	Course Title	Requirement Category/ Type	Ttotal Number of Hours	Number of Weekly Hours			
					Theoretical	Practical training	Teaching Exercise	Student load
	CIE424A	Groundwater Hydraulics	Specialized	8	2	-	2	4
	CIE424B	Pavement Design	Specialized	8	2	-	2	4
	CIE424C	Pre- Fabricated Concrete Frames	Specialized	8	2	-	2	4
	CIE424D	Project Management2	Specialized	8	2	-	2	4
	CIE424E	Project Visibility Study	Specialized	8	2	-	2	4
	CIE424F	Urban Transportation Planning	Specialized	8	2	-	2	4
	CIE424G	Special Concrete Structures 1	Specialized	8	2	-	2	4
	CIE424H	Foundation Engineering 2	Specialized	8	2	-	2	4
	CIE424I	Productivity Enhancement Methods	Specialized	8	2	-	2	4
	CIE424J	Quality Assurance	Specialized	8	2	-	2	4

Elective 4	Course Code	Course Title	Requirement Category/ Type	Ttotal Number of Hours	Number of Weekly Hours			
					Theoretical	Practical training	Teaching Exercise	Student load
	CIE425A	River Engineering	Specialized	8	2	-	2	4
	CIE425B	Hydraulics Engineering	Specialized	8	2	-	2	4
	CIE425C	Traffic Control Systems	Specialized	8	2	-	2	4
	CIE425D	Tunneling and Underground Excavation	Specialized	8	2	-	2	4
	CIE425E	Special Concrete Structures 2	Specialized	8	2	-	2	4
	CIE425F	Railway Engineering	Specialized	8	2	-	2	4
	CIE425G	Reinforced Concrete 5	Specialized	8	2	-	2	4
	CIE425H	Design of lighting Systems for buildings	Specialized	8	2	-	2	4
	CIE425I	Soil Dynamics	Specialized	8	2	-	2	4
	CIE425J	Introduction to Earthquake Engineering	Specialized	8	2	-	2	4

4. Academic Standards

- **Adopted Academic Standards (NARS 2018):** Choose an item.
- **Date of Adoption of Standards in the governing Council: 26-4-2021**
* Decision/Minutes of the governing Council to be attached

5. Matrix of Academic Standards (Program Outcomes POs) with Courses

Compulsory Courses															
Code	Course Name	Competencies													
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4
BAS011	Mathematics 1														
BAS012	Mechanics 1														
BAS013	Physics 1														
BAS014	General Chemistry														
BAS015	Engineering drawing and projection														
BAS016	Introduction to computer systems														
BAS021	Mathematics 2														
BAS022	Mechanics 2														
BAS023	Physics 2														
BAS024	Production engineering														
BAS025	Introduction to Engineering and environment														
BAS026	Technical English Language 1														
BAS027	Human Rights														

Compulsory Courses															
Code	Course Name	Competencies													
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4
BAS111	Mathematics 3														
BAS112	Electrical Engineering Fundamental														
BAS113	Engineering Thermodynamics														
BAS114	Technical English Language 2														
CIE111	Structure Analysis 1														
CIE112	Civil engineering drawing 1														
BAS121	Mathematics 4														
BAS122	Technical Report Writing														
BAS123	Int. to Information Technology														
BAS124	Strengthen of materials														
CIE121	Structure analysis 2														
CIE122	Civil engineering drawing 2														
BAS211	Engineering Probability and Statistics														
BAS212	Fluid Mechanics														
BAS213	Engineering Economy														
BAS214	computer programming														
CIE211	Structure analysis 3														
CIE212	Properties and strengthen of concrete materials														

Compulsory Courses															
Code	Course Name	Competencies													
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4
CIE213	surveying 1														
BAS221	Numerical Methods in Engineering														
CIE 221	Hydrology and Irrigation Engineering														
CIE 222	Reinforced concrete 1														
CIE 223	Surveying 2														
CIE 224	Traffic and transportation Engineering														
CIE 225	principles of Building constructions														
CIE 226	Training 1 *														
CIE311	Reinforced concrete 2														
CIE312	Geology and Soil Mechanics1														
CIE313	Open Channel Hydraulics														
CIE314	Steel Structure Design 1														
CIE315	High ways and Airport Engineering														
CIE316	Water supply engineering														
BAS321	Project Management and Control														
CIE321	Reinforced concrete 3														
CIE322	Soil Mechanics and Foundation														
CIE323	Computer Application in Civil Engineering														

Compulsory Courses															
Code	Course Name	Competencies													
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4
CIE324	Steel Structure Design 2														
CIE325	Training 2*														
CIE326	water and wastewater treatment														
CIE411	Foundation Engineering 1														
CIE412	Inland Navigation and Harbor Engineering														
CIE413	Design of Irrigation Works														
CIE414	Project 1*														
BAS421	Research and Analytical skills														
BAS422	Environmental management														
CIE421	Legislation and contract														
CEE422	Reinforced concrete 4														
CIE423	Project 2*														

Matrix of Academic Standards (Program Outcomes POs) with Courses

Elective 1															
Code	Course name	Competencies													
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4
CIE415A	Bridge Engineering														
CIE415B	Coastal Engineering Fundamentals														
CIE415C	Concrete Structures Technology														
CIE415D	Construction Contraction														
CIE415E	Coast Analysis for Structure Projects														
CIE415F	Highway Materials and Construction														
CIE415G	Modern Structure Materials														
CIE415H	Planning of buildings Maintenance and Protection														
CIE415I	Reliability of Structures														
CIE415J	Environmental Pollution Control														

Elective 2															
Code	Course name	Competencies													
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4
CIE416A	Design of Earthquake Structures														
CIE416B	Design of Marine Platforms														
CIE416C	Design of Shell Structures														
CIE416D	Engineering Project Evaluation														
CIE416E	Fiber Reinforced Cement Composites														
CIE416F	Project Decision Analysis														
CIE416G	Project Financial Management														
CIE416H	Risk Management and Constructions Safety														
CIE416I	Air conditioning Systems for Building														
CIE416J	Construction Estimating and Tendering														

Elective 3															
Code	Course name	Competencies													
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4
CIE424A	Groundwater Hydraulics														
CIE424B	Pavement Design														
CIE424C	Pre-Fabricated Concrete Frames														
CIE424D	Project Management2														
CIE424E	Project Visibility Study														
CIE424F	Urban Transportation Planning														
CIE424G	Special Concrete Structures 1														
CIE424H	Foundation Engineering 2														
CIE424I	Productivity Enhancement Methods														
CIE424J	Quality Assurance														

Elective 4															
Code	Course name	Competencies													
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4
CIE425A	River Engineering														
CIE425B	Hydraulics Engineering														
CIE425C	Traffic Control Systems														
CIE425D	Tunneling and Underground Excavation														
CIE425E	Special Concrete Structures 2														
CIE425F	Railway Engineering														
CIE425G	Reinforced Concrete 5														
CIE425H	Design of lighting Systems for buildings														
CIE425I	Soil Dynamics														
CIE425J	Introduction to Earthquake Engineering														

6. Teaching and Learning strategies/methods to achieve Program Outcomes:

- 1. Face-to-Face Lecture**
- 2. Flipped Classroom**
- 3. Discussion**
- 4. Problem solving**
- 5. Brainstorming**
- 6. Projects**
- 7. Site visits**
- 8. Self-learning and Research**
- 9. Cooperative**
- 10. Discovering**
- 11. Practical.**

7. Student Assessment strategies/methods to verify and ensure students' acquisition of Program Outcomes:

1	Periodic – Exams	Mid Term Examination (written)
2		Formative (Quizzes- online quizzes- assignments-presentation – reports- Project ,..)
3	Oral Examination	
4	Practical Examination	
6	Final Term Examination (written)	

- Assessment procedures supervised by an Examination Committee each semester.
- The committee ensures: Exams align with course learning outcomes (CLOs) and Bloom's taxonomy (cognitive levels). Fair, balanced coverage of topics through detailed exam blueprints.
- Model answers and rubrics are created to ensure consistent, objective grading.
- Passing requirements: Minimum 50% overall grade and 30% of written exam.

- These measures ensure transparency, fairness, and compliance with NAQAAE quality standards

8. Program Key Performance Indicators (if any)

No.	Performance Indicator	Target Level	Method	Measurement
1.	Percentage of students achieving the program learning outcomes.	$\geq 80\%$	Course reports + exam analysis At end of the semester	Percentage of students scoring “acceptable” or
2.	Student satisfaction rate with the quality of the program.	$\geq 80\%$	Questionnaires At end of the semester	Analyzed results of student satisfaction surveys approved by the Quality Assurance Unit
3.	Graduation rate within the minimum study duration (5 years).	$\geq 75\%$	Student academic records	Number of students graduating on time $\div$ total number of students in the cohort $\times 100$
4.	Labor market representatives (Employers)	$\geq 85\%$	Questionnaire at the end of the second semester (Jully 2026)	Analyzed results of Labor market representatives (Employers) by the Quality Assurance Unit
5.	Fresh Graduates	$\geq 85\%$	Questionnaire in May 2026	Analyzed results of Fresh Graduates Questionnaire by the Quality Assurance Unit.
6.	Teaching Staff	$\geq 85\%$	Questionnaire at the end of the second semester (Jully 2026)	Analyzed results of Teaching Staff Questionnaire by

No.	Performance Indicator	Target Level	Method	Measurement
				the Quality Assurance Unit.
7.	Final Year Students	$\geq 85\%$	Questionnaire at the end of the second semester (June 2026)	Analyzed results of Final Year Students by the Quality Assurance Unit.
8.	Community service	$\geq 85\%$	Questionnaire in July 2026	Analyzed results of Community service by the Quality Assurance Unit.

Name & Signature
Assoc. Prof. Dr. Mohamed Gabr

Name & Signature
Vice Dean for Education and Student Affairs



وزارة التعليم العالي

المعهد العالي للهندسة والتكنولوجيا

بدمياط الجديدة

2025- 2026



Civil Engineering Course Specifications (الفصول الدراسية)



وحدة ضمان الجودة



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة

الفرقة اعدادى

الفصل الدراسي الأول

Course Specification

2025-2026

1. Basic Information

Course Title:	Mathematics 1				
Course Code:	BAS011				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of points of the course	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology-New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. Reda Abdo				
Course Specification Approval Date	26-7-2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29-7-2025				

2. Course Overview

Algebra: vectors algebra - partial fractions - equations theory - vectors - mathematical deduction - numerical solutions methods (simple repetitive method - Newton and modified Newton's method intersection method - False position method - arrays - linear equations systems - Gauss Jordan method for deletion.

Derivation : function (definition - theories) - basic trigonometric functions and its inverse - exponential and logarithmic functions - hyperbolic functions and its inverse - connection (definition - theories) - limits (definition - theories) - derivatives (definition - theories - higher order types) - curves drawing -mathematical and engineering derivative applications - undefined formulas -

Taylor expansion - Maclurin expansion - approximation - introduction in partial derivation.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic sciences, and mathematics	1	Explain the basic principles of engineering.
		2	Apply engineering basics that are relevant to the subject.
		3	Formulate complex engineering problems by applying engineering fundamentals

4. Teaching and Learning Methods

- 1- Face to Face lectures.
- 2- Discussion
- 3- Problem solving

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student Load (Self learning)
1	Algebra Vectors algebra Partial fractions Equations theory Mathematical deduction	8	2	2	-	4
2	Numerical Methods (1) Simple iterative method Newton's method & Modified Newton's method Intersection method False position method Numerical Methods (2) Intersection method False position method	8	2	2	-	4
3	Linear Algebra Arrays	8	2	2	-	4
4	Arrays Linear equation systems	8	2	2	-	4
5	Gauss-Jordan elimination	8	2	2	-	4
6	Functions & Limits Definition and fundamental theories Trigonometric functions and their inverses	8	2	2	-	4
7	Exponential and logarithmic functions Hyperbolic functions and their inverses	8	2	2	-	4
8	Limits and continuity Midterm Exam	8	2	2	-	4
9	derivatives (definition - theories - higher order types)	8	2	2	-	4
10	curves drawing - mathematical and engineering derivative applications	8	2	2	-	4
11	undefined formulas	8	2	2	-	4
12	Taylor expansion	8	2	2	-	4

13	Maclaurin expansion - approximation.	8	2	2	-	4
14	introduction in partial derivation.	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (mid term, assignments, quiz, sheets , presentations)	Midterm 8 th and others in any week	60	40%
2	Final Written Exam	15 th	90	60%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	1- Silverman, J. H. (2022). Abstract algebra: an integrated approach (Vol. 55). American Mathematical Society.
	Other references	2- Nambeesan, S. (2025). Essentials of Abstract Algebra. Educohack Press. 3- Verma, C. (2025). Multivariate Calculus and Geometry Concepts. Educohack Press.
	Learning Platforms (Links must be added)	Moodle 3.217.6.68
Supportive facilities & equipment for teaching	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room
	Skill Labs/ Simulators	-



and learning *		

Name and Signature
Course Coordinator
Dr Reda Abdo

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title :	Mechanics 1				
Course Code:	BAS012				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of points of the course	Lectures	Tutorial 1	Practical	Total contact hours	Student' s Load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology-New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. Moataz Mostafa				
Course Specification Approval Date	26-7-2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29-7-2025				

2. Course Overview

Applications of space vectors - results of group of Forces - momentums - equivalent couples equivalent groups - equations of equilibrium for rigid bodies - Supports and pivots types - equilibrium under the effect of forces and the space couples - center of mass (groups of particles - flat surfaces) – moment of inertia (mean axes- equal surfaces).

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Define concepts and theories of space vectors, momentums, equivalent couples, and equation of equilibrium for rigid body.
		2	Identify methodologies of solving equilibrium under the effect of forces.
		3	Solve engineering problems, such as finding the center of mass (group of particles – flat surfaces).

4. Teaching and Learning Methods

1. Face to Face lectures.
2. Discussion
4. Problem solving
5. Brain storming

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load (Self learning)
1	Introduction to statics. Fundamental concept Basic quantities of unit dimension- System of units Space, Trigonometry and U.S. Customary units, Force. Statics of particle, Statics of Rigid Body, Free body diagrams. Types of forces, Types of system of forces	8	2	2	-	4
2	Statics of particles Forces on a particle, Addition of vectors, Resultant of several concurrent forces.	8	2	2	-	4
3	Resolution of a forces into components Rectangular components of a forces, (unit vectors). Addition of forces by summing X and Y components. Equilibrium of a particle, and Newton's first law of motion.	8	2	2	-	4
4	Problem involving the equilibrium of a practice- free body diagram. Rectangular components of a forces in space, force defined	8	2	2	-	4

	by its magnitude and two points on its line of action. Addition of concurrent forces in space, equilibrium of a particle in space.					
5	Rigid bodies: equivalent systems of forces. External and internal forces, principle of transmissibility and equivalent forces, vector product of two vectors, vector product expressed in terms of rectangular components	8	2	2	-	4
6	Moment of a force about a point. Varignon's theorem, rectangular components of the moment of a force, equivalent systems of forces.	8	2	2	-	4
7	Moment of a force about a point. Varignon's theorem, rectangular components of the moment of a force, equivalent systems of forces.	8	2	2	-	4
8	Equilibrium of rigid bodies Free- body diagram. Equilibrium of a rigid body in two dimensions. Midterm Exam	8	2	2	-	4
9	Equilibrium of three-dimension force body. Reduction of a system of forces to one force and one couple. Equilibrium of a rigid body in three dimensions. Reactions at supports and connections for a two-dimensional and for a three-dimensional structure.	8	2	2	-	4
10	Equilibrium of three-dimension force body.	8	2	2	-	4

	Reduction of a system of forces to one force and one couple. Equilibrium of a rigid body in three dimensions. Reactions at supports and connections for a two-dimensional and for a three-dimensional structure.					
11	Centroids and centers of gravity. Centre of gravity of a two-dimensional body, centroids of area and lines, first moments of areas and lines, composite plates and wires.	8	2	2	-	4
12	Centroids and centers of gravity. Centre of gravity of a two-dimensional body, centroids of area and lines, first moments of areas and lines, composite plates and wires.	8	2	2	-	4
13	Analysis of structures Definition of truss Simple trusses Analysis of trusses by the method of joints	8	2	2	-	4
14	Analysis of structures Definition of truss Simple trusses Analysis of trusses by the method of joints	8	2	2	-	4
15	Final Term Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic Exams	4 th	10	10%
2	Midterm Exam	8 th	10	10%
3	Assignments, quiz, sheets	Any week	20	20%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	1- Hibbeler, R. C. (2021). Engineering Mechanics: Statics (15th ed.). Pearson.
	Other References	2- Osgood, Libby, Cameron Gayla, and Emma Christensen. "Engineering Mechanics: Statics." (2023). 3- J.L. Meriam and L.G. Kraige "Engineering Mechanics: Statics" 8th edition, Wiley, 2023.
	Learning Platforms (Links must be added)	MOODLE 3.217.6.68
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
Dr. Moataz Mostafa

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr

Course Specification

2025-2026

1. Basic Information

Course Title :	Physics1				
Course Code:	BAS013				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of points of the course	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	2	2	6	4
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology- New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Ass. Prof. Dr Amal Behairy Dr. Ahmed Lotfy				
Course Specification Approval Date	26-7-2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29-7-2025				

2. Course Overview (Brief summary of scientific content)

Material properties - Physical quantities - Standard units and dimensions -frequency motion, mechanical properties for materials - fluid properties - viscosity - surface tension - sound waves - waves in elastic media.

Heat and thermodynamics: heat transfer - Gas motion theory - First law of thermodynamics - entropy and second law of thermodynamics – temperature measurements and thermometers.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Explain concepts and theories of mathematics for physical quantities, unit's dimensional analysis and basics of thermodynamics.
		2	Recognize methodologies of solving problems for stress-strain diagram, and fluids study.
		3	Select the appropriate solutions for properties of materials through Brittle and Ductile material.

4. Teaching and Learning Methods

- 1- Face to Face lectures.
- 2- Discussion
- 3- Problem solving
- 4- Practical

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load (Self learning)
1	Physics and Measurement Practical: measurement methods	10	2	2	2	4
2	Physics and Measurement (continue) Practical: measurement methods	10	2	2	2	4
3	Mechanical properties for materials Practical: Hooks' Law	10	2	2	2	4
4	Mechanical properties for materials (continue) Practical: Hooks' Law	10	2	2	2	4
5	Oscillations Practical: simple pendulum.	10	2	2	2	4
6	Oscillations (continue) Practical: simple pendulum.	10	2	2	2	4
7	Sounds. Practical: Resonance in the Air columns	10	2	2	2	4
8	Fluid Mechanics. Practical: Viscosity. Midterm Exam	10	2	2	2	4
9	Fluid Mechanics (continue) Practical: Viscosity.	10	2	2	2	4
10	Heat transfer Practical: Heat & Specific Heat & thermoelectrical equivalent & the latent heat of melting ice.	10	2	2	2	4
11	The kinetic theory of gases and the work in thermodynamics	10	2	2	2	4

	Practical: melting point of solid materials.					
12	First laws of thermodynamic Practical: heating and cooling curves	10	2	2	2	4
13	Second and third laws of thermodynamic Practical: heating and cooling curves	10	2	2	2	4
14	Temperature and thermal expansion Practical: Practical Exam	10	2	2	2	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm, assignments, quizzes, sheets, and presentations)	Midterm 8 th week and others in any week	60	40%
2	Practical	14 th	15	10%
3	Final written exam	15 th	75	50%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	1- Serway, Raymond A., and John W. Jewett. Physics for scientists and engineers. Cengage learning, 2018.
	Other References	1- Marikani, A. Engineering Physics. PHI Learning Pvt. Ltd., 2024. 2- Peter J. Williams ; Firas Mansour ; Robert L. Hawkes ; (Nuclear physicist) Javed Iqbal ; Marina Milner-Bolotin. Physics for scientists and engineers : an interactive approach, Nelson Education Ltd., Year: 2019

		3- David Halliday, Robert Resnick, Jearl Walker. Fundamentals of Physics, 9th Edition, Binder Ready Version, 2019 4- Hibbeler, Russell C. "Mechanics of materials." (2018).
	Learning Platforms (Links must be added)	Moodle 3.217.6.68
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room
	Skill Labs/ Simulators	Physics lab

Name and Signature
Course Coordinator
Ass. Prof. Dr Amal Beheiry
Dr. Ahmed Lotfy

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr

Course Specification

2025-2026

1. Basic Information

Course Title :	Engineering chemistry				
Course Code:	BAS014				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of points of the course	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	-	2	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology- New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Prof. Dr Khaled Samir Mohamed				
Course Specification Approval Date	26-7-2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29-7-2025				

2. Course Overview (Brief summary of scientific content)

Gaseous status - substantial and heat balance in fuel burning operations and chemical operations - properties of solutions - dynamic balance in physical and chemical operations - kinetic chemical interactions - electric chemistry - introduction to chemical corrosion - water processing - building materials - pollution and its treatment

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals and basic science.	1	Explain the essential chemical principles and theories related to physical, chemical, and industrial processes
		2	Identify the appropriate chemical engineering concepts and their applications in areas like fuel combustion, solution properties, and material processing.
		3	Solve practical problems in chemical engineering by applying scientific methods and chemical fundamentals.
A10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies	1	Acquire chemical engineering principles to professionally integrate, analyze, and apply feedback for improving designs and products across various chemical engineering industries

4. Teaching and Learning Methods

- 1- Face to Face lectures.
 - 2- discussion
 2. Problem solving
 3. Flipped Classroom
 4. Practical
-

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student Load (Self learning)
1	Gaseous status. Practical: Chemistry Laboratory Equipment, Titrimetric Analysis	8	2	-	2	4
2	Gaseous status. Practical: Chemistry Laboratory Equipment, Titrimetric Analysis	8	2	-	2	4
3	Chemical thermodynamics. Practical: Preparation of standard solution of Na_2CO_3 (0.1N), Determination of normality of HCl by using standard solution of oxalic acid.	8	2	-	2	4
4	Chemical thermodynamics. Practical: Preparation of standard solution of Na_2CO_3 (0.1N), Determination of normality of HCl by using standard solution of oxalic acid.	8	2	-	2	4
5	Properties of solutions. Practical: Determination of normality of acetic acid by using standard solution of sodium hydroxide, Determination of normality of sodium carbonate by using standard solution of HCl.	8	2	-	2	4
6	Properties of solutions. Practical: Determination of normality of acetic acid by using	8	2	-	2	4

	standard solution of sodium hydroxide, Determination of normality of sodium carbonate by using standard solution of HCl. Midterm Exam					
7	Material balance in combustion processes. Practical: Standardization of potassium permanganate with oxalic acid.	8	2	-	2	4
8	Dynamic balance in physical and chemical operations. Practical: Determination of nitrites, precipitation titrations.	8	2	-	2	4
9	Dynamic balance in physical and chemical operations. Practical: Determination of nitrites, precipitation titrations.	8	2	-	2	4
10	Kinetic chemical interactions. Practical: Preparation of 0.05N of sodium chloride.	8	2	-	2	4
11	Electrochemistry, corrosion and corrosion control. Practical: Determination of chloride ion by using Mohr method.	8	2	-	2	4
12	Fertilizers. Practical: Determining Molecule Weight by Freezing Point Depression Method.	8	2	-	2	4
13	Manufacturing and chemistry of Cement Practical: determination of water hardness by complex metric titration .	8	2	-	2	4
14	Water processes. Practical: Practical Exam	8	2	-	2	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work)	4 th	10	8%
2	Exam 2 (Midterm Exam)	8 th	10	8%
3	Final Written Exam	15 th	60	48%
4	Final Practical/Exam	14 th	15	12%
5	Final Oral Exam	-		
6	Assignments, quiz, sheets	Any week	30	24%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	1- Jason Overby and Raymond Chang "Chemistry" McGraw-Hill Education, 15th edition, 2024.
	Other References	2- Lawrence S. Brown and Tom Holme "CHEMISTRY FOR ENGINEERING STUDENTS" Cengage Learning; 4 th edition, 2018. 3- Peter Atkins , Julio de Paula, James Keeler " Atkins' Physical Chemistry 11ed" Oxford University Press; 11 th edition (2018)
	Learning Platforms	MOODLe 3.217.6.68
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room
	Skill Labs/ Simulators	Chemistry lab

Name and Signature
Course Coordinator
Prof. Dr Khaled Samir
Mohammed

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr

Course Specification

2025-2026

1. Basic Information

Course Title :	Engineering Drawing and Projection				
Course Code:	BAS015				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of points of the course	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	1	2	2	5	4
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology- New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Prof. Dr Moataz Mostafa				
Course Specification Approval Date	26-7-2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29-7-2025				

2. Course Overview (Brief summary of scientific content)

Techniques and skills of engineering drawing - engineering operations - orthogonal projection - secondary orthogonal - solid bodies – intersections (cutters for solid bodies - intersections of surfaces) - personals - projections of simple bodies - rules of writing dimensions - drawing of perspectives – deduction of missing projections - drawing of engineering sections.

Drawing of the steel frames - binding and fixing devices - the assembled drawing for some mechanical steel components

Introduction to AutoCAD Fundamentals of engineering drafting by way of computer aided drawing (CAD) software. Basic features and capabilities of CAD software and drafting fundamentals including orthographic projection, and isometric pictorials, part dimensioning in 2 dimensional drawings.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals and basic science.	1	Explain the basic principles of engineering drawing.
		2	Discuss the fundamental scientific principles and theories that underpin the topic
		1	Use scientific concepts and tools that are relevant to the profession.
A10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies	1	Apply engineering drawing basics that are relevant to the subject.

4. Teaching and Learning Methods

- 1- Face to Face lectures.
- 2- Discussion
- 3- Problem solving

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student Load (Self learning)
1	Techniques and skills of engineering drawing Practical: Basics of engineering drawing	9	1	2	2	4
2	Engineering operations Practical: Basics of engineering drawing	9	1	2	2	4
3	Orthogonal projection – secondary orthogonal Practical: Drawing of orthogonal projection and secondary orthogonal	9	1	2	2	4
4	Solid bodies – intersections (cutters for solid bodies – intersections of surfaces) Practical: intersections of surfaces	9	1	2	2	4
5	Solid bodies – intersections (cutters for solid bodies – intersections of surfaces) (continue) Practical: intersections of surfaces	9	1	2	2	4
6	Personals – projections of simple bodies Practical: projections of simple bodies	9	1	2	2	4
7	Personals – projections of simple bodies (continue)	9	1	2	2	4

	Practical: projections of simple bodies					
8	Rules of writing dimensions – drawing of perspectives Practical: Drawing of perspectives Midterm Exam	18	2	4	4	8
9	Rules of writing dimensions – drawing of perspectives (continue) Practical: Drawing of perspectives	9	1	2	2	4
10	Deduction of missing projections – drawing of engineering sections. Practical: Drawing of engineering sections.	9	1	2	2	4
11	Deduction of missing projections – drawing of engineering sections. (continue) Practical: Drawing of engineering sections.	9	1	2	2	4
12	Drawing of the steel frames - binding and fixing devices - the assembled drawing for some mechanical steel components. Practical: Drawing of steal frames and some mechanical steel components	9	1	2	2	4
13	Drawing of the steel frames - binding and fixing devices - the assembled drawing for some mechanical steel components. (continue) Practical: Drawing of steal frames and some mechanical steel components	9	1	2	2	4

14	Introduction to AutoCAD Fundamentals of engineering drafting by way of computer aided drawing (CAD) software. Basic features and capabilities of CAD software and drafting fundamentals including orthographic projection, and isometric pictorials, part dimensioning in 2 dimensional drawings. Practical: AutoCAD	9	1	2	2	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm, quizzes, and sheets)	Midterm (8 th) and others in any week	50	40%
2	Final Practical Exam	15 th	75	60%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	1- "Engineering Graphics Essentials with AutoCAD 2023 Instruction" by Kirstie Plantenberg
		1- K. V. NATARAJAN "ENGINEERING GRAPHICS Paperback" DHANALAKSHMI PUBLISHERS (2018) 2- Lakhwinder Pal Singh, Harwinder Singh "Engineering Drawing: Principles and Applications" Cambridge University Press; First edition (2019)

	Learning Platforms (Links must be added)	MOODLE 3.217.6.68
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room
	Skill Labs/ Simulators	Drawing lab

Name and Signature
Course Coordinator
Dr. Moataz Mostafa

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr

Course Specification

2025-2026

1. Basic Information

Course Title	Introductions to Computer Systems				
Course Code	BAS016				
Department participating in delivery of the course	Basic Science and Engineering				
Number of points of the course	Lectures	Tutorial	Practical	Total contact hours	Student loads
	2	-	2	4	3
Course Type	Compulsory				
Academic level at which the course is taught	0 level				
Academic Program	Basic Science and Engineering				
Faculty/Institute	High institute For Engineering & Technology in new Dementia				
University/Academy	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Amira Elsonbaty				
Course Specification Approval Date	26-7-2025				
Course Specification Approval	29-7-2025				

2. Course Overview

This course covers **computer architecture**, exploring hardware components and system design. Students learn about **computer and file systems**, including storage and OS management. **Networks and internet technologies** introduce protocols and cloud services. **Database systems** teach data organization and SQL. **Graphics and multimedia** focus on rendering and compression. **Problem-solving methods** develop algorithmic thinking, while **logical design** covers programming structures and matrices. The course applies **structured/visual programming** (e.g., C++) to solve engineering problems, integrating theory with practical IT solutions.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.	1	Define contemporary engineering technologies and their applications in relation to disciplines
		2	Utilize modern technologies.
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	1	Communicate effectively.
		2	Demonstrate efficient IT capabilities.

4. Teaching and Learning Methods

- 1- Face-to-Face
- 2- Flipped Classroom
- 3- Discussions & Brain storming
- 4- Practical

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student Load (Self learning)
1	Introduction to Computer Architecture Overview of computer systems: CPU, memory, I/O devices. Von Neumann vs. Harvard architectures. Performance metrics (clock speed, throughput, latency). Practical: Visual Studio C# Interface Writing simple statements- Variables, Data type	7	2	-	2	3
2	Operating Systems & File Systems Roles of an OS (process management, memory allocation). File systems (FAT, NTFS, ext4) and storage hierarchies. Practical: Input & Output	7	2	-	2	3
3	Computer Networks Basics Network types (LAN, WAN, PAN) and topologies. TCP/IP model and OSI layers. Practical: Conditional Statements (1)	7	2	-	2	3
4	Internet Technologies How the internet works (DNS, HTTP/HTTPS, routers). Cloud computing and web services overview. Practical: Conditional Statements (2)	7	2	-	2	3
5	Database Systems Relational databases (SQL) vs. NoSQL. DBMS functionalities (ACID properties, indexing). Practical: Arrays(1)	7	2	-	2	3

6	Computer Graphics Fundamentals 2D/3D graphics rendering pipelines. Applications in gaming, simulation, and VR. Practical: Arrays(2)	7	2	-	2	3
7	Multimedia Systems Data compression (JPEG, MPEG). Audio/video processing techniques. Practical: Loop Statement (1) (For)	7	2	-	2	3
8	Problem-Solving Methodologies Algorithm design (pseudocode, flowcharts). Computational thinking for engineering problems. Practical: Loop Statement (2) (For) Midterm Exam	7	2	-	2	3
9	Logical Program Design Software design paradigms (OOP, modular programming). UML diagrams (use case, class diagrams). Practical: Nested loop	7	2	-	2	3
10	Matrices in Computing Matrix operations for engineering applications. Solving linear systems numerically. Practical: Loop Statement (while)	7	2	-	2	3
11	IT Applications in Engineering Case studies: CAD, simulation tools, IoT. Role of IT in automation and Industry 4.0. Practical: Loop Statement (do -while)	7	2	-	2	3
12	Integrated Systems Review Cross-topic case study (e.g.,	7	2	-	2	3

	smart cities, embedded systems). Ethics in computing and cybersecurity awareness. Practical: development the mini_projects					
13	Emerging Trends in Computer Engineering Hot Topics: AI/ML, blockchain, quantum computing. Future Directions: Edge computing, 6G networks, bioinformatics. Practical: Projects & Case Study.(1)	7	2	-	2	3
14	Visual Programming Concepts GUI-based development (event-driven programming). Tools like Qt or MATLAB for prototyping. Practical: Practical Exam	7	2	-	2	3
15	FINAL WRITING EXAM					

5. Methods of students' assessment

No.	Assessment Methods *		Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams	Midterm	8 th	20	40%
		Quizzes - Short Tests- Assignments	any week	20	
2	Final Practical Exam (if any)		14	10	10%
3	Final Written Exam		15	50	50%

6. Learning Resources and Supportive Facilities *

Learning resources (Books, Scientific references, etc.) *	The main (essential) reference for the course	C. Mayfield, Computer Science Principles: The Foundational Concepts of Computer Science, 5th ed., USA: CodeHS, 2024
	Other References	L. Czaja, Introduction to Distributed Computer Systems: Principles and Features, Springer, 2023. W. Stallings, Computer Architecture 2023, Pearson, 2023. J. F. Kurose and K. W. Ross, Computer Networks, Pearson, 2023
	Learning Platforms (Links must be added)	Moodle 3.217.6.68 http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom
	Electronic Programs	Visual studio
	Skill Labs/ Simulators	Computer_ lab

**Name and Signature
Course Coordinator
Dr.Amira Elsonbaty**

**Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr**



وحدة ضمان الجودة



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة

الفرقة اعدادى

الفصل الدراسي الثاني

Course Specification

2025-2026

1. Basic Information

Course Title :	Mathematics 2				
Course Code:	BAS021				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of points of the course	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology- New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr Reda Abdo				
Course Specification Approval Date	26-7-2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29-7-2025				

2. Course Overview

Analytical geometry:

equations of second degree and double equation for two straight lines - movement and rotation of axes - groups of unified axes circles - conical sectors (properties of conical sectors - parabola - ellipse - hyperbola) - analytical geometry in space - Cartesian coordinates - cylindrical - spherical - plane in space - equations of surfaces in second order - rotation and movement of axes in space.

Integration:

indefinite integration (basic functions - theories) - method of integration (direct - indirect) - definite integration (definition - properties - theories) - applications of definite integration (plain areas - circular volumes - plain technical length) - areas - circular surfaces - numerical integration.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Identify complex engineering problems by applying the concepts and the theories of sciences, appropriate to the discipline
		2	Apply engineering basics that are relevant to the subject.
A5	Practice analytical thinking and investigation techniques to explore and solve engineering problems	1	Assess different ideas, views, and knowledge from a range of sources.
		2	Search for information to engage in lifelong self-learning discipline..

4. Teaching and Learning Methods

- 1- Face to Face lectures.
- 2- Discussion
- 3- Problem solving

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student Load (Self-learning)
1	Equations of second degree and double equation for two straight lines	8	2	2	-	4
2	Movement and rotation of axes - groups of unified axes circles	8	2	2	-	4
3	Conical sectors (properties of conical sectors - parabola	8	2	2	-	4
4	Ellipse	8	2	2	-	4
5	Hyperbola	8	2	2	-	4
6	Analytical geometry in space - Cartesian coordinates - cylindrical -	8	2	2	-	4
7	Spherical - plane in space	8	2	2	-	4
8	Equations of surfaces in second order - rotation and movement of axes in space Midterm Exam	8	2	2	-	4
9	Indefinite integration (basic functions - theories)	8	2	2	-	4
10	Method of integration (direct - indirect)	8	2	2	-	4
11	Definite integration (definition - properties - theories)	8	2	2	-	4
12	Applications of definite integration (plain areas - circular volumes - plain technical length)	8	2	2	-	4
13	Areas	8	2	2	-	4

14	circular surfaces - numerical integration.	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (mid term, assignments, quiz, sheets , presentations)	Midterm 8 th and others in any week	60	40%
2	Final Written Exam	15 th	90	60%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	1- Williamson, B. (2023). An elementary treatise on the integral calculus. BoD–Books on Demand..
	Other references	2- Robbin, J. W., & Salamon, D. A. (2022). Introduction to differential geometry. Springer Nature. 3- Liang, C., & Zhou, B. (2023). Differential Geometry and General Relativity: Volume 1. Springer Nature.
	Learning Platforms (Links must be added)	Moodle 3.217.6.68
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
Dr Reda Abdo

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr

Course Specification

2025-2026

1. Basic Information

Course Title :	Mechanics 2				
Course Code:	BAS022				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of points of the course	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology-New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. Moataz Mostafa				
Course Specification Approval Date	26-7-2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29-7-2025				

2. Course Overview

Position, displacement, velocity, and acceleration of particle - plane motion path of particle - description of plane motion using Cartesian axes - projectiles - tied motion for particle in straight path - motion in fixed axes - motion in polar axes - relative motion between particles - tied motion for particle in circular path - principle of work and energy of motion - principle of conservation of mechanical energy - principle of impulse and momentum of rigid body.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Define position, velocity and acceleration of particles and principles of conservation of mechanical energy
		2	Recognize methodologies of solving engineering problems including principles of work and energy
		3	Solve engineering problems to determine the velocity and position of projectile
		4	Apply knowledge of principle of work and principle of work and energy of motion and principle of conservation of mechanical energy and momentum of rigid body.

4. Teaching and Learning Methods

- 1- Face to Face lectures.
 2. Flipped Classroom
 3. Discussion
 4. Problem solving
 5. Brain storming
-

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load (self learning)
1	Position, displacement, velocity, and acceleration of particle	8	2	2	-	4
2	Position, displacement, velocity, and acceleration of particle	8	2	2	-	4
3	plane motion path of particle – description of plane motion using Cartesian axes	8	2	2	-	4
4	projectiles – tied motion for particle in straight path	8	2	2	-	4
5	projectiles – tied motion for particle in straight path	8	2	2	-	4
6	motion in fixed axes -motion in polar axes	8	2	2	-	4
7	motion in fixed axes -motion in polar axes	8	2	2	-	4
8	relative motion between particles Midterm Exam	8	2	2	-	4
9	relative motion between particles	8	2	2	-	4
10	tied motion for particle in circular path	8	2	2	-	4
11	tied motion for particle in circular path	8	2	2	-	4
12	principle of work and energy of motion– principle of conservation of mechanical energy	8	2	2	-	4
13	principle of work and energy of motion– principle of conservation of mechanical energy	8	2	2	-	4
14	Principle of impulse and momentum of rigid body.	8	2	2	-	4
15	Final Term Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Midterm Exam	8 th	20	20%
2	Assignments, quiz, sheets	Any week	20	20%
3	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Hibbeler, R. C. – Engineering Mechanics: Statics & Dynamics, 15th Edition (2022), Pearson.
	Other References	1- C. Hibbeler, Russell "Engineering Mechanics: Dynamics in SI Units, Global Edition" 15th edition, P&C ECS; 15th edition 2019).
	Learning Platforms (Links must be added)	MOODLE 3.217.6.68
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, wireless internet
	Supplies	White board, lecture class room
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
Dr. Moataz Mostafa

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr

Course Specification

2025-2026

1. Basic Information

Course Title :	Physics 2				
Course Code:	BAS023				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of points of the course	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	2	2	6	4
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology-New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinators	Assoc. prof. Amal Behairy, Dr. Ahmed Lotfy				
Course Specification Approval Date	26-7-2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29-7-2025				

2. Course Overview

This course covers essential concepts in electricity, magnetism, optics, and modern physics. It begins with the basics of electricity and explores how electrical conductivity is measured using various devices. Fundamental laws such as Coulomb's law and Gauss's law help explain electric forces and fields. Capacitors and capacitance are introduced along with practical experiments to show how they store electrical energy. The study of electric current and resistance includes Ohm's law and how components behave in series and parallel circuits, with practical work involving resistance color codes and meter bridges. Magnetic fields and forces are discussed, including the inverse square law in magnetism. In optics, the nature and behavior of light are explored using glass prisms and optical fibers. The course also introduces quantum theory and lasers, highlighting their importance in modern technology. Finally, lenses and mirrors are examined, with practical use of a spherometer to measure their curvature and understand image formation.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Define concepts and theories of physics necessary for engineering system analysis.
		2	Study solving engineering problems including Einstein's quantum hypothesis, laws of reflection and refraction, interference and diffraction
		3	Define measurement devices in electrical conductivity, basic characteristics, and properties
		4	Select the appropriate solutions for engineering problems including Newton's Rings and design of optical fibers.

4. Teaching and Learning Methods

- 1- Face to Face lectures.
 - 2- Discussion
 - 3- Problem solving
 - 4- Practical
-

5. Course Schedule

No. Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load (self learning)
1	Basic of electricity. Practical: measurement devices in electrical conductivity.	10	2	2	2	4
2	Column's law and Gauss's law. Practical: sensitivity of galvanometer.	10	2	2	2	4
3	Column's law and Gauss's law. Practical: sensitivity of galvanometer	10	2	2	2	4
4	Capacitors and capacitance. Practical: capacitors and capacitance	10	2	2	2	4
5	Currents and Resistance. Practical: ohm's law - series connection & parallel connection & resistance colour code & meter bridge - voltmeter resistance.	10	2	2	2	4
6	Currents and Resistance. Practical: ohm's law - series connection & parallel connection & resistance colour code & meter bridge - voltmeter resistance.	10	2	2	2	4
7	Magnetic field and magnetic force. Practical: the inverse square law in magnetism.	10	2	2	2	4
8	Magnetic field and magnetic force. Practical: the inverse square law in magnetism. Midterm Exam	10	2	2	2	4
9	The nature and propagation of light. Practical: the glass prism.	10	2	2	2	4
10	The nature and propagation of light. Practical: the glass prism.	10	2	2	2	4
11	Optical fiber. Practical: the glass prism.	10	2	2	2	4
12	Introduction to Quantum theory Practical: Spherometer.	10	2	2	2	4
13	Laser.	10	2	2	2	4

No. Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load (self learning)
	Practical: Revision.					
14	Lenses and mirrors. Practical: Practical Exam	10	2	2	2	4
15	Final Exam					

6. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (mid term, assignments, quiz, sheets , presentations)	Midterm in 8 th week and others in any week	60	40%
2	Final Practical/Exam	14 th	15	10%
3	Final Written Exam	15 th	75	50%

7. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	1- Serway, Raymond A., John W. Jewett, and Vahé Perroomian. Physics for scientists and engineers. Vol. 2. Fort Worth, TX: Saunders college publishing, 2000.
	Other References	1- Marikani, A. Engineering Physics. PHI Learning Pvt. Ltd., 2024. 2- Shankar, Ramamurti. "Electromagnetism, optics, and quantum mechanics." ,(2020). 3- Hawkes, Robert L., et al. Physics for scientists and engineers: An interactive approach. Nelson, 2019. 4- Halliday, David, Robert Resnick, and Jearl Walker. Fundamentals of Physics, Volume 1. John Wiley & Sons, 2017.
	Learning Platforms (Links must be added)	Moodle 3.217.6.68

Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room
	Skill Labs/ Simulators	Physics Lab

Name and Signature
Course Coordinator
 Assoc. prof. Amal Behairy,
 Dr. Ahmed Lotfy

Name and Signature
Program Coordinator
 Assoc. Prof. Mohamed Gabr

Course Specification

2025-2026

1. Basic Information

Course Title	Production Engineering				
Course Code	BAS024				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	3	-	2	5	4
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology - Nem Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. /Motaz Mostafa				
Course Specification Approval Date	26-7-2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29-7-2025				

2. Course Overview

This course covers the study of various engineering materials and their properties, focusing on their physical and chemical characteristics and their impact on industrial applications. Students will explore heating and cooling diagrams, learning how temperature affects material properties during manufacturing processes. The production of iron and steel will be examined, from raw materials to finished products, along with equilibrium diagrams to understand the thermal behavior of metals. Alloys and casting operations are studied, with practical experience in sand casting and mold preparation. The course also covers metal forming processes, including cold and hot forming techniques such as forging, rolling, wire drawing, blanking, piercing, deep drawing, and extrusion. Additionally, students will learn metal joining processes such as riveting, welding, and sticking. Cutting and machining techniques including lathe operations, shaping, drilling, milling, grinding, and workpiece fixation are also explored. The course emphasizes practical applications through workshops that teach the use of various measuring tools like vernier calipers and micrometers. Through hands-on practical sessions, students gain a comprehensive understanding of metalworking, measurement, and fabrication processes essential for modern engineering applications.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Explain the basic principles of production engineering.
		2	List the characteristics of engineering materials related to production engineering.
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	. Define, basic characteristics, properties, concepts, and techniques of products of modern tools, systems and procedure, to make the engineering process more balanced costs, benefits, safety, quality and reliability and environmental impact.
		2	Conduct basic experiments to learn about the applications of engineering production, properties and strength of materials

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.	1	Define contemporary engineering technologies and their applications in relation to disciplines.

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Brain storming
4. Problem solving
5. Practical

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student Load (Self learning)
1	The engineering substances Practical: engineering materials	9	3	-	2	4
2	Properties of Engineering Substance Practical: engineering materials	9	3	-	2	4
3	Heating diagrams Practical: iron and steel production	9	3	-	2	4
4	Cooling diagrams Practical: iron and steel production	9	3	-	2	4
5	Heating equilibrium diagrams Practical: heat treatment	9	3	-	2	4

6	Alloys Practical: metal casting	9	3	-	2	4
7	Casting operation (sand casting and the preparation of the mold) Practical: mold for a sand casting& carpenter workshop	9	3	-	2	4
8	Forming processes (cold and hot forming: forging rolling – Wire drawing) Practical: metal forming Midterm Exam	9	3	-	2	4
9	Forming processes (Blanking and piercing - Deep drawing - The extrusion) Practical: metal forming	9	3	-	2	4
10	Processes of metal connections Practical: metal joining process	9	3	-	2	4
11	The riveting – welding with its types sticking Practical: metal joining process	9	3	-	2	4
12	Cutting machining: Lathing - Shaping – Drilling –Milling - Practical: carpenter workshop	9	3	-	2	4
13	Grinding – Work Piece fixation - Cutting tools fixation - Specifications of the operating machine) Practical: carpenter workshop	9	3	-	2	4
14	Measuring tools (venire caliper – micrometers and its types) Practical: Final Practical Exam	9	3	-	2	4
15	Final Exam.					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm, quizzes, sheets, assignments, reports, and presentation)	Midterm (8 th) and others in any week	50	40%
2	Final Practical Exam	14 th	15	12%
3	Final Written Exam	15 th	60	%48

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	Kalpakjian, S., & Schmid, S. R. (2020). Manufacturing Engineering and Technology (8 th ed.). Pearson.
	Other references	1- Groover, M. P. (2023). Principles of Modern Manufacturing: Materials, Processes, and Systems. 7 th Edition. Hoboken, NJ: John Wiley & Sons. 2- Kalpakjian, S., & Schmid, S. R. (2023). Manufacturing Engineering and Technology (8 th ed.). Pearson Education
	Learning Platform	MOODEL 3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom
	Skill Labs/ Simulators	workshop

Name and Signature
Course Coordinator
Dr. / Moataz Mostafa

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr

Course Specification

2025-2026

1. Basic Information

Course Title:	Introduction to Engineering and Environment				
Course Code:	BAS025				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of points of the course	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	-	-	2	2
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology-New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Prof. Dr. Osami Rageh Assoc. Prof. Ramadan Elkateb				
Course Specification Approval Date	26-7-2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29-7-2025				

2. Course Overview (Brief summary of scientific content)

Engineering concepts: What is engineering - international classification for the engineering jobs - relation between engineering development and environment economic and social development - engineering branches – ethics of the engineering jobs.

Introduction to environmental science: the importance of studying environmental science - modern technology and its effect on the environment - quality of the environment and development elements - sources of environmental pollution and method of control (air pollution - water pollution - solid wastes pollution - noise) - economics of environmental pollution control - legislations for the environment protection.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
		2	Incorporate economic, societal, global, environmental, and risk management factors into design.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns.

4. Teaching and Learning Methods

- 1- Face to Face lectures.
2. Flipped Classroom
3. Self-learning and Research

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load (self learning)
1	Engineering concepts: What is engineering?	4	2	0	0	2
2	International classification for the engineering jobs	4	2	0	0	2
3	Relation between engineering development and environment economic and social development	4	2	0	0	2
4	Engineering branches	4	2	0	0	2
5	Ethics of the engineering jobs.	4	2	0	0	2
6	Introduction to environmental science: the importance of studying environmental science – modern technology and its effect on the environment – quality of the environment and development elements	4	2	0	0	2
7	Sources of environmental pollution (air pollution – water pollution – solid wastes pollution –noise)	4	2	0	0	2
8	Method of control pollution (air pollution – water pollution – solid wastes pollution –noise) Midterm Exam	4	2	0	0	2
9	Method of control pollution (air pollution – water pollution – solid wastes pollution –noise) (continue)	4	2	0	0	2
10	Economics of environmental pollution control.	4	2	0	0	2
11	Economics of environmental pollution control (continue)	4	2	0	0	2
12	Economics of environmental pollution control (continue)	4	2	0	0	2

13	Legislations for the environment protection.	4	2	0	0	2
14	Legislations for the environment protection. (continue)	4	2	0	0	2
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm, quizzes, and sheets)	Midterm (8 th) and others in any week	25	33.33%
2	Final Practical Exam	15 th	50	66.66%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	
		1- د. جمال صالح السلامة من الكوارث الطبيعية والمخاطر البشرية، دار الشروق، الطبعة الثالثة 2021 2- موقع نقابة المهندسين المصرية. www.eeea.org.eg
		1- إدارة البيئة، زكريا طاحون، الهيئة المصرية العامة للكتاب، الطبعة الثالثة 2022 2- Raw sawdust utilization for the removal of acid red57 and basic fuchsin dyes from aqueous solution: equilibrium, kinetics, and thermodynamic investigation, Faisal Hassan Sorour, Y. M. Marouf, Nabil Mahmoud Abd-ElMonem, N. M .Aboeleneen & R. A. Mansour, International Journal of Phytoremediation, 22 Sep 2023
	Learning Platforms (Links must be added)	MOODLE 3.217.6.68
	Devices/Instruments	Data show system, sound system

Supportive facilities & equipment for teaching and learning *	Supplies	White board, lecture class room

Name and Signature
Course Coordinator
Prof. Dr. Osami Rageh
Assoc. Prof. Ramadan Elkateb

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr

Course Specification

2025-2026

1. Basic Information

Course Title :	Technical English Language 1				
Course Code:	BAS026				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of credit hours/points of the course (according to the bylaw)	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	-	2	4	3
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology- New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr Doaa El-Sherbiny				
Course Specification Approval Date	26-7-2025				
Course Specification Approval	29-7-2025				

2. Course Overview (Brief summary of scientific content)

Intensive guided practice in reading and analyzing expository and argumentative prose and in writing and revising essays that demonstrate coherent logical development, an ability to employ effective strategies of argument and persuasion, and a command of written English appropriate for college-level work.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	1	Communicate effectively with a range of audiences using contemporary tools.

4. Teaching and Learning Methods

- 1- Face to Face lectures
- 2- Discussion
- 3- Flipped Classroom
- 4- Practical

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Principles of Technical English Lab. : skills in English Lesson 1 Bob's day at work	7	2	-	2	3
2	Grammar & Syntax for Technical Contexts Lab. : skills in English Lesson 1 Bob's day at work	7	2	-	2	3
3	Engineering Lab. : skills in English Lesson 2 Bob returns home with bad new	7	2	-	2	3
4	Engineering (continue) Lab. : skills in English Lesson 3 Ted's day at school	7	2	-	2	3
5	Book shelves Lab. : skills in English Lesson 4 Nicole's day at school	7	2	-	2	3
6	Designing Manuals & Instructions Lab. : skills in English Lesson 5 Ted goes out for the evening Grammar Topics	7	2	-	2	3
7	Bridges Lab. : skills in English Lesson 5 Ted goes out for the evening Grammar Topics	7	2	-	2	3
8	Technical Vocabulary for Engineering Disciplines Lab. : skills in English Lesson 6 Susan stays home and bake cookies Midterm Exam	7	2	-	2	3
9	Technical Vocabulary for Engineering Disciplines(continue) Lab. : skills in English	7	2	-	2	3

	Lesson 7 Susan hires Bob to run her own business					
10	Writing Persuasive Technical Proposals Lab. : skills in English Lesson 8 Ted forms a rock band	7	2	-	2	3
11	Writing Persuasive Technical Proposals (continue) Lab. : skills in English Lesson 9 Nicole for president	7	2	-	2	3
12	Critical Reading of Engineering Literature Lab. : skills in English Lesson 10 Bob visits the village	7	2	-	2	3
13	Effective Strategies for Technical Persuasion Lab. : skills in English Lesson 10 Bob visits the village	7	2	-	2	3
14	Precision in Technical Language Practical Exam	7	2	-	2	3
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work)	8 th	10	10%
2	Final Written Exam	15 th	50	50%
3	Final Practical/Exam	14 th	10	10%
4	Assignments quiz /sheets	Any week	30	30%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	David Morgan, Nicholas Regan “Technical English for Engineering” Course Book (2023 Edition).
	Other References	1- Ivor Williams, “English for Science and Engineering: Professional English” 1st edition , 2023, Oxford University Press 2- Gerald J. Alred, Walter E. Oliu, Charles T. Brusaw "The Handbook of Technical Writing" Bedford; 12th Ed, (2020).
	Learning Platforms	MOODLE 3.217.6.68
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room
	Skill Labs/ Simulators	Computer lab

Name and Signature
Course Coordinator
Dr Doaa Elsherbiny

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr

Course Specification

2025-2026

1. Basic Information

Course Title :	Human Rights				
Course Code:	BAS027				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of points of the course	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	-	-	2	2
Course Type	Compulsory				
Academic level at which the course is taught	Level: 0				
Academic Program	Civil Engineering				
Institute	Higher Institute for Engineering and Technology- New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Prof. Dr. Osami Rajeh				
Course Specification Approval Date	26-7-2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29-7-2025				

2. Course Overview (Brief summary of scientific content)

الإلمام بأهمية حقوق الإنسان والنشأة التاريخية لتلك الحقوق والمدارس الفقهية لتأصيل تلك الحقوق وأحكام الاتفاقيات الدولية الخاصة بحقوق الإنسان، والمنظمات الدولية العالمية والإقليمية القائمة على حماية تلك الحقوق، وموقف الدستور المصري من حقوق الإنسان، والحماية القانونية لها على الصعيد الوطني والصعيد الدولي، بالإضافة إلى حقوق الإنسان في الشريعة الإسلامية. الأصول التاريخية الفلسفية لحقوق الإنسان المصادر الدولية لحقوق الإنسان العالمية والإقليمية -المصادر الوطنية - لحقوق الإنسان الأجهزة العالمية القائمة على حماية حقوق لإنسان) أجهزة الأمم المتحدة (الحماية - الوطنية. لحقوق الإنسان حقوق الإنسان في الشريعة الإسلامية عرض لبعض طوائف حقوق الإنسان.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	1	Communicate effectively with a range of audiences using contemporary tools.

4. Teaching and Learning Methods

- 1- Face to Face lectures
- 2- Discussion
2. Flipped Classroom

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student Load (Self learning)
1	الإلمام بأهمية حقوق الإنسان والنشأة التاريخية لتلك الحقوق والمدارس الفقهية لتأصيل تلك الحقوق.	4	2	-	-	2
2	الإلمام بأهمية حقوق الإنسان والنشأة التاريخية لتلك الحقوق والمدارس الفقهية لتأصيل تلك الحقوق.	4	2	-	-	2
3	أحكام الاتفاقيات الدولية الخاصة بحقوق الإنسان ، والمنظمات الدولية العالمية والإقليمية القائمة على حماية تلك الحقوق	4	2	-	-	2
4	موقف الدستور المصري من حقوق الإنسان ، والحماية القانونية لها على الصعيد الوطني والصعيد الدولي ، بالإضافة إلى حقوق الإنسان في الشريعة الإسلامية	4	2	-	-	2
6	الأصول التاريخية الفلسفية لحقوق الإنسان	4	2	-	-	2
7	المصادر الدولية لحقوق الإنسان (العالمية والإقليمية) المصادر الوطنية لحقوق الإنسان	4	2	-	-	2
8	الأجهزة العالمية القائمة على حماية حقوق الإنسان (أجهزة الأمم المتحدة) الحماية الوطنية لحقوق الإنسان	7	2	-	2	3
9	الأجهزة العالمية القائمة على حماية حقوق الإنسان (أجهزة الأمم المتحدة) الحماية الوطنية لحقوق الإنسان	7	2	-	2	3
10	الأجهزة العالمية القائمة على حماية حقوق الإنسان (أجهزة الأمم المتحدة) الحماية الوطنية لحقوق الإنسان	7	2	-	2	3
11	حقوق الإنسان في الشريعة الإسلامية عرض لبعض طوائف حقوق الإنسان	7	2	-	2	3
12	حقوق الإنسان في الشريعة الإسلامية عرض لبعض طوائف حقوق الإنسان	7	2	-	2	3
13	حقوق الإنسان في الشريعة الإسلامية عرض لبعض طوائف حقوق الإنسان	7	2	-	2	3

14	حقوق الإنسان في الشريعة الإسلامية عرض لبعض طوائف حقوق الإنسان	7	2	-	2	3
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Final Written Exam	15 th	30	60%
2	Assignments, quiz and sheets	Any week	20	40%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course	Jack Donnelly "International Human Rights" Routledge; 6th edition, (2020).
	Other References	1-John Doe "Human rights in a world of diversity", (2023). 2- Dr. Samira Ahmed "Human rights and social justice: new insights" (2024).
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room
	Skill Labs/ Simulators	

Name and Signature
Course Coordinator
Prof. Dr Osami Rajeh

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



وحدة ضمان الجودة



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة

الفرقة الأولى

الفصل الدراسي الأول



Course Specification

(2025-2026)

1. Basic Information

Course Title	Mathematics 3				
Course Code	BAS111				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	-	2	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Associated professor / Samar Mohammed				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course provides a comprehensive exploration of multivariable calculus and differential equations. It begins with the study of functions of several variables, covering their limits, continuity, and higher-order partial derivatives. It further examines techniques for finding extrema, and evaluates double and triple integrals in various coordinate systems. The course also introduces line and surface integrals, applying key theorems such as Green's, Gauss's, and Stokes's to vector fields. In the second part, the course shifts to differential equations, starting with basic types such as separable and exact equations. It covers linear and Bernoulli's equations, higher-order linear equations with constant coefficients, and both homogeneous and non-homogeneous forms. The final section focuses on the Laplace transform and its application in solving differential equations, emphasizing convergence, properties, and inverse transformations.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics	1	Identify the relevant mathematical principles and theories in the discipline.
		2	Use math ideas and theories that are applicable to the field.
		3	Identify complex engineering problems by applying the concepts and the theories of sciences, appropriate to the discipline.
A10	Acquire and apply new knowledge; and practice self, lifelong, and other learning strategies	1	Search for information to engage in lifelong self-learning discipline.
		2	Apply mathematical synthesis of engineering principles to enhance design, products, and/or services.

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving
4. Brain storming

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student loads
1	- Functions of several variables - Limits of functions of several variables.	8	2	2	----	4
2	Continuity in multivariable functions	8	2	2	----	4
3	Partial derivatives of higher order	8	2	2	----	4
4	extreme for functions of two variables	8	2	2	----	4
5	- Double integral - Triple integral	8	2	2	----	4
6	Line integral in space, Green's theorem	8	2	2	----	4
7	- Surface integral - Gauss and Stokes's theory	8	2	2	----	4
8	- Basic concepts Formation of the differential equations - Separable differential equations Midterm Exam	8	2	2	----	4
9	- Homogenous differential equations - Exact differential equation	8	2	2	----	4
10	- linear differential equation - Bernoulli's equation - the linear differential operator	8	2	2	----	4
11	Second order homogeneous, differential equations with constant coefficients	8	2	2	----	4
12	Non-homogeneous linear differential equations Convergence of la-place transform	8	2	2	----	4
13	- Important properties of la-place transform - Laplace transform of derivatives	8	2	2	----	4
14	Inverse la-place transform Solve differential equation by Laplace transform	8	2	2	----	4
15	Final Writing Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exam (Midterm)	8 th	30	20%
2	Periodic exams (Quizzes - Short Tests-Assignments)	any week	10+10+10 = 30	20%
3	Final Written Exam	15 th	90	60%

6. Learning Resources and Supportive Facilities

Learning resources (Books, Scientific references, etc.)	The main (essential) reference for the course	Evans, L. C. (2022). <i>Partial differential equations</i> (Vol. 19). American mathematical society.
	Other References	1-Strauss, W. A. (2007). <i>Partial differential equations: An introduction</i> . John Wiley & Sons. 2-Boyce, W. E., DiPrima, R. C., & Meade, D. B. (2021). <i>Elementary differential equations and boundary value problems</i> . John Wiley & Sons. 3-Coddington, E. A. (2012). <i>An introduction to ordinary differential equations</i> . Courier Corporation
	Learning Platforms	Moodle 3.217.6.68 http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator

Assoc. Prof. / Samar Mohammed

Name and Signature
Program Coordinator

Assoc. Prof. Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Electrical Engineering Fundamentals				
Course Code	BAS112				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	3	-	2	5	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. Rabab Reda				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This compulsory course introduces students to the fundamentals of electrical engineering, focusing on both theoretical and practical aspects of electric circuits and machines. The course begins with an overview of direct current (DC) and the foundational theory of electric circuits, including star-delta transformations and analysis of sinusoidal circuits in both DC and AC domains. Students learn to analyze time vector diagrams and explore power and power factor in AC circuits. The second part of the course focuses on three-phase systems and electrical machines. It covers the principles and applications of DC machines, transformers, induction motors, and synchronous machines, as well as fractional power machines. Through lectures and tutorials, students develop a strong understanding of electric power systems and machine operations, preparing them for advanced topics in electrical engineering.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex electrical engineering problems by applying fundamental electrical theory, circuit analysis, and mathematics	1	Identify the key mathematical principles and theories relevant to analyzing electrical circuits, including DC, AC, and power calculations.
		2	Apply mathematical and scientific concepts to solve complex electrical engineering problems, such as circuit analysis, power factor determination, and machine operations.
		3	Solve complex engineering problems by applying fundamental electrical engineering principles in the analysis of circuits, and power systems.
A2	Conduct experiments and simulations to analyze electrical circuits, interpret results, and use engineering judgment to draw conclusions.	1	Evaluate electrical systems (such as DC and AC circuits, transformers, and motors) by analyzing experimental data and applying engineering judgment to improve system performance.

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving
4. Brain storming

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student loads
1	Direct Current	9	3	2	----	4
2	Theory of electric circuits	9	3	2	----	4
3	cont., Theory of electric circuits	9	3	2	----	4
4	Delta and Star connections	9	3	2	----	4
5	Sine D.C circuits	9	3	2	----	4
6	Sine A.C circuits	9	3	2	----	4
7	Time vectors diagram	9	3	2	----	4
8	Electric power and power factor in A.C circuits Midterm Exam	9	3	2	----	4
9	3-Phase current	9	3	2	----	4
10	Electric machines	9	3	2	----	4
11	D.C machines	9	3	2	----	4
12	Transformers	9	3	2	----	4
13	Induction and synchronous machines	9	3	2	----	4
14	Fractional power machine	9	3	2	----	4
15	Final Writing Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm)	Midterm (8 th)	30	%20
2	Periodic exams (quizzes, assignments)	Any week	15+15=30	%20
3	Final Written Exam	15 th	90	%60

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	Bishla, E. S., Neeraja, B., Chebiyyam, S., & Gautam, T. P. K. (2023). <i>Fundamental Of Electrical Engineering And Applications</i> . AG Publishing House.
	Other References	Rauf, S. B. (2020). <i>Electrical engineering fundamentals</i> . CRC Press.
		Eccles, W. (2022). <i>Pragmatic electrical engineering: Fundamentals</i> . Springer Nature.
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator

Dr. Rabab Reda

Name and Signature
Program Coordinator

Assoc. Prof. Mohamed Gabr



Course Specification

(2025- 2026)

1. Basic Information

Course Title	Engineering Thermodynamics				
Course Code	BAS113				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	3	-	2	5	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education& Scientific Research				
Name of Course Coordinator	Dr. Moataz Mostafa				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course introduces the fundamental concepts of thermodynamics, beginning with the properties of pure substances and equations of state that describe their behavior. It covers the classification of thermodynamic systems and explains the concepts of work and heat. The First Law of Thermodynamics is studied in depth, along with its applications to closed systems and control volumes. The Second Law is then introduced, including the Carnot cycle and its significance in defining the limits of heat engine efficiency. The course also explores practical systems such as heat engines, refrigerators, and heat pumps, emphasizing the principle of entropy increase. Additional topics include irreversibility, availability, and the analysis of power and refrigeration cycles in real-world applications.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Identify the thermodynamics laws that apply to the engineering problems
		2	Formulate the appropriate solutions for engineering problems and system design, gas power cycles, vapor cycles.
		3	Use scientific concepts and thermodynamics laws that are relevant to the real life.
		4	Apply engineering knowledge and understanding to improve design, products and services, gas power cycles, vapor cycles.

4. Teaching and Learning Methods

1. Face-to-Face Lecture
 2. Discussion
 3. Problem solving
 4. Brain storming
 5. Practical
-

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student loads
1	Fundamental concepts of thermodynamic	9	3	2	-----	4
2	Properties of a pure substance	9	3	2	-----	4
3	Equation of state - thermodynamic systems - Work and heat	9	3	2	-----	4
4	First law of thermodynamics	9	3	2	-----	4
5	First law of thermodynamics; Applications to Systems and Control Volumes	9	3	2	-----	4
6	Second Law of Thermodynamics	9	3	2	-----	4
7	Principle of Carnot cycles	9	3	2	-----	4
8	Heat engines, Refrigerators and heat pumps Midterm Exam	9	3	2	-----	4
9	Principle of the increase of entropy	9	3	2	-----	4
10	Applications to systems	9	3	2	-----	4
11	Applications to control volumes	9	3	2	-----	4
12	Irreversibility and availability	9	3	2	-----	4
13	Power cycles	9	3	2	-----	4
14	Refrigeration cycles	9	3	2	-----	4
15	Final Writing Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks

1	Periodic exams (midterm)	Midterm (8 th)	20	16%
2	Periodic exams (quizzes, assignments)	Any week	10+20 = 30	24%
3	Final Oral Exam	14 th	15	12%
4	Final Written Exam	15 th	60	48%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	Introduction to Engineering Thermodynamics" by Claire Yu Yan (2023)
	Other References	Moses, J. Jebeen, V. T. Vijumon, and M. Felix Xavier Muthu. <i>Engineering thermodynamics</i> . RK Publication, 2024.
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator

Dr. Moataz Mostafa

Name and Signature
Program Coordinator

Assoc. Prof. Mohamed Gabr



Course Specification

(2025-2026)

1. Basic Information

Course Title	Technical English Language 2				
Course Code	BAS114				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	2	-	4	3
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. Doaa EL-Sherbiny				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course offers an integrated approach combining scientific knowledge about water with practical English language lab skills. Scientifically, it covers the chemical and physical properties of water, the water cycle, human uses of water, principles of heat transfer, energy, graphic language, and an introduction to automatic control systems. In parallel, students develop English language proficiency through a series of lab-based lessons. These include real-life scenarios such as Bob drives a hard bargain, Amber and Ted heat up the kitchen, and Nicole's close election, each accompanied by targeted grammar instruction. Through storytelling, dialogue, and grammar practice, students strengthen their communication skills while engaging with technical content, making the course both informative and linguistically enriching.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	1	Communicate effectively.
		2	Demonstrate efficient IT capabilities
A10	Acquire new knowledge; and practice self, lifelong and other learning strategies.	1	Search for information to engage in lifelong self-learning discipline.
		2	Merge the language skills in self-learning.

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Flipped Classroom
4. Self-learning and Research
5. Practical

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student loads
1	Water Lab skills in English: Bob drives a hard bargain	7	2	----	2	3
2	Water Lab skills in English: Bob's big coolie order & grammar topics	7	2	----	2	3
3	Chemical and physical properties. Lab skills in English : Amber comes over to bake cookies	7	2	----	2	3
4	Chemical and physical properties. Lab skills in English : Amber and Ted heat up the kitchen & grammar topics	7	2	----	2	3
5	Water cycle Lab skills in English: Nicole practices her election speech & grammar topics	7	2	----	2	3
6	Human uses: Lab skills in English	7	2	----	2	3
7	Grammar topics	7	2	----	2	3
8	Heat transfer Lab skills in English: Bob brings the cookies to the village market Midterm Exam	7	2	----	2	3
9	Carol tells Bob the good news & grammar topics	7	2	----	2	3
10	Graphic language: Every one bakes cookies	7	2	----	2	3
11	Nicole's close election & grammar topics	7	2	----	2	3
12	Energy Lab Skills in English	7	2	----	2	3
13	Bob gets any angry call from Carol & Grammar topics Lab Skills in English	7	2	----	2	3
14	Automatic Control Practical Exam	7	2	----	2	3
15	Final Writing Exam					

Course Schedule

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm)	Midterm (8 th)	20	20%
2	Periodic exams (quizzes, assignments)	Any week	10+10=20	20%
3	Practical examination	14 th	10	10%
4	Final Written Exam	15 th	50	50%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	Parviz, Muhammed. "Technology and English language teaching in a changing world: a practical guide for teachers and teacher educators: edited by Ju Seong Lee, Di Zou and Michelle Mingyue Gu, Cham, Palgrave Macmillan, 2024,
	Other References	Heidenreich, Sharon. English for Planning and Building Professionals. 2023.
		Casañ Pitarch, Ricardo, et al. The Engineer. English Language for Industrial Engineering. Editorial Universitat Politècnica de València, 2023.
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom
	Skill Labs	Computer lab

Name and Signature
Course Coordinator

Dr.Doaa EL-Sherbiny

Name and Signature
Program Coordinator

Assoc. Prof. Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Structures Analysis (1)				
Course Code	CIE111				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	3	2	-	5	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Rafeek Wadieh				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)



This course introduces the fundamental concepts of structural analysis, focusing on statically determinate structures. Topics include the following: Basic concepts in structural analysis - Loads and reactions - Statically determinate beams - Statically determinate rigid frames - Statically determinate arches

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	Explain the basic principles of engineering for structural analysis.
		2	Applying engineering basics that are relevant to the structural analysis.
		3	Solve complex engineering problems by applying engineering fundamentals.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of structural analysis and mechanics.
		2	Use either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of: structural analysis and mechanics.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brainstorming



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Basic concept in structural analyses	9	3	2	-	4
2	Loads on structures	9	3	2	-	4
3	Supports and reactions of structures	9	3	2	-	4
4	Internal forces	9	3	2	-	4
5	Statically determinate beams	9	3	2	-	4
6	Statically determinate rigid frames	9	3	2	-	4
7	Statically determinate rigid frames (continue)	9	3	2	-	4
8	Statically determinate arches Mid-term written Exam	9	3	2	-	4
9	(continued)	9	3	2	-	4
10	Analysis of Statically determinate trusses using method of joints.	9	3	2	-	4
11	Analysis of Statically determinate trusses using method of sections	9	3	2	-	4
12	Stress diagram of trusses	9	3	2	-	4
13	Influence lines for Statically determinate beams	9	3	2	-	4
14	Influence lines for Statically determinate frames and trusses.	9	3	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing	Marks/ Scores	Percentage of



		(Week Number)		total course Marks
1	Exam 1..... (Semester work)	4 th	10	8%
2	Exam 2 written (midterm)	8 th	25	20%
3	Assignments	Any week	15	12%
4	Final Written Exam	15 th	75	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	El-dakhakhni W. M., “Theory of Structures”, Part One, Assiut University, 2016.
	Other References	- Kadhim A., “Theory of Structures”, pi Engineering platform, Civil Engineering, 2025. - EL-Taly B. “Structural and Analysis”, Menofia Univ., 2019-2020. - El-Sayed El-Kasaby and Fayez Kaiser, “Theory of Structures-Solved examples”, Part 1, 2018.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Rafik Wadia

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Civil Engineering Drawing 1				
Course Code	CIE 112				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	2	-	4	3
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course introduces students to the fundamentals of civil engineering drawing with a focus on hydraulic structures. It covers the preparation and interpretation of technical drawings for irrigation canals and related structures, including culverts, aqueducts, siphons, weirs, and regulators. Students will learn to draw earthworks, retaining walls (plain and reinforced concrete), and R.C. bridges using appropriate and



sustainable drafting techniques. Emphasis is placed on precision, technical standards, and planning of irrigation works.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Sketch irrigation drawings elements effectively in limited time (retaining walls, earth works), and irrigation works (Reinforced concrete Bridges – Culverts – Syphons – Aqueducts – Weirs – Regulators – Escapes).
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Plan and drawing the layout of irrigation canals and irrigation works (Reinforced concrete Bridges – Culverts – Syphons – Aqueducts – Weirs – Regulators – Escapes)

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Practical application (hand drawing)
3. Self-learning by researching.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction to civil engineering drawings (canals and crossing of roads)	7	2	2	-	3
2	Drawing earth works.	7	2	2	-	3
3	Drawing earth works (continue)	7	2	2	-	3
4	Retaining walls (plain concrete) drawing	7	2	2	-	3
5	Retaining walls (reinforced concrete) drawing	7	2	2	-	3
6	R. C. bridges drawing	7	2	2	-	3
7	Culverts drawing	7	2	2	-	3
8	Culverts drawing (continue) Midterm Exam	7	2	2	-	3
9	Syphons drawing	7	2	2	-	3
10	Syphons drawing (continue)	7	2	2	-	3
11	Aqueducts drawing	7	2	2	-	3
12	Weirs drawing	7	2	2	-	3
13	Regulators drawing	7	2	2	-	3
14	Escapes drawing	7	2	2	-	3
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Assignments / Project	Any week	6 + 4 =10	6% + 4% =10%
4	Final Written Exam	15 th	60	60%



6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Pregolato, M., Gunner, S., Voyagaki, E., De Risi, R., Carhart, N., Gavriel, G., ... & Taylor, C. (2022). Towards Civil Engineering 4.0: Concept, workflow and application of Digital Twins for existing infrastructure. Automation in Construction, 141, 104421.
	Other References	Lockhart, S. (2022). Tutorial Guide to AutoCAD 2023: 2D Drawing, 3D Modeling. SDC Publications كتاب الرسم الهندسي، المؤلف: أ.د. عادل عبده المصري. كلية الهندسة - جامعة المنصورة. إصدار ٢٠٢٢.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system, Moodle
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Assoc. Prof. / Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



وحدة ضمان الجودة



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة

الفرقة الأولى

الفصل الدراسي الثاني



Course Specification

(2025-2026)

Course Title	Mathematics 4				
Course Code	BAS121				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	-	2	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Associated professor / Samar Madian				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course introduces students to advanced mathematical concepts essential for engineering applications, with a focus on special functions, Fourier analysis, and complex variables. The course begins with Fourier series, periodic functions, Euler's laws, and both discrete and continuous

forms of Fourier integration. It then explores solutions to ordinary and partial differential equations using power series and variable separation techniques. The second part of the course focuses on complex analysis. Topics include complex algebra, multi-valued functions, analytic functions, and Cauchy's theorem. Students also study complex series, including Taylor and Laurent series, and investigate zeros, singularities, and the behavior of infinite series. The course equips students with strong analytical tools for solving engineering and physical science problems involving waveforms, heat transfer, and signal processing.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A1	Identify complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Identify the relevant mathematical principles and theories in the discipline.
		2	Use math ideas and theories that are applicable to the field.
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Incorporate mathematical principles solving engineering problems
		2	Apply mathematical concepts to generate cost-effective solutions while adhering to the principles and contexts of sustainable design and development.

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving
4. Brain storming

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student loads
1	Special functions	8	2	2	-----	4
2	Fourier series	8	2	2	-----	4
3	periodic functions and Euler's laws	8	2	2	-----	4
4	Fourier's integrations	8	2	2	-----	4
5	Fourier's integrations	8	2	2	-----	4
6	solutions of the differential equations by series	8	2	2	-----	4
7	solving the partial differential equations using variables separation	8	2	2	-----	4
8	Functions with complex variables-complex quantities algebra Midterm Exam	8	2	2	-----	4
9	Multiple values functions	8	2	2	-----	4
10	The analytical functions and Koshi's theorem	8	2	2	-----	4
11	the complex series	8	2	2	-----	4
12	Taylor and Lorant series	8	2	2	-----	4
13	the zeros, unique points and the rest	8	2	2	-----	4
14	the infinite series	8	2	2	-----	4
15	Final Writing Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm)	Midterm (8 th)	30	20%
2	Periodic exams (quizzes and assignments)	any week	30	20%

3	Final Written Exam	15 th	90	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	Ladeinde, F. (2024). <i>Applications of Complex Variables: Asymptotics and Integral Transforms</i> . Walter de Gruyter GmbH & Co KG.
	Other References	Duoandikoetxea, J. (2024). <i>Fourier analysis</i> (Vol. 29). American Mathematical Society.
		Pinsky, M. A. (2023). <i>Introduction to Fourier analysis and wavelets</i> (Vol. 102). American Mathematical Society.
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator

Assoc. Prof. / Samar Madian

Name and Signature
Program Coordinator

Assoc. Prof. Mohamed Gabr



Course Specification (2025-2026)

1. Basic Information

Course Title	Technical Report Writing				
Course Code	BAS122				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr / Mohamed El-Bindary				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of course overview)

Writing the scientific reports by English language: The principles of report preparation - types of reports – formatting the reports – skills of figures and shapes – importing text – chart drawings – optical scanning for the pictures and documents – the border and notes operations in the reports. Saving and indexing the reports – searching for text – coping and safety of information – using the different computer programs packages for writing and demonstrating

3. *the reports*. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A5	Practice research techniques and methods of investigation as an inherent part of learning	1	Define technical language and report writing
		2	Assess different ideas, views, and knowledge from a range of sources.
		3	Prepare technical reports
		4	Search for information to engage in lifelong self-learning discipline.
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	1	Communicate effectively.

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving
4. Flipped Class
5. Practical

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student loads (Self learning)
1	Lecture: Introduction to Technical Report Writing- Practical: Microsoft Word: Interface and basic tools	8	2	----	2	4
2	Lecture: Importance of reports, types, and structure Practical: Microsoft Word: basic tools	8	2	----	2	4
3	Lecture: Principles of Report Preparation Practical: Formatting text	8	2	----	2	4
4	Lecture: Stages of preparing a technical report Practical: Formatting paragraphs	8	2	----	2	4
5	Lecture: Use Visual aids in report writing: Figures and shapes. Practical: Page setup, margins, headers, and footers	8	2	----	2	4
6	Lecture Use Visual aids in report writing: Charts and drawing. Practical: Applying and customizing styles	8	2	----	2	4
7	Lecture: Use Visual aids in report writing: Optical scanning for the pictures and documents Practical: Inserting and formatting tables and charts	8	2	----	2	4
8	Lecture: Importing Text and External Content - Embedding external documents and data Practical: Importing and linking external content Midterm Exam	8	2	----	2	4
9	Lecture: Formatting of reprts Practical: Inserting and adjusting images	8	2	----	2	4
10	Lecture: Borders, Notes, and Annotations	8	2	----	2	4

	Footnotes, endnotes, and comments Practical: Adding footnotes, comments, and annotations					
11	Lecture: Saving and Indexing Reports Proper file management and version control Practical: Creating an automatic table of contents	8	2	----	2	4
12	Lecture: Searching and Retrieving Information Advanced search techniques Practical: Using Word's search and navigation tools	8	2	----	2	4
13	Lecture: Information Security and Backup Protecting and backing up documents Practical: Applying passwords and document protection	8	2	----	2	4
14	Lecture: Finalizing and Presenting Reports Reviewing, proofreading, and final checks Practical Exam	8	2	----	2	4
15	Final Writing Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm)	Midterm (8 th)	20	20%
2	Periodic exams (quizzes, assignments, and reports)	any week	10+5+5= 20	20%
3	Practical Examination	14 th	10	10%
4	Final Written Exam	15 th	50	50%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	Hering, H., Hering, H., & Baumann. (2019). How to write technical reports. Berlin, Germany: .Springer Berlin Heidelberg
	Other References	Baer, Kim. Information design workbook, revised and updated: Graphic approaches, solutions, and inspiration+ 30 case studies. Quarry Books Editions, 2021.
		Gerald J. Alred, Walter E. Oliu, Charles T. Brusaw "The Handbook of Technical Writing" Bedford; 12th Ed, (2020).
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom
	Electronic Programs	Microsoft office
	Skill Labs/ Simulators	Computer lab

**Name and Signature
Course Coordinator**

Dr / Mohamed El-Bindary

**Name and Signature
Program Coordinator**

Assoc. Prof. Mohamed Gabr



Course Specification

(2025-2026)

1. Basic Information

Course Title	Introductions to Information Technology				
Course Code	BAS123				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. Amira Elsonbaty				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course offers a foundational understanding of information systems and their integration with emerging technologies. It introduces key concepts such as the structure and applications of information systems, smart devices, modern hardware (IoT, edge computing), and communication technologies (5G, satellite). Students also explore software trends including open-source tools,

internet evolution (Web 3.0), system analysis and design principles, and the roles of AI, cloud computing, and cyber security in modern IT environments. The practical component complements the theoretical knowledge through hands-on web development using HTML and introductory CSS. Students learn to build and style responsive web pages, incorporating text, images, links, tables, forms, and basic layouts. By the end of the course, students present individual HTML projects, demonstrating their ability to apply both information systems concepts and web development skills in real-world scenarios.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply design principles to create web applications that meet user needs while ensuring cost-effectiveness, usability, and accessibility
		2	Integrate modern technologies, such as AI, cloud computing, and IoT, to develop functional and secure information systems
		3	Design sustainable web solutions considering security measures, data protection, and long-term environmental impacts
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles	1	Incorporate environmental considerations and risk management principles in the design and development of sustainable web applications and information systems
		2	Apply current technologies and standards to design secure and efficient web applications that meet industry best practices

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Self-learning and Research
3. Discussion

4. Problem solving
5. Brain storming
6. Practical

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student loads
1	Lecture: Introduction to Information Systems Practical: Introduction to HTML	8	2	-	2	4
2	Lecture: Introduction Emerging Technologies (AI and Cloud Computing). Practical: Introduction to basic page structure (DOCTYPE, HTML tags)	8	2	-	2	4
3	Lecture: Applications of Information Systems in Modern Fields (e.g., healthcare, smart cities). Practical: Writing HTML with headings, paragraphs, and formatting tags	8	2	-	2	4
4	Lecture: Modern Hardware in Information Systems (IoT devices, edge computing). Practical: Using font and text formatting tags in HTML	8	2	-	2	4
5	Lecture: Smart Devices and Their Role in Information Systems. Practical: Adding hyperlinks and navigation links using HTML	8	2	-	2	4
6	Lecture: Software in Information Systems (emphasizing open-source and SaaS). Practical: Creating ordered and unordered lists in HTML	8	2	-	2	4
7	Lecture: Modern Data Communication Systems (5G, fiber optics, and satellite communication). Practical: Adding images using image tags in HTML (with alt attributes)	8	2	-	2	4
8	Lecture: Computer Networking Basics (Wireless networks, network	8	2	-	2	4

	security, and 5G applications). Practical: Creating tables and applying table properties in HTML Midterm Exam					
9	Lecture: The Internet Evolution (Web 3.0, and decentralized networks). Practical: Designing responsive web pages with basic layouts (using div and span tags)	8	2	-	2	4
10	Lecture: Cybersecurity and Privacy in Information Systems (threats, measures, and ethical considerations). Practical: Styling web pages using inline styles and external CSS introduction	8	2	-	2	4
11	Lecture: System Analysis and Design (databases, decision tables, and workflow diagrams). Practical: Working with forms and input elements in HTML (text boxes, checkboxes, radio buttons)	8	2	-	2	4
12	Lecture: Artificial Intelligence and Data Analysis (AI integration with IT systems). Practical: Presentation and evaluation of students' HTML projects (Part 1)	8	2	-	2	4
13	Lecture: Cloud Computing Advances Practical: Presentation and evaluation of students' HTML projects (Part 2)	8	2	-	2	4
14	Lecture: revision Practical: practical exam	8	2		2	4
15	Final Writing Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm)	Midterm (8 th)	20	20%
2	Periodic exams (quizzes, assignments, and reports)	Any week	10+5+5 = 20	20%
3	Final Oral Exam	14 th	10	10%
4	Final Written Exam	15 th	50	50%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	E. Frick, <i>Information Technology Essentials: A Practical Guide</i> . New York, NY: TechPress, 2023
	Other References	J. Smith and S. Johnson, <i>Modern Information Systems: From Theory to Practice</i> . London, UK: InfoSystems Publishing, 2023.
		M. Walker, <i>Cybersecurity and Privacy in the Digital Age</i> . San Francisco, CA: CyberSecure Press, 2024.
		D. Brown, <i>Artificial Intelligence in Information Systems</i> . Boston, MA: AI Tech Publications, 2023.

	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom
	Skill Labs/ Simulators	Computer lab

**Name and Signature
Course Coordinator**

Dr. Amira Elsonbaty

**Name and Signature
Program Coordinator**

Assoc. Prof. Mohamed Gabr



Course Specification

(2025 - 2026)

1. Basic Information

Course Title	Strength of Materials				
Course Code	BAS124				
Department/s participating in delivery of the course	Basic science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	-	2	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. Nesreen Elawadly				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

Simple states of stress and strain - Torsion stresses - Bending and shearing stresses in beams - Compound stresses - Analysis of plane stress - Combined stresses - Analysis of thin-walled pressure vessels - Deflection of beams.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics	1	Identify the concepts and theories of mathematics, necessary for engineering system analysis, general concepts of strength of material, normal stress, direct shear stress, mohr's cycle.
		2	Use math ideas and theories that are applicable to solutions for engineering problems and system design, normal stress, direct shear, stresses in beams, torsional stresses.
		3	Practice the neatness and aesthetics in design to approach stresses in beams, torsional stresses, and pressure vessels
		4	Formulate engineering knowledge and understanding to improve design, products and/or services, normal stress, direct shear stress, stresses in beams, torsional stresses, pressure vessels, mohr's cycle.

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures)	Training (Practical)	Self-learning (Tasks/ Assignments/ Projects)	Tutorial
1	Simple states of stress and strain1	8	2	-	4	2
2	Simple states of stress and strain2	8	2	-	4	2
3	Tension and compression stress1	8	2	-	4	2
4	Tension and compression stress2	8	2	-	4	2
5	Shear stress in bolts1	8	2	-	4	2
6	Shear stress in bolts2	8	2	-	4	2
7	Bending and shearing stresses in beams1	8	2	-	4	2
8	Bending and shearing stresses in beams2 Midterm Exam	8	2	-	4	2
9	Torsion stresses1	8	2	-	4	2
10	Torsion stresses2	8	2	-	4	2
11	Deflection of Beams	8	2	-	4	2
12	Analysis of thin-walled pressure vessels1	8	2	-	4	2
13	Analysis of thin-walled pressure vessels2	8	2	-	4	2
14	Analysis of plane stress	8	2	-	4	2
15	Final Written Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm)	Midterm (8 th)	20	20%
2	Periodic exams (quizzes, assignments, and reports)	any week	10+5+5=20	20%
2	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	Hibbeler, R. C. (2023). Mechanics of materials (11th ed.). Pearson Education.
	Other References	Beer, F. P., Johnston, E. R., DeWolf, J. T., & Mazurek, D. F. (2023). Mechanics of materials (9th ed.). McGraw-Hill Education.
		Gere, J. M., & Goodno, B. J. (2024). Mechanics of materials (10th ed.). Cengage Learning.
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator

Dr. Nesreen Elawadly

Name and Signature
Program Coordinator

Assoc. Prof. Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Structures analysis (2)				
Course Code	CIE121				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course	Lectures	Tutorial	Practical	Total contact hours	Student load
	3	2	-	5	5
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program.				
Faculty/Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Rafik Wadia				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				



2. Course Overview (Brief summary of scientific content)

This course builds upon the fundamentals of structural mechanics to address more complex structural problems. Topics include the following: Basic concepts in structure mechanics - Normal Stresses - Shear Stresses - Combined and Principal Stresses - Elastic deformations of statically determined structures - Statically indeterminate structures using the three moments equation.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	Identify the relevant mathematical principles and theories in the discipline.
		2	Explain the basic principles of engineering.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.

4. Teaching and Learning Methods



1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brainstorming

Course schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Basic concepts in structure mechanics	10	3	2	-	5
2	Properties of plane sections	10	3	2	-	5
3	Properties of plane sections (continued)	10	3	2	-	5
4	Shear stress	10	3	2	-	5
5	Shear stress (continued)	10	3	2	-	5
6	Combined and Principal Stresses	10	3	2	-	5
7	Combined and Principal Stresses (continued)	10	3	2	-	5
8	Elastic deformations of statically determined structures Midterm Exam	10	3	2	-	5
9	statically determined structures (continued)	10	3	2	-	5
10	Deflection of beams	10	3	2	-	5
11	Deflection of frames	10	3	2	-	5
12	Deflection of trusses	10	3	2	-	5
13	Analysis of statically indeterminate beams using the three moments equation	10	3	2	-	5
14	Analysis of statically indeterminate frames using the three moments equation	10	3	2	-	5
15	Final Exam					



5. *Methods of students' assessment*

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1..... (Semester work)	4 th	10	7%
2	Exam 2 written (midterm)	8 th	30	20%
3	Assignments	Any week	20	13%
4	Final Written Exam	15 th	90	60%

6. *Learning Resources and Supportive Facilities*

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	El-dakhakhni W. M., “Theory of Structures”, Part One, Assiut University, 2016.
	Other References	- Kadhim A., “Theory of Structures”, pi Engineering platform, Civil Engineering, 2025. - EL-Taly B. “Structural and Analysis”, Menofia Univ., 2019-2020. - El-Sayed El-Kasaby and Fayez Kaiser, “Theory of Structures-Solved examples”, Part 1, 2018.
	Learning Platforms (Links must be added)	Institute Electronic model: http://3.217.6.68
Supportive facilities &	Devices/Instruments	Data show, Sounding system



equipment for teaching and learning	Supplies	Lecture Classroom

**Name and Signature
Course Coordinator
Dr. Rafik Wadia**

**Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr**



Course Specification

2025-2026

1. Basic Information

Course Title	Civil Engineering Drawing 2				
Course Code	CIE122				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Total
	2	1	1	4	7
Course Type	Compulsory				
Academic level at which the course is taught	Level 1				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course teaches students how to create detailed drawings for reinforced concrete and steel structures using manual and CAD methods. The scientific content of this course is learning how to draw the reinforced concrete works (Slabs – Beams – Columns – Foundations). Steel works (beams and columns sections – compound sections – Beam connections – Beams and columns connections – column bases – trusses). AutoCAD Fundamentals of civil engineering drafting by way of computer aided drawing (CAD) software. Basic features and capabilities of CAD software and drafting.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Sketch reinforced concrete structures drawings elements effectively in limited time (slabs – beams – columns – foundations), and steel works (Beams and columns sections – compound sections – Beam connections – Beams and columns connections – column bases – trusses).
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Use drawings software such as the CAD program to draw concrete and steel works.
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Plan and drawing the design drawings of reinforced concrete works elements effectively in limited time (slabs – beams – columns – foundations), and steel works (Beams and columns sections – compound sections – Beam connections – Beams and columns connections – column bases – trusses).

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. cooperative learning
3. Self-learning by researching
4. Practical



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction to drawings of reinforced concrete works (Slabs – Beams).	7	2	1	1	3
2	Introduction to drawings of reinforced concrete works (Columns – Foundations). Practice: Reinforced concrete works drawings (Slabs – Beams).	7	2	1	1	3
3	Concrete slab drawing	7	2	1	1	3
4	Concrete beams drawings	7	2	1	1	3
5	Concrete columns drawings Practice: Reinforced concrete works drawings (columns).	7	2	1	1	3
6	Concrete foundations drawings Practice: Reinforced concrete works drawings (Foundation).	7	2	1	1	3
7	Introduction regarding steel drawings and identification.	7	2	1	1	3
8	Define different steel profiles and cross sections used in steel structures. Mid-term written Exam	7	2	1	1	3
9	Steel compound sections drawings to draw concrete and steel works Practice: Steel compound sections drawings Steel compound sections drawings	7	2	1	1	3
10	Steel beam and column connections drawing Practical: Steel beam and column connections drawing	7	2	1	1	3
11	Drawing steel truss Practice: Steel truss drawings	7	2	1	1	3
12	Basic features and capabilities of CAD software	7	2	1	1	3
13	Basic features and capabilities of CAD software (continue) Practice: Basic features and capabilities of CAD software.	7	2	1	1	3
14	Basic features and capabilities of CAD software (continue) Final Practical/oral	7	2	1	1	3
15	Final Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	6.66%
2	Exam 2 written (Midterm)	8 th	30	20%
3	Final Practical Exam	14 th	15	10%
4	Assignments / Project	Any week	10 / 10	6.70 % / 6.70 %
5	Final Written Exam	15 th	75	50%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Cobb, F. (2020). Structural Engineer's Pocket Book British Standards Edition. CRC Press.
	Other References	Dhawan, R. K. (2019). A Textbook of Engineering Drawing. S. Chand Publishing.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom, Moodle
	Electronic Programs	CAD software
	Skill Labs/ Simulators	Computer Lab

Name and Signature
Course Coordinator
Assoc. Prof. / Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



وحدة ضمان الجودة



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة

الفرقة الثانية

الفصل الدراسي الأول



Course Specification

2025-2026

1. Basic Information

Course Title	Engineering Probability and Statistics				
Course Code	BAS211				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	-	2	4	4
Course Type	compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Samar Mohammed				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				



2. Course Overview

This course covers fundamental statistical and probability concepts applied in engineering. It begins with Probability Theory, including Conditional Probability and the analysis of Discrete and Continuous Random Variables, along with their associated Probability Distributions. The course then explores the use of Statistics in Engineering, focusing on Descriptive Statistics, Sampling Distributions, and methods for Estimation and Confidence Intervals. It also covers Hypothesis Testing for decision-making and concludes with an introduction to Simple Regression analysis for modeling relationships between variables.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Identify the relevant statistical principles and theories in the discipline.
		2	Solve complex engineering problems by applying the concepts and the theories of statics, appropriate to the discipline.
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Analyze data to interpret it.
		2	Applying statistical analyses and objective engineering judgment to draw conclusions

Course Schedule



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures)	Tutorial	Training (Practical)	Self-learning (Tasks/ Assignments/ Projects)
1	Probability Theory	8	2	2	-	4
2	Probability Theory	8	2	2	-	4
3	Conditional Probability	8	2	2	-	4
4	Discrete Random Variables	8	2	2	-	4
5	Continuous Random Variables	8	2	2	-	4
6	Probability Distributions on continuous random variables	8	2	2	-	4
7	Exercise on Discrete and Continuous Random Variables	8	2	2	-	4
8	Probability Distributions on discrete random variables Midterm Exam	8	2	2	-	4
9	Descriptive Statistics & Statistics in Engineering	8	2	2	-	4
10	Descriptive Statistics & Statistics in Engineering	8	2	2	-	4
11	Estimation & Confidence Intervals	8	2	2	-	4
12	Practice & Review	8	2	2	-	4
13	Hypothesis Testing	8	2	2	-	4



14	Simple Regression	8	2	2	-	4
15	Final Written Exam					

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving
4. Brain storming

5. Methods of students' assessment

No.		Assessment Methods	Assessment Timing (Week Number)	Marks	Percentage of total course marks
1	Periodic exams	Exam 1 written (quiz) (Semester work)	4 th	10	10%
		Exam 2 midterm (Semester work)	8 th	20	20%
		Assignments	Any week	10	10%
2	Final Written Exam		15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (Books, Scientific references, etc.)	The main (essential) reference for the course	Sahu, S. K. (2024). <i>Introduction to Probability, Statistics & R: Foundations for Data-Based Sciences</i> . Springer Nature
	Other References	Hinton, P. R. (2024). <i>Statistics explained</i> . Routledge.
		Stroud, K. A., & Booth, D. J. (2024). <i>Advanced Engineering Mathematics</i> . Palgrave Macmillan.



		Pestman, W. R. (2021). <i>Mathematical statistics: an introduction</i> . Walter de Gruyter GmbH & Co KG..
	Learning Platforms	Moodle 3.217.6.68 http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator
Assoc. Prof. Samar Mohammed

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Fluid Mechanics				
Course Code	BAS212				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	1	1	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. / Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief Summary of course overview)

Fluid properties, fluid statics, kinematics, fluid dynamics including energy and momentum equations, dimensional analysis, laminar flow, turbulent flow and its applications, forces on immersed bodies,



introduction to compressible flow, applications to filtration and fluidization. Laboratory course in Fluid Mechanics includes experiments on venture-meter, friction losses in pipes, center of pressure, flow measuring apparatus, multi pump test (Pump characteristics) and losses in piping systems.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Define key concepts of fluid mechanics, including fluid properties, energy and momentum equations, dimensional analysis, and flow types (compressible, laminar, and turbulent).
		2	Analyze different forces acting on immersed bodies and their implications in real-world engineering applications.
		3	Apply scientific theories and concepts relevant to fluid mechanics fluid statics, kinematics, and dynamics to solve practical problems and fluid flow in piping systems.
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Apply Bernoulli's equation and continuity equation in practical experiments, such as measuring flow rates using Venturi meters and analyzing friction losses in pipes.
		2	Analyze experimental data related to fluid behavior in laboratory settings and field applications involving piping and pumping systems.
		3	Conduct basic experiments to explore the static and dynamic characteristics of fluids, and assess their impact on engineering systems

Course Schedule

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research
6. Practical

Course Schedule



Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures)	Tutorial	Training (Practical)	Self-learning (Tasks/ Assignments/ Projects)
1	Fluid Properties Lab: Measure the density of various liquids (water, oil, alcohol) using a hydrometer and compare the results.	8	2	1	1	4
2	Fluid Statics Lab: Create a U-tube manometer and measure the pressure difference between two fluid columns using different fluid heights.	8	2	1	1	4
3	Forces on Immersed Bodies Lab: Submerge various shapes (sphere, cube, cylinder) in water and measure the buoyant force using a spring scale.	8	2	1	1	4
4	Center of Pressure Lab: Center of Pressure.	8	2	1	1	4
5	Fluid Kinematics Lab: Use dye to visualize flow patterns in a water tank.	8	2	1	1	4
6	Fluid Dynamics (Part 1) Introduction + Bernoulli Equation Lab: Set up a Venturi meter, measure the flow rate, and validate Bernoulli's principle by relating pressure differences to velocity changes.	8	2	1	1	4
7	Fluid Dynamics (Part 2) Energy and Momentum Equations Lab: Utilize a pipe with varying diameters and measure velocities and pressures at different points to demonstrate conservation of energy and momentum.	8	2	1	1	4
8	Flow Measurement Techniques Lab: Flow Measuring Apparatus. Midterm Exam	8	2	1	1	4
9	Dimensional Analysis and Similarity Lab: Create scaled models of an object (like a boat) and test it in a small water tank to explore the concept of similarity and dimensionless numbers (e.g., Reynolds number).	8	2	1	1	4
10	Laminar and Turbulent Flow	8	2	1	1	4



	Lab: Use a simple setup of water flowing through a transparent pipe. Change the flow rate and observe the transition between laminar and turbulent flow.					
11	Applications of Laminar/Turbulent Flow Lab: Friction Losses in Pipes	8	2	1	1	4
12	Introduction to Compressible Flow Lab: Use a balloon to demonstrate the principles of compressible flow by inflating it and measuring the pressure changes with a pressure gauge.	8	2	1	1	4
13	Pipe Flow and Pumping Systems Lab: Multi-Pump Test (Pump Characteristics).	8	2	1	1	4
14	Course Review and Applied Problem Solving	8	2	1	1	4
14	Practical Exam					
15	Final Written Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm, quizzes, assignments, lab, reports, and presentation)	Midterm (8 th) and others in any week	30+10+10+5+5=60	%40
2	Practical/Oral	14 th	15	%10
3	Final Written Exam	15 th	75	%50

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	Young, D. F., Munson, B. R., Okiishi, T. H., & Huebsch, W. W. (2021). A brief introduction to fluid mechanics. John Wiley & Sons.
	Other References	- Yunus A. Cengel, John M. Cimbala, "Fluid Mechanics: Fundamentals and Applications". 4th Ed., McGraw Hill, 2020. - Gerhart, Philip M., Andrew L. Gerhart, and John I. Hochstein. Munson, Young and Okiishi's Fundamentals of Fluid Mechanics. John Wiley & Sons, 2021.



		- Potter, M.C. and Ramadan, B.H., 2025. An Introduction to Fluid Mechanics. Springer International Publishing, Imprint: Springer.
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom
	Skill lab	Fluid lab

Name and Signature
Course Coordinator
Assoc. Prof. / Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Engineering Economy				
Course Code	BAS213				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	-	1	3	3
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. Rania Hamdy Elabd				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course provides a comprehensive introduction to engineering economy principles, focusing on evaluating economic factors in engineering decision-making. It begins with the fundamental concept of Time Value of Money, covering present value and future value, along with analysis techniques for determining the minimum



attractive rate of return and comparing different investment scenarios through annual, present, and future analysis. The course then explores Economic and Cost Concepts, including Break-Even Analysis to determine minimum production levels, and Cost-Benefit Analysis for evaluating project viability. Further topics include methods for Calculating Economic Equivalence and comparing alternatives using present worth and annual worth methods, as well as analyzing projects through Rate of Return and Payback Period.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Explain the concepts of engineering economy.
		2	Use math ideas and theories that are applicable to engineering economy.
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Judge engineering decisions considering balanced cost, benefits, safety, quality, reliability, and environmental impact.
		2	Incorporate economic, societal, global, environmental, and risk management factors into design.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures)	Training (Practical)	Self-learning (Tasks/ Assignments/ Projects)	Tutorial
1	Overview, importance and basic concepts	6	2	-	3	1
2	Continued discussion, examples	6	2	-	3	1
3	Fundamentals, calculations	6	2	-	3	1
4	Applications in decision making	6	2	-	3	1
5	MARR, equivalent and comparative analysis	6	2	-	3	1
6	Further applications and case studies	6	2	-	3	1



7	Break-even point, graphical and analytical methods	6	2	-	3	1
8	Evaluating projects, net benefits Midterm Exam	6	2	-	3	1
9	Cost comparisons, replacement and economic life	6	2	-	3	1
10	Decision-making tools, applications	6	2	-	3	1
11	Investment analysis, decision criteria	6	2	-	3	1
12	Cost estimation, optimization methods	6	2	-	3	1
13	Evaluating risks, sensitivity analysis	6	2	-	3	1
14	Case studies, review, and exam preparation	6	2	-	3	1
15	Final Written Exam					

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving
4. Brain storming

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm)	Midterm (8 th)	20	%20
2	Periodic exams (quizzes, assignments, reports and presentation)	any week	10 + 5 + 5= 20	%20
3	Final Written Exam	15 th	60	%60

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific)	The main (essential) reference for the course	Leland Blank and Anthony Tarquin, "Engineering Economy", 9th edition, published by McGraw Hill, 2024
	Other References	- William G Sullivan, "Engineering Economy", 14th Edition, 2025



references, etc.)		- donald g. newnan, jerome p. Lavelle, and ted g. eschenbach, " Engineering Economic Analysis 12th Edition" , 12th edition, oxiford University Press, 2023.
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, Lecture classroom, Institute library

Name and Signature
Course Coordinator
Dr. Rania Hamdy Elabd

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2024-2025

1. Basic Information

Course Title	Computer Programming				
Course Code	BAS214				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	-	2	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Amira Elsonbaty				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to master the students with essential programming knowledge and problem-solving skills, empowering them to use theoretical concepts and analytical thinking to create simple software



solutions using programming languages like Java and communicate effectively to enable students to effectively communicate software solutions through clear programming practices, proper documentation, and the development of graphical user interfaces (GUIs). The scientific content of this course is: problem analysis and developing the programs charts, structured programming with one programming language form of the program, repetition, branching, matrix, processes and functions, registers, pointers, connected lists, self-repetition, the return and Concepts of object Oriented programming: Classes, inheritance and message passing, fundamentals of Java programming language and its syntax, major class libraries in Java, Java applets, Graphic User Interface programming, practice on Java programming language.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	Identify and debug errors in Java programs using structured programming techniques.
		2	Use fundamental programming concepts in Java to analyze and develop solutions for basic computational problems.
		3	Apply basic algorithms in Java to solve computational challenges
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	1	Communicate effectively to develop simple Java applications with graphical user interfaces (GUI) to enhance user interaction.
		2	Demonstrate clear and well-structured Java code that demonstrates logical problem-solving.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Practical

Course Schedule



Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student loads
1	• Lecture: Problem-solving techniques, flowcharts, and introduction to algorithms • Practical: Analyzing real-world problems, designing flowcharts, and writing pseudocode for basic algorithms	8	2	-----	2	4
2	• Lecture: Introduction to programming fundamentals: Basic concepts, programming paradigms, and structured programming principles • Practical: Problem analysis, flowchart development, and hands-on practice with structured programming in Java	8	2	-----	2	4
3	• Lecture: Introduction to classes, objects, and methods in Java • Practical: Designing and implementing basic Java classes and methods	8	2	-----	2	4
4	• Lecture: Primitive data types, variables, and operators in Java • Practical: Declaring/initializing variables, applying arithmetic/logical operators, and debugging syntax errors	8	2	-----	2	4
5	• Lecture: User input/output handling	8	2	-----	2	4



	using Scanner and JOptionPane classes • Practical: Creating simple interactive Java programs to gather and display user input					
6	• Lecture: Control flow I – Conditional statements (if, if-else, nested if, switch) • Practical: Building decision-based applications such as calculators and menu-driven programs	8	2	-----	2	4
7	• Lecture: Control flow II – Iterative structures (for, while, do-while loops) • Practical: Writing loop-based programs (e.g., summation, factorial, pattern generation)	8	2	-----	2	4
8	• Lecture: Midterm Review and Practice • Practical: Solving integrated problems using control structures and previously learned concepts Mid Term Exam	8	2	-----	2	4
9	• Lecture: Introduction to Graphical User Interfaces (GUI) in Java • Practical: Designing basic GUI applications using Swing components (buttons, labels, text fields)	8	2	-----	2	4
10	• Lecture: Introduction to APIs – Definition, types, and uses in engineering applications	8	2	-----	2	4



	• Practical: Connecting to a public API (e.g., weather data) and displaying results in Java					
11	• Lecture: Advanced GUI concepts – Event handling, panels, and layout managers • Practical: Building interactive GUI applications with event handling features	8	2	-----	2	4
12	• Lecture: Project Planning and Code Modularity – Functions, reuse, and best practices • Practical: Beginning work on a small-scale Java project applying all previous skills	8	2	-----	2	4
13	• Lecture: Project Development and Testing – Debugging, validation, and user interaction • Practical: Finalizing and testing the Java project	8	2	-----	2	4
14	• Lecture & Practical: Project presentation, course summary, and final review - Practical Exam	8	2	-----	2	4
15	FINAL_WRITING_EXAM					



5. *Methods of students' assessment*

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 2 written..... (Midterm)	8 th	20	20%
2	Assignments, quiz, Project	Any week	20	20%
3	Final Practical Exam	14 th	10	10%
4	Final Written Exam	15 th	50	50%

6. *Learning Resources and Supportive Facilities*

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	A. Smith and B. Johnson, Modern Java (2023) Programming: From Basics to Advanced Concepts, 1st ed. New York, NY, USA: Tech. Press.
	Other References	C. Brown and D. Lee, Java GUI Development with Swing and JavaFX, 2nd ed. San Francisco, CA, USA: CodeMasters, 2024. E. Taylor and F. White, APIs in Action: Building and Consuming Web Services with Java, 1st ed. London, UK: WebTech Publications, 2023.



		G. Harris and H. Clark, Problem Solving with Java: Algorithms and Data Structures, 3rd ed. Boston, MA, USA: AlgoBooks, 2024. I. Martinez and J. Adams, Object-Oriented Programming in Java: Principles and Practices, 2nd ed. Berlin, Germany: OOPWorld, 2023.
	Electronic Sources (Links must be added)	
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	-
	Skill Labs/ Simulators	Computer Lab

Name and Signature
Course Coordinator
Dr. Amira Elsonbaty

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Structures analysis (3)				
Course Code	CIE211				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course	Lectures	Tutorial	Practical	Total contact hours	Student load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program.				
Faculty/Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. Rafik Wadia				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)



This course aims to analyze different structures statically indeterminate structures using force method, slope deflection method, moment distribution method and introduction to stiffness method.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Apply engineering basics that are relevant to the structural analysis for the indeterminate structures.
		2	Solve complex engineering problems by applying the concepts and the theories of sciences such as the slope deflection method and moment distribution method for structures analysis.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of structural analysis using force method, slope deflection method
		2	Use the numerical techniques to analyze structures by the slope deflection method, moment distribution method, the stiffness method.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.

Course Schedule



Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Statically Indeterminate Structures	8	2	2	-	4
2	Analysis of statically indeterminate beams using force method	8	2	2	-	4
3	Analysis of statically indeterminate frames using force method	8	2	2	-	4
4	Analysis of statically indeterminate trusses using force method	8	2	2	-	4
5	Analysis of statically indeterminate beams using Slope Deflection Method	8	2	2	-	4
6	Analysis of statically indeterminate no-sway frames using Slope Deflection Method	8	2	2	-	4
7	Analysis of statically indeterminate sway frames using Slope Deflection Method	8	2	2	-	4
8	Analysis of statically indeterminate beams using Moment Distribution Method Midterm Exam	8	2	2	-	4
9	Analysis of statically indeterminate no-sway frames using Moment Distribution Method	8	2	2	-	4
10	Analysis of statically indeterminate sway frames using Moment Distribution Method	8	2	2	-	4
11	Introduction to Stiffness Method	8	2	2	-	4
12	Analysis of beams using Stiffness Method	8	2	2	-	4
13	Analysis of trusses using Stiffness Method	8	2	2	-	4
14	Analysis of frames using Stiffness Method	8	2	2	-	4
15	Final Exam					



5. *Methods of students' assessment*

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1..... (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Assignments	Any week	10	10%
4	Final Written Exam	15 th	60	60%

6. *Learning Resources and Supportive Facilities*

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	El-dakhakhni W. M., Theory of Structures, Part One, Assiut University, 2016.
	Other References	1- Kadhim A., Theory of Structures. pi Engineering platform, Civil Engineering, 2025. 2- EL-Taly B. Structural and Analysis, Menofia Univ., 2019-2020. 3- El-Sayed El-Kasaby and Fayez Kaiser, Theory of Structures-Solved examples”, Part 1, 2018.
	Learning Platforms (Links must be added)	Institute Electronic model: http://3.217.6.68
Supportive facilities &	Devices/Instruments	Data show, Sounding system



equipment for teaching and learning	Supplies	Lecture Classroom

**Name and Signature
Course Coordinator**

Dr. Rafik Wadia

**Name and Signature
Program Coordinator**

Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Properties and strength of materials				
Course Code	CIE212				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course	Lectures	Tutorial	Practical	Total contact hours	Student load
	2	1	1	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr./ Nesreen Elawadly				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)



This course equips students with the manufacture and types of cements, properties and grading of aggregates, and concrete workability tests. It is also studying the factors affecting the workability, factors affecting concrete strength in tension, compression and flexure, durability of concrete, and the concrete mix design. Manufacture of bituminous binders, properties of bituminous binders and mixtures, design and uses of bituminous mixtures. Manufacture of steel, composition and structure of steel, heat treatment of steel, alloy steels.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define, basic characteristics, properties, concepts, and techniques of properties and strength of materials.
		2	Conduct basic experiments to learn about the basic characteristics and features of properties and strength of materials.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe codes of practice, and standards.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize, appropriate and sustainable technologies for construction of buildings.
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Define plan and manage construction process.



4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research
5. Practical

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction to properties and strength of materials	8	2	1	1	4
2	properties and grading of aggregates (fine – coarse) Practical: sieve analysis of aggregate:	8	2	1	1	4
3	Aggregate, practical: Sieve analysis – adsorption	8	2	1	1	4
4	Aggregate, practical: specific gravity – specific volume – fineness modulus	8	2	1	1	4
5	Manufacture and types of cement, practical: compression strength	8	2	1	1	4
6	Cement, Practical: fineness modulus of cement – initial and final setting time	8	2	1	1	4
7	Fresh concrete, concrete workability tests and factors affecting the workability, practical : compacting factor test	8	2	1	1	4
8	Hardened concrete, factors affecting concrete strength in compression, practical: compressive strength. Midterm Exam	8	2	1	1	4
9	Hardened concrete, factors affecting concrete strength in tension, flexure, practical: tensile strength tests	8	2	1	1	4
10	durability of concrete, practical flexural strength test	8	2	1	1	4
11	mix design1, practical: mix trial	8	2	1	1	4
12	mix design2, practical: undestructive tests	8	2	1	1	4



13	Different construction materials, practical: steel tests	8	2	1	1	4
14	Manufacture of steel, composition and structure of steel, heat treatment of steel, alloy steels), (bituminous) Practical Exam	8	2	1	1	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	10	10%
5	Final Practical Exam	14 th	10	10%
4	Assignments, practical, reports.	Any week	7+8+5=20	20%
5	Final Written Exam	15 th	50	50%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Prince Lazar, I. A. Palani, Manish Kumar. (2024) High-performance Sustainable Materials and Structures. Springer Cham. https://doi.org/10.1007/978-3-031-72527-2
	Other References	



		1- Mateckova P., Bilek V., Sucharda O. (2021) Comparative study of high-performance concrete characteristics and loading test of pretensioned experimental beams. Crystals, 11, 427. 2- Mohamed Askar, M. Rashad Islam (2024) Statics and Strength of Materials for Construction, Engineering Technology, and Architecture. CRC Press, Boca Raton https://doi.org/10.1201/9781003347378 ٣- الكود المصري لتصميم وتنفيذ المنشآت الخرسانية كود رقم ٢٠٢٠-٢٠٣
	Learning Platforms (Links must be added)	Institute Electronic model: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
Dr. Nesreen Elawadly

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Surveying (1)				
Course Code	CIE213				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load (self-learning)
	2	1	1	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr./ Ayman Helal				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to focus on surveying, mapping using linear measurements, different types of scales, compass surveying and traverse computations area and volume determination. Leveling: type of levels,



method of calculation, vertical section: profile and cross sections, contouring earth work. theodolite: temporary and permanent adjustment of theodolite, measuring of horizontal and vertical angles, errors in measuring horizontal and vertical angles. Tachometric surveying: Stadia and Tangential method, Substance bar. Traversing: Omitted observations, link traverse.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Explain the scientific principles and theories that apply to the topic.
		2	Use math ideas and theories that are applicable to the field.
A 9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	1	Manage tasks, time, and resources.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of: structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of surveying.
		2	Use either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of surveying.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research
6. Practical

Course Schedule



Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction to Surveying: basic definitions, classification of maps and scales. Mapping using linear measurements Practical: measuring some buildings and details inside the institute using the tape	8	2	1	1	4
2	Introduction to Surveying: Mapping using linear measurements Practical: measuring some buildings and details inside the institute using the tape	8	2	1	1	4
3	Introduction to leveling. Types of levels Practical: Learn about levels devices	8	2	1	1	4
4	Levelling instruments, Practical: Use level and take differential readings between points.	8	2	1	1	4
5	method of calculation Practical: Use level and take differential readings between points.	8	2	1	1	4
6	cross and longitudinal sections Practical: Create longitudinal level	8	2	1	1	4
7	longitudinal sections, contouring earth work Practical: Create longitudinal level	8	2	1	1	4
8	Compass surveying and traverse computation area determination Practical: Make a landline and calculate an area adjacent to it Mid-term written Exam	8	2	1	1	4
9	Compass surveying and traverse computation area determination (continued) Practical: Make a landline and calculate an area adjacent to it	8	2	1	1	4
10	Theodolite: temporary setting up, measuring of horizontal and vertical angles Practical: Identifying theodolite, methods of controlling it, and	8	2	1	1	4



	reading the vertical and horizontal angles					
11	continued	8	2	1	1	4
12	Permanent adjustment of theodolite, errors in measuring horizontal and vertical angles Practical: Using theodolite as a model to identify permanent errors in theory	8	2	1	1	4
13	Tachometric surveying: Stadia and Tangential method, Substance bar. Practical: Using theodolite to measure vertical and horizontal distances by tacheometry	8	2	1	1	4
14	Tachometric surveying: Stadia and Tangential method, Substance bar (Continued) Practical Exam	8	2	1	1	4
15	Final Exam					

5. *Methods of students' assessment*

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments +lab	Any week	5+5 = 10	10%
4	Final Practical Exam	14 th	10	10%
3	Final Written Exam	15 th	50	50%

6. *Learning Resources and Supportive Facilities*



Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	James M. Anderson & Edward M. Mikhail (2022), Modern Surveying.
	Other References	1- Walker, J., and Awange, J. L. (2022) Surveying for Civil and Mine Engineers. 2- Russell C. Brinker, Roy Minnick (1995) The Surveying Handbook. Springer New York, NY. https://doi.org/10.1007/978-1-4615-2067-2
	Electronic Sources (Links must be added)	https://doi.org/10.1007/978-3-030-45803-4
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lab
	Electronic Programs	Spread Excel sheet

**Name and Signature
Course Coordinator
Dr. / Ayman Helal**

**Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr**



وحدة ضمان الجودة



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة

الفرقة الثانية

الفصل الدراسي الثاني



Course Specification

2025-2026

1. Basic Information

Course Title	Numerical Methods in Engineering				
Course Code	BAS221				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	-	2	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Samar Madian				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course delves into Numerical Methods for solving mathematical problems that arise in engineering, science, and applied mathematics. It begins with Curve Fitting techniques, including linear and nonlinear curve



approximation, enabling the modeling of data and functions. The course covers Numerical Solutions of Linear Equations, utilizing methods such as Jacobi, Gauss-Seidel (Gauss), and Successive Over-Relaxation (SOR), coupled with solving Initial Value Problems (ODEs) and Partial Differential Equations (PDEs) for complex systems modeling. Students learn approaches for solving Nonlinear Equations (Roots) through iterative methods, including Bisection and Newton-Raphson techniques. The course emphasizes Interpolation and Polynomial Approximation, with methods such as Lagrange and Newton Divided Difference for function approximation based on discrete data points. Additional topics include advanced Numerical Differentiation and Integration, crucial for approximating derivatives and integrals when analytical solutions are difficult. The course concludes with methods for handling Initial Conditions and Boundary Value Problems, essential in solving differential equations in physical and engineering applications

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Choose relevant mathematical and computer-based methodologies for problem modeling and analysis
A5	Practice research techniques and methods of investigation as an inherent part of learning.	1	Assess Numerical Techniques to Engineering Problems
		2	Search for Research and Case Studies

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures)	Tutorial	Training (Practical)	Self-learning (Tasks/ Assignments/ Projects)
1	Curve Fitting for Straight Line	8	2	2	-	4
2	Curve Fitting for Curves	8	2	2	-	4
3	Numerical Solution of Linear Equations (Jacobi & Gauss)	8	2	2	-	4



4	Numerical Solution of Linear Equations (SOR) &	8	2	2	-	4
5	Numerical Solution of Partial Differential Equations (PDEs)	8	2	2	-	4
6	Numerical Solution of Nonlinear Equations (Roots)	8	2	2	-	4
7	Interpolation and Polynomial Approximation: Lagrange Method	8	2	2	-	4
8	Interpolation and Polynomial Approximation: Newton Divided Difference Midterm Exam	8	2	2	-	4
9	Newton Backward, Gauss Forward, Gauss Backward, and Stirling's Approximation	8	2	2	-	4
10	Numerical Differentiation & Numerical Integrations	8	2	2	-	4
11	Initial Value Problems (ODEs)	8	2	2	-	4
12	Application of Numerical Methods in Real-World Problems	8	2	2	-	4
13	Numerical Differentiation & Numerical Integrations	8	2	2	-	4
14	Initial Condition and Boundary Value Problems	8	2	2	-	4
15	Final Written Exam					

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion



3. Problem solving

4. Brain storming

5. Methods of students' assessment

No.	Assessment Methods *		Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams	Midterm	8 th	20 (Midterm)	40%
		Quizzes - Short Tests- Assignments	Any week	+10+10=40	
۳	Final Written Exam		15 th	60	60%

Learning Resources and Supportive Facilities

Learning resources (Books, Scientific references, etc.)	The main (essential) reference for the course	Singh, H., Singh, J., Purohit, S. D., & Kumar, D. (Eds.). (2021). <i>Advanced numerical methods for differential equations: Applications in science and engineering</i> . CRC Press.
	Other References	Leader, J. J. (2022). <i>Numerical analysis and scientific computation</i> . Chapman and Hall/CRC.
		Vuik, K., Vermolen, F., van Gijzen, M., & Vuik, T. (2023). <i>Numerical methods for ordinary differential equations</i> . TU Delft Open Publishing.
		Boehm, W. (2021). <i>Numerical methods</i> . CRC Press.
		Botelho, F. S. (2021). <i>Functional analysis, calculus of variations and numerical methods for models in physics and engineering</i> . CRC Press, Taylor & Francis Group.
	Learning Platforms	Moodle 3.217.6.68 http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator
Assoc. Prof. Samar Madian

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Hydrology and Irrigation Engineering				
Course Code	CIE221				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course develops advanced competency in designing efficient irrigation/drainage infrastructure through mastery of hydrological analysis, modern engineering tools, and sustainable technology



selection. The scientific content of this course is to study hydrologic cycle; precipitation (types of precipitation, measurements of precipitation, estimates of missing data, double mass curve, and mean areal depth of precipitation). To determine hydrologic losses (evaporation, evapotranspiration, interception, and infiltration). Hydrograph (rainfall-runoff, relationship, hydrograph, unit hydrograph, and S-curve). To study the irrigation engineering; water requirements, control and management for distribution of irrigation water, planning and design of irrigation and drainage networks, sprinkler irrigation, drip irrigation, and covered drainage.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles of water resources, Hydrological cycle, Precipitation, Hydrological losses (evaporation and infiltration), and Hydrograph.
		2	Analyze and interpret data for estimating of precipitation, evaporation, evapotranspiration, infiltration, and crop water requirements for crops and managing and distribution of irrigation systems and drainage.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of Soil – Plant – Water relationship, irrigation and drainage networks, surface irrigation, modern irrigation systems (Sprinkler irrigation and Drip irrigation), and drainage engineering .
		2	Use either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of Irrigation and Drainage Canal Design, Sprinkler and Trickle Irrigation parts, Precipitation and Hydrological losses.



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum Planning and design of open channel for irrigation and drainage networks, and design of modern irrigation systems (sprinkler and drip). In addition, to achieve an optimum planning and design of water resources with respect to applied hydrology (Precipitation, Hydrograph, and Hydrological losses).

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Project
5. Self-learning and research.

Course schedule



Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Definitions – water resources – Hydrological cycle	8	2	2	-	4
2	Precipitation	8	2	2	-	4
3	Hydrological losses	8	2	2	-	4
4	Hydrograph	8	2	2	-	4
5	Estimating of crop water requirements and irrigation.	8	2	2	-	4
6	Soil – Plant – Water relationship	8	2	2	-	4
7	Managing and distribution of irrigation systems	8	2	2	-	4
8	Managing and distribution of irrigation systems (Continued) Mid-term written Exam	8	2	2	-	4
9	Introduction to various types of irrigation systems – surface irrigation systems	8	2	2	-	4
10	Planning and design of surface irrigation networks.	8	2	2	-	4
11	Planning and design of surface drainage network.	8	2	2	-	4
12	Sprinkler of sprinkler irrigation system.	8	2	2	-	4
13	Design of Drip irrigation	8	2	2	-	4
14	Design of subsurface drainage system.	8	2	2	-	4
15	Final written exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1 of the	Exam 1..... (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Assignments, Project	Any week	6 + 4 =10	10%



4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	S. K. Ukarande (2023) Irrigation Engineering and Hydraulic Structures, Springer Cham https://doi.org/10.1007/978-3-031-33552-5
	Other References	Vijay P. Singh and Qiong So. (2022). "Irrigation Engineering: Principles, Processes, Procedures, Design, and Management". Cambridge University Press. Gabr, M. E. (2021). Modelling net irrigation water requirements using FAO-CROPWAT 8.0 and CLIMWAT 2.0: a case study of Tina Plain and East South ElKantara regions, North Sinai, Egypt. Archives of Agronomy and Soil Science, 68(10), 1322–1337. https://doi.org/10.1080/03650340.2021.1892650
	Electronic Sources (Links must be added)	https://doi.org/10.1007/s13201-023-01961-y
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
Assoc. Prof. / Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Reinforced Concrete (1)				
Course Code	CIE 222				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	4	2	-	6	5
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Prof. Dr./ Khaled Fawzy & Dr./ Hamdy Abd-Elatty				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)



The aim of this course is to master a broad range of engineering knowledge and specialized skills regarding the reinforced concrete elements. The scientific content of this course is: Introduction to reinforced concrete, design criteria, design of sections subjected to moments. Study the bond length between concrete and steel bars, shear in beams. Design of one way and two-way slabs and load calculation in slabs and beams.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles and basic properties of of Load calculation in slabs and beams- Design of sections and Bond length between concrete and steel bars.
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to reinforced concrete.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe codes of practice, and standards.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation	1	Achieve an optimum design of Reinforced Concrete.



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.		

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.
5. Brainstorming

Course Schedule

Number of the week	Scientific content of the course (Course Topics)	Totally Weekly Hours	Expected number of the learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Introduction, materials, properties	11	4	2	-	5
2	Design methods and requirements.	11	4	2	-	5
3	Load distribution	11	4	2	-	5
4	Load distribution (continued)	11	4	2	-	5
5	Load distribution (continued)	11	4	2	-	5
6	Loading analysis and design	11	4	2	-	5
7	Loading analysis and design (continued)	11	4	2	-	5



8	Limit state design method (Flexural analysis and design, shear and design, etc). Midterm Exam	11	4	2	-	5
9	Loading analysis	11	4	2	-	5
10	Design of Beams	11	4	2	-	5
11	Design of solid slabs One	11	4	2	-	5
12	Design of two-way slabs	11	4	2	-	5
13	Short columns	11	4	2	-	5
14	Short columns (continued)	11	4	2	-	5
15	Final Exam					

5. *Methods of students' assessment*

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	15	10%
2	Exam 2 written..... (Midterm)	8 th	30	20%
3	Assignments + Project	Any week	10 + 5 = 15	7% + 3% = 10%
4	Final Written Exam	15 th	90	60%



6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Li, Zongjin, et al. Advanced concrete technology. John Wiley & Sons, 2022.
	Other References	Richardson, Mark G. Fundamentals of durable reinforced concrete. CRC Press, 2023.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	SAP, ETABS, SAFE, CSI Columns and Excel

Name and Signature
Course Coordinator
Prof. Dr./ Khaled Fawzy &
Dr./ Hamdy Abd-Elatty

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Surveying (2)				
Course Code	CIE223				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load (self-learning)
	2	1	1	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr./ Ayman Helal				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department/committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

In this course the student will be able to set out of horizontal and vertical curves. Introduction to theory of errors and error analysis of surveying measurements. Coordinate transformations. Coordinate



computations: Intersection, and resection. Modern methods for distance measurements: Electromagnetic Distance Measurement (EDM) and Total Station. Introduction to Geodesy. Introduction to Global Positioning System (GPS).

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	1	Explain the scientific principles and theories that apply to the topic.
		2	Formulate math ideas and theories that are applicable to the surveying
A 9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	1	Use creatively in solving problems of design.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of surveying.
		2	Use either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of surveying.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research
6. Practical

Course Schedule



Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Indirect methods for distance measurement: Stadia method-tangent methods-substance bar.	8	2	1	1	4
2	Setting out of horizontal curves	8	2	1	1	4
3	Setting out of vertical curves	8	2	1	1	4
4	Introduction to theory of errors and error analysis of surveying measurements.	8	2	1	1	4
5	Computations of areas of earth work in construction sites.	8	2	1	1	4
6	Computations of volumes of earth work in construction sites	8	2	1	1	4
7	Coordinate systems and transformations coordinate computations: Polar method-intersection-resection	8	2	1	1	4
8	Coordinate systems and transformations coordinate computations: intersection-resection Mid-term written Exam	8	2	1	1	4
9	Modern methods for distance measurements: Distance measurement (EDM)	8	2	1	1	4
10	Modern methods for distance measurements: total stations.	8	2	1	1	4
11	Setting out of engineering projects.	8	2	1	1	4
12	Introduction to Geodesy	8	2	1	1	4
13	Course Project	8	2	1	1	4
14	Course Project (Continued) Practical Exam	8	2	1	1	4
15	Final Exam					



5. *Methods of students' assessment*

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	8%
2	Exam 2 written..... (Midterm)	8 th	25	20%
3	Assignments projects	Any week	10+5=15	12%
4	Final Practical /oral Exam	14 th	15	12%
3	Final Written Exam	15 th	60	48%

6. *Learning Resources and Supportive Facilities*

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	James M. Anderson & Edward M. Mikhail (2022), Surveying: Theory and Practice, McGraw-Hill Education.
	Other References	B. F. Kavanagh (2020), Surveying: Principles and Applications, Pearson/Prentice Hall.
	Electronic Sources (Links must be added)	<u>https://doi.org/10.1007/978-3-030-45803-4</u>
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: <u>http://3.217.6.68</u>
	Devices/Instruments	Data show, Sounding system



Supportive facilities & equipment for teaching and learning	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet
	Lab	Surveying Lab

Name and Signature
Course Coordinator
Dr. / Ayman Helal

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Traffic and Transportation Engineering				
Course Code	CIE224				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in Nem Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. /Ayman Helal				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

1. Course Overview (Brief summary of scientific content)

This course aims to study the **principles** of traffic engineering. Road-user and vehicle characteristics. Travel time, speed and volume studies. Highway capacity. Pedestrian, parking and accident studies. Traffic control devices. Intersections and Grade-separations. Cross-section elements, sight distances, and horizontal and vertical alignments. Principles of



transportation planning. Transportation systems planning and demand analysis. The 3-steps model of urban transportation planning.

2. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles and basic of traffic and transportation works and use the sustainable technologies.
		2	Conduct appropriate simulation to learn about transportation and traffic or other emerging field relevant to the discipline.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards.
		2	Utilize modern technologies for road construction.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of works for transportation and traffic or any other emerging field relevant to the discipline.



3. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Problem solving
3. Brain storming
4. Self-learning and research.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Principles of traffic engineering	8	2	2	-	4
2	Road-user and vehicle characteristics	8	2	2	-	4
3	Travel time, speed and volume studies	8	2	2	-	4
4	Highway capacity	8	2	2	-	4
5	Pedestrian, parking and accident studies	8	2	2	-	4
6	Traffic control devices	8	2	2	-	4
7	Intersections and Grade-separations	8	2	2	-	4
8	Intersections and Grade-separations (continue). Mid-term written Exam	-	-	2	-	4
9	Cross-section elements	8	2	2	-	4
10	Sight distances	8	2	2	-	4
11	Horizontal alignments	8	2	2	-	4
12	Vertical alignments	8	2	2	-	4
13	Principles of transportation systems planning, demand analysis.	8	2	2	-	4
14	The 3-steps model of urban transportation planning	8	2	2	-	4
15	Final Exam					



4. *Methods of students' assessment*

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1..... (Semester work)	4 th	10	8%
2	Exam 2 written (midterm)	8 th	25	20%
3	Final Written Exam	15 th	75	60%
4	Assignments	Any week	15	12%

5. *Learning Resources and Supportive Facilities*

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Beverly T. K., Transportation Engineering, A practical approach to highway design, traffic analysis, and systems operation, Texas A&M University, 2022
	Other References	Khisty C. J. and Lall B. K., Transportation Engineering – An Introduction, 3rd Edition, Prentice-Hall, Inc., New Jersey, USA, 2018
	Learning Platforms	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room



Name and Signature
Course Coordinator
DR. /Ayman Helal

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Principles of Building Constructions				
Course Code	CIE225				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student's Load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in Nem Damietta.				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. / Ayman Helal				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

1. Course Overview (Brief summary of scientific content)

This course aimed to study the building construction techniques; conventional methods, construction automation, Prefabricated methods. Architecture drawings and details, steps of the construction of a building, foundations, staircases, roofs, walls, paint, floorings, electrical and plumbing services, principles



of architecture, theories, architecture panels details and basic architecture principles (utility, service, ventilation and properties).

2. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	1	Show the appropriate and sustainable technologies for construction of buildings, infrastructures and water structures.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of: structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize, appropriate and sustainable technologies for construction of buildings,
B3	Plan and manage construction processes; address construction defects, instability and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Define plan and manage construction process.
		1	Address construction defects, instability and quality issues

3. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Construction technology of different types of projects	8	2	2	-	4
2	Conventional construction methods	8	2	2	-	4
3	Construction Equipment	8	2	2	-	4
4	Pre-fabricated construction methods	8	2	2	-	4
5	Effect of environment on methods of construction	8	2	2	-	4
6	Architectural principals (utilities – services – properties)	8	2	2	-	4
7	Safety issues during different stages of construction	8	2	2	-	4
8	Examples of construction of different types of projects (buildings, roads) Mid-term written Exam	8	2	2	-	4
9	Examples of construction of different types of projects RCC dams, marine works, underground structures, etc.)	8	2	2	-	4
10	Building materials technology (steel, concrete, wood and natural stones)	8	2	2	-	4
11	Developing new materials (Fiber reinforced polymers)	8	2	2	-	4
12	Developing new materials (high strength concrete and ultra-high strength concrete)	8	2	2	-	4
13	Architectural drawings and details	8	2	2	-	4
14	Architectural drawings and details (Continued)	8	2	2	-	4
15	Final Exam					



4. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1..... (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Final Written Exam	15 th	60	60%
4	Assignments	Any week	10	10%

5. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Mahmoud Ramadan, 2023 "Modern Construction Methods and Techniques"
	Other References	Dr. Adel El-Sayed, 2022 "Innovations in Construction and Architectural Finishes"
	Other References	Dr. Hussein El-Qadi, 2023 "Architectural and Construction Innovation: Trends in Building Methods"
	Electronic Sources (Links must be added)	
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom



for teaching and learning	Electronic Programs	Spread Excel sheet

**Name and Signature
Course Coordinator
Dr. / Ayman Helal**

**Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr**



Course Specification

2025-2026

1. Basic Information

Course Title	Training 1				
Course Code	CIE226				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lecture	Tutorial	Practical	Student's load	Training
	-	-	-	-	80 hours
The student should make training in the summer following the 2nd semester for 4 weeks.					
Course Type	Compulsory				
Academic level at which the course is taught	Level 2				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

Students should spend 4 weeks in field training, after completing the Second level, in any Engineering Institution or Engineering Firms. Students should demonstrate the professional and practical skills they acquired during discussion with their assigned tutors.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the various construction defects, instability and quality issues and assess environmental impacts of projects.
		2	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
		3	Apply engineering design procedures to generate cost-effective solutions while adhering to the principles and contexts of sustainable design and development.
A5	Practice research techniques and methods of investigation as an inherent part of learning.	1	Assess different ideas, views, and knowledge from a range of sources.
		2	Prepare technical reports.
		3	Search for information to engage in lifelong self-learning discipline.
A6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	1	Show the appropriate and sustainable technologies for construction of buildings, infrastructures and water structures.
A7	Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.	1	Collaborate within multidisciplinary team.
		2	Work in stressful environment and within constraints.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize, appropriate and sustainable technologies for construction of buildings, infrastructures and water structures.
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	2	Address construction defects, instability, and quality issues.



4. Teaching and Learning Methods

1. Discussion
2. Problem solving
3. Brain storming
4. Self-learning and Research
5. Site visits

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours				
			Lectures	Tutorial	Practical	Students Load	Training
1	Students should demonstrate the professional and practical skills they acquired during discussion with their assigned tortures, regarding the Data collection regarding the project (project contents – project contract and the construction drawings – project site investigations)	20	-	-	-	-	20
2	Students should demonstrate the professional and practical skills during the project construction stage methods	20	-	-	-	-	20
3	Students should demonstrate the professional and practical skills during the project construction stage methods	20	-	-	-	-	20
4	Students should demonstrate the professional and practical skills during the project construction stage methods	20	-	-	-	-	20



5	The students will prepare their training reports and presentations						
6	Final exam						

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks	Percentage of total course Marks
1	Periodic exams (reports, and presentation)	During the training	30	60%
2	Final Term Exam	6 th	20	40%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	- Subject studies
	Learning Platforms (Links must be added)	- Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	lecture classroom, Site visiting, Lab.

Name and Signature
Course Coordinator
Assoc. Prof. / Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



وحدة ضمان الجودة



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة

الفرقة الثالثة

الفصل الدراسي الأول



Course Specification

2025-2026

1. Basic Information

Course Title	Reinforced Concrete (2)				
Course Code	CIE 311				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	4	2	-	6	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Prof. Dr./ Khaled Fawzy & Dr./ Hamdy Abd-Elatty				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				



2. Course Overview (Brief summary of scientific content)

After the compilation of this course the student will be able to design the reinforced concrete elements such as the hollow block slabs, design of sections subjected to torsion, design of flat slabs, design of paneled beam slabs and design of stairs.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe codes of practice, and standards.
		2	Utilize modern technologies.
		3	Apply quality assurance procedures and follow codes
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of Reinforced Concrete.



4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.
5. Brainstorming

Course Schedule

Number of the week	Scientific content of the course (Course Topics)	Totally Weekly Hours	Expected number of the learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Design of hollow block slabs (one way slab)	10	4	2	-	4
2	Design of hollow block slabs (two-way slab)	10	4	2	-	4
3	continued	10	4	2	-	4
4	Design of flat slabs.	10	4	2	-	4
5	Design of flat slabs (continued)	10	4	2	-	4
6	Design of flat slabs (continued)	10	4	2	-	4
7	Design of paneled beam slabs	10	4	2	-	4
8	Design of paneled beam slabs (Continued) Mid-term written Exam	10	4	2	-	4



9	Design of paneled beam slabs (continued)	10	4	2	-	4
10	Design of stairs.	10	4	2	-	4
11	Design of stairs.(continued)	10	4	2	-	4
12	Design of stairs.(continued)	10	4	2	-	4
13	Design of sections subjected to torsion	10	4	2	-	4
14	Design of sections subjected to torsion (continued)	10	4	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	15	10%
2	Exam 2 written..... (Midterm)	8 th	30	20%
3	Assignments + Project	Any week	10+5=15	10%
4	Final Written Exam	15 th	90	60%

6. Learning Resources and Supportive Facilities



Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	American Concrete Institute. (2024). ACI Collection of Concrete Codes, Specifications, and Practices. Farmington Hills, MI: American Concrete Institute. American Concrete Institute
	Other References	Müller, M. A. (2024). The conceptual review on use of hollow concrete blocks in RC design. AIP Conference Proceedings, 3050(1), 040011.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	SAP, ETABS, SAFE, CSI Columns and Excel

Name and Signature
Course Coordinator
**Prof. Dr./ Khaled Fawzy &
Dr./ Hamdy Abd-Elatty**

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Geology and Soil Mechanics 1				
Course Code	CIE 312				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	2	1	1	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Hany Hashish				
Course Specification Approval Date	26/7/2025				
Course Specification Approval	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to equip students with the knowledge and skills to understand and apply geological principles and soil behavior to engineering projects. This includes identifying and classifying rocks and soils, understanding their properties, and analyzing their behavior under various conditions. Ultimately, the goal is to ensure the stability and safety of structures and infrastructure built on or within the earth. The geology scientific content includes sources and processes for geological component needed for construction, minerals and rocks types. Structure geology and influence of geological features on engineering works. Soil physical properties; soil formation, weight-volume relationships, plasticity and structure of soil, classification of soil, soil compaction. Soil mechanical



properties; permeability, seepage, stress distribution, consolidation, and shear strength. Various laboratory experiments are performed to illustrate the basic principles of soil mechanics.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	Explain the basic principles of engineering in geology and soil mechanics.
		2	Apply engineering basics that are relevant to geology and soil mechanics.
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define, basic characteristics, properties, concepts, and techniques of soil mechanics.
		2	Conduct basic experiments to learn about the basic characteristics and features of soil mechanics.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as environmental concerns for geotechnical behavior.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of soil mechanics.
		2	Use either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of soil mechanics



4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research
6. Practical

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Introduction and basics of Geology	8	2	1	1	4
2	Basic geological properties of rocks	8	2	1	1	4
3	Soil Characteristics: (water content test– specific gravity Practical: water content	8	2	1	1	4
4	Soil Characteristics: (sieve analysis for coarse aggregate) Practical: specific gravity	8	2	1	1	4
5	Soil Characteristics: (hydrometer) Practical: sieve analysis for coarse aggregate	8	2	1	1	4
6	Soil Characteristics: (Casagrande) Practical: hydrometer	8	2	1	1	4
7	Soil Characteristics: (sand cone test) Practical: Casagrande	8	2	1	1	4
8	Soil Characteristics: (standard proctor test – modified proctor test) Practical: (sand cone test) Mid-term written Exam	8	2	1	1	4
9	Permeability and Seepage Practical: (sand cone test)	8	2	1	1	4
10	Continued Practical: (standard proctor test)	8	2	1	1	4
11	Effective stresses and pore water pressure Practical: (standard proctor test)	8	2	1	1	4



12	Stresses and strains in continuous body and shear stress of soil Practical: (modified proctor test)	8	2	1	1	4
13	Consolidation of soil Practical: (modified proctor test)	8	2	1	1	4
14	Stability analysis Practical Exam	8	2	1	1	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	8%
2	Exam 2 written..... (Midterm)	8 th	20	16%
3	Assignments	Any week	10	8%
4	Practical exam	14 th	10	8 %
5	Final Written Exam	15 th	75	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Mitchell, J. K., Soga, K., & O'Sullivan, C. (2025). Fundamentals of soil behavior. John Wiley & Sons.
	Other References	Sivakugan, S. (2021). Soil Mechanics and Foundation Engineering. McGraw-Hill.
	Electronic Sources (Links must be added)	https://www.accessengineeringlibrary.com/content/book/9781260468489
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	
	Lab	Laboratory

Name and Signature
Course Coordinator
Dr. Hany Hashish

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr





Course Specification

2025-2026

1. Basic Information

Course Title	Open channel hydraulics				
Course Code	CIE313				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	2	1	1	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)



This course equips the civil engineering students with advanced knowledge and analytical skills to solve complex open-channel flow problems, optimize hydraulic structure design, and implement sustainable water management solutions. The scientific content of this course is to study the basic concepts (section properties, classification of flow, parallel and curvilinear flow, Saint Venant equations, velocity distribution, velocity coefficients, and the boundary layer). The energy principles (specific energy and specific discharge, the transition problem, choking phenomena, control section, and the discharge measuring). The momentum principles (hydraulic jump, momentum function, jump classification, and surge in open channel). Flow resistance (shear stress on wetted perimeter, resistance equations, and the channels with composite roughness). Gradually varied flow (types of slopes, dynamic equation of G.V.F, classification of flow profile, and the methods of computations). Design of channel for uniform flow (erodible and non-erodible channels, best hydraulic sections, maximum permissible velocity method, and the tractive force method). In addition conduct open channel hydraulics experiments regarding the open channel discharge, specific energy and hydraulic jump.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles, basic properties, and features of open channel hydraulics, specific energy, specific force, and surface water profiles for water structures.
		2	Conduct basic experiments to learn about the basic characteristics and features of channel section properties, flow types in open channels, hydraulic jump.



Program Outcomes (NARS 2018)		Course Learning Outcomes	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns related to open channel hydraulics.
		2	Utilize modern technologies in open channel hydraulics to measure the discharge.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design regarding open channel hydraulics, channel design, specific energy, rapidly varied flow, gradually varied flow, and water surface profiles.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.
5. Field visits.
6. Project
7. Practical



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Basic concepts (section properties – classification of flow – parallel and curvilinear flow).	8	2	1	1	4
2	Saint Venant equations velocity distribution – velocity coefficients – boundary layer.	8	2	1	1	4
3	The energy principles (specific energy and specific discharge). Practical: specific discharge experiment.	8	2	1	1	4
4	The energy principles (the transition problem – choking phenomena – control section – discharge measuring). Practical: discharge measuring.	8	2	1	1	4
5	The momentum principles (hydraulic jump). Practical: hydraulic jump experiment.	8	2	1	1	4
6	The momentum principles (momentum function – jump classification, and surge in open channel)	8	2	1	1	4
7	The momentum principles (surge in open channel). Practical: flow under sluice gate.	8	2	1	1	4
8	Flow resistance (shear stress on wetted perimeter – resistance equations)	8	2	1	1	4



	Mid-term written Exam					
9	Flow resistance (channels with composite roughness). Practical: Manning's roughness experiment.	8	2	1	1	4
10	Gradually varied flow (types of slopes – dynamic equation of G.V.F). Practical: flow over weirs.	8	2	1	1	4
11	Gradually varied flow (classification of flow profile – methods of computations).	8	2	1	1	4
12	Gradually varied flow applications. Practical: flow over a hump.	8	2	1	1	4
13	Design of channel for uniform flow (erodible and non-erodible channels). Design of channel for uniform flow (best hydraulic sections – maximum permissible velocity method – tractive force method).	8	2	1	1	4
14	Practical Exam	8	2	1	1	4
15	Final Exam					

5. Methods of students assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	5	5%
2	Exam 2 written..... (Midterm)	8 th	15	15%



3	Assignments + Practical + Projects	Any week	5+5 =10	10%
4	Final practical exam	14 th	10	10%
5	Final written exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Potter, M.C., Wiggert, D.C. (2025). Flow in Open Channels. In: Applied Fluid Mechanics. Springer, Cham. https://doi.org/10.1007/978-3-031-65276-9_8
	Other References	Glenn E. Moglen (2022) Fundamentals of Open Channel Flow, 2nd Edition, Boca Raton, https://doi.org/10.1201/9781003263630
	Electronic Sources (Links must be added)	https://doi.org/10.1201/9781003263630
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet
	Skill Labs/ Simulators	Open channel flow lab.

Name and Signature
Course Coordinator
Assoc. Prof. / Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Steel structures Design (1)				
Course Code	CIE314				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	4	2	-	6	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				



2. Course Overview (Brief summary of scientific content)

This course equips the civil engineering students with advanced knowledge and analytical skills to solve design of steel structures; tension and compression members; beams; beam columns; built-up members; plate girders; connection; design practice; tutorial design workshops. As well as the ability to apply acquired knowledge in real-world situations by applying theories and abstract thinking in analytic critical and systemic thinking to identify, diagnose, and solve engineering problems of varying complexity and variation.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	Solve complex engineering problems by applying engineering fundamentals
		2	Apply engineering basics that are relevant to the steel structures design.
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to reinforced concrete and steel structures, foundations and earth retaining structures
		2	Apply the various construction defects, instability and quality issues and assesses environmental impacts of projects.



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
		3	Apply engineering design procedures to generate cost-effective solutions while adhering to the principles and contexts of sustainable design and development.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of steel structures.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.
5. Project

Course Schedule



Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction to design of Steel Structures, Design philosophy	10	4	2	-	4
2	Introduction to design of Steel Structures, Planning	10	4	2	-	4
3	Planning of Layout	10	4	2	-	4
4	Design of: tension members	10	4	2	-	4
5	Design of compression members	10	4	2	-	4
6	Design of Beams	10	4	2	-	4
7	Design of columns	10	4	2	-	4
8	Design of columns (Continued) Mid-term written Exam	10	4	2	-	4
9	Design of Built-up members	10	4	2	-	4
10	Design of Plate girders	10	4	2	-	4
11	Design of Connections	10	4	2	-	4
12	Design of Connections (Continued)	10	4	2	-	4
13	Design practice; Tutorial design workshops	10	4	2	-	4
14	Design practice; Tutorial design workshops (Continued)	10	4	2	-	4
15	Final Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	7%
2	Exam 2 written..... (Midterm)	8 th	30	20%
3	Assignments + Project	Any week	10+10 = 20	13%
4	Final Practical Exam	14 th	-	-
5	Final Written Exam	15 th	90	60%



6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Arya, Chanakya. (2022) Design of structural elements: concrete, steelwork, masonry and timber designs to euro codes. CRC Press.
	Other References	El-Reedy, Mohamed Abdallah. (2023) Steel-reinforced concrete structures: Assessment and repair of corrosion. CRC press. Ellobody, Ehab. (2023) Finite element analysis and design of steel and steel-concrete composite bridges. Elsevier, 2023 Sham Tickoo. (2024). Exploring Autodesk Revit 2024 for Structure (14th ed.)
	Essential books (textbooks)	• Egyptian Code of Practice for Steel Construction and Bridges (ASD), Code No. 205, HBRC, 2016. - Egyptian Code of Loads, Code No. 201, HBRC, 2012. Essential books (textbooks) • Egyptian Code of Practice for Steel Construction and Bridges (ASD), Code No. 205, HBRC, 2016.



		• Egyptian Code of Loads, Code No. 201, HBRC, 2012.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Prof. Dr. Ashraf ElSabbagh

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Highway and Airport Engineering				
Course Code	CIE315				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry Of Higher Education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course aims to make the student able to design, analyze, and implement sustainable road and airport infrastructure using advanced engineering principles by studying strength & stabilization of subgrade soils. Unbound materials characterization. Sources of asphalt, characteristics of asphalt binder and asphalt mixtures. Design of asphalt mixtures. Design of Flexible and Rigid pavements. Pavement drainage. Introduction to Airport Engineering. Aircraft characteristics. Air traffic control. Airport configuration, components, and capacity. Design of airport components.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles and basic highway and airport materials and use sustainable technologies.
		2	Analyze and interpret data
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to soil materials, highways, and airport structures using national highways codes.
		2	Apply the various construction defects, instability and quality issues and assess environmental impacts of projects.
		3	Judge engineering decisions considering balanced quality of pavement,
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize the appropriate and sustainable technologies for construction of highways and airports
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water	2	Achieve an optimum design of works for highway and airports alignment and pavement and or any other emerging field relevant to the discipline.



Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
	Resources and Harbors; or any other emerging field relevant to the discipline.		

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and Research

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Introduction to Highway Engineering	8	2	2	-	4
2	Strength and stabilization of subgrade soils	8	2	2	-	4
3	Strength and stabilization of subgrade soils (Continued)	8	2	2	-	4
4	Unbound materials characterization	8	2	2	-	4
5	Unbound materials characterization (Continued)	8	2	2	-	4
6	Sources and characteristics of asphalt binder	8	2	2	-	4
7	Sources and characteristics of asphalt binder (Continued)	8	2	2	-	4



8	Asphalt mixtures characteristics and design methods. Mid-term written Exam	8	2	2	-	4
9	Asphalt mixtures characteristics and design methods. (Continued)	8	2	2	-	4
10	Design of Flexible	8	2	2	-	4
11	Design of Rigid pavements, and Pavement drainage.	8	2	2	-	4
12	Introduction to Airport Engineering, Aircraft characteristics, and air traffic control.	8	2	2	-	4
13	Airport configuration, components, and capacity	8	2	2	-	4
14	Design of airport components	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments + Project	Any week	5+5=10	10%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities



Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	- Jialiang, Y. Z. (2022). Highway engineering materials and application. Changsha University.
	Other References	- Papagiannakis, A. T., & Masad, E. A. (2020). Pavement design and materials. Wiley. - Ministry of Housing, Utilities & Urban Communities (Egypt). (2020). Egyptian code of practice for urban and rural roads. - Mamlouk, M. S., & Zaniewski, J. P. (2016). Materials for civil and construction engineers (4th ed.). Pearson. ISBN: 0-13-147714-5. - Huang, S. C., & Di Benedetto, H. (Eds.). (2015). Advances in asphalt materials: Road and pavement construction. Woodhead Publishing.
	Learning Platforms (Links must be added)	- Institute Electronic MOODLE: <u>http://3.217.6.68</u>
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

**Name and Signature
Course Coordinator**
Dr. Ayman Helal

**Name and Signature
Program Coordinator**
Assoc. Prof. / Mohamed Gabr



Course Specification

(2025-2026)

1. Basic Information

Course Title	Water Supply Engineering				
Course Code	CIE316				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	-	2	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program.				
Faculty/Institute	The Higher Institute of Engineering and Technology in Nem Damietta.				
University	Ministry of higher education				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to equip students with a broad foundation of engineering knowledge and specialized skills related to water supply systems. The course focuses on mastering the principles of water sourcing, understanding drinking water standards and quality requirements, and achieving optimal design of groundwater collection works, water purification systems, and water distribution networks. Students will also develop the ability to select appropriate and sustainable technologies for the construction and operation of water purification plants and distribution systems. The course content begins with an overview of water supply sources, including surface and groundwater. It then covers national and international drinking water quality standards. Students learn the design principles of groundwater collection systems, followed by detailed study of water purification processes such as coagulation, flocculation, sedimentation, filtration, disinfection, and ground storage. The course also includes the design of water distribution networks, ensuring reliability and efficiency in supply. Finally, students will explore the design of cold-water systems in buildings, with emphasis on pressure requirements, layout, and sustainability.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as	1	Apply general design principles for water supply systems, including water sources, drinking water standards, groundwater collection, water purification works, and cold-water systems.

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	appropriate to the discipline and within the principles and contexts of sustainable design and development.	2	Apply engineering design procedures in the context of sustainable design and development for water purification plants and water distribution system.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize, appropriate and sustainable technologies for water purification works water distribution systems, and ground water collecting technologies
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and	1	Achieve an optimum design of purification works, water supply distribution works and cold-water systems.

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	Harbors; or any other emerging field relevant to the discipline.		

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion.
3. Problem solving.
4. Project.
5. Brain storming.
6. Site visits.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Sources of water supply	8	2	2	-	4
2	Drinking water standards	8	2	2	-	4
3	quality requirement	8	2	2	-	4
4	Ground water collecting	8	2	2	-	4
5	Water purification system: -Collecting works	8	2	2	-	4
6	Water purification system: Coagulation/flocculation tanks.	8	2	2	-	4
7	Water purification system: -Sedimentation tank.	8	2	2	-	4
8	Water purification system: -Filtration. Mid-term written Exam	8	2	2	-	4
9	Water purification system: --Disinfection and ground tank.	8	2	2	-	4
10	Water distribution system design	8	2	2	-	4
11	Water distribution system design (continued)	8	2	2	-	4
12	Water distribution system design (continued)	8	2	2	-	4
13	Cold water system design	8	2	2	-	4
14	Cold water system (continued)	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	15	15%
2	Exam 2 written..... (Midterm)	8 th	25	25%
3	Assignments + Project	Any week	5+5=10	10%
4	Final Written Exam	15 th	75	75%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	• Lahnsteiner, J. (Ed.). (2024). Handbook of Water and Used Water Purification. Springer Nature. https://doi.org/10.1007/978-3-319-78000-9.
	Other References	• Savic, Dragan A., and John K. Banyard, eds. Water Supply and Distribution Systems. Emerald Group Publishing, 2024. • Tzanakakis, V. A., Paranychianakis, N. V., & Angelakis, A. N. (Eds.). (2020, November). Water Supply and Water Scarcity, MDPI, books. • National Research Center for Housing and Building Research. (2004). <i>Egyptian code for the design and construction of drinking water treatment plants, wastewater treatment plants, and pumping stations</i> (Ministerial Decree No. 169/1997, 3rd ed.). Cairo, Egypt: Ministry of Housing, Utilities and Urban Communities. • El-Adawy, M. S. (n.d.). <i>Water supply engineering</i>. Cairo, Egypt: Sadeq Publishing House, Faculty of Engineering, Cairo University.

		• El-Khouly, M. S. (n.d.). <i>Sanitary engineering for buildings</i>. Cairo, Egypt: Faculty of Engineering, Ain Shams University. • Farag, M. A. A. (1990). <i>Sanitary engineering</i>. Alexandria, Egypt: Manshat Al-Maaref, Faculty of Engineering, Alexandria University. • Ashry, A. F. (n.d.). <i>Urban water supply – Drinking water purification and wastewater treatment</i>. Mansoura, Egypt: Faculty of Engineering, Public Works Department, Mansoura University.
	Electronic Sources (Links must be added)	https://doi.org/10.1007/978-3-319-78000-9 . https://doi.org/10.3390/books978-3-03943-307-0 .
	Learning Platforms (Links must be added)	Institute Electronic model: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	White board, lecture classroom
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
 Assoc. Prof. / Mohamed Gabr

Name and Signature
Program Coordinator
 Assoc. Prof. / Mohamed Gabr



وحدة ضمان الجودة



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة

الفرقة الثالثة

الفصل الدراسي الثاني



Course Specification

2025 - 2026

1. Basic Information

Course Title	Project Management and Control				
Course Code	BAS321				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	-	2	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. Elin A. Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course provides a comprehensive overview of project management, focusing on essential tools and techniques for effective project execution. It covers project planning and scheduling, network-based scheduling methods such as the Critical Path Method (CPM) and Program Evaluation and Review Technique (PERT), and the probabilistic analysis of project completion times. Students will also learn strategies for project cost control, efficient resource allocation, and forecasting funds requirements to ensure successful project delivery within time and budget constraints.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Use fundamental organizational and project management abilities.
A9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	2	Manage tasks, time, and resources.
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	3	Define the plan and manage the construction process.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures)	Training (Practical)	Self-learning (Tasks/ Assignment s/ Projects)	Tutorial
1	Introduction to Project Management	8	2	-	4	2
2	Project Planning and Scheduling (Part 1)	8	2	-	4	2
3	Project Planning and Scheduling (Part 2)	8	2	-	4	2
4	Network Based Scheduling (Part 1)	8	2	-	4	2
5	Network Based Scheduling (Part 2)	8	2	-	4	2
6	Critical Path Method (CPM)	8	2	-	4	2
7	Program Evaluation & Review Technique (PERT) (Part 1)	8	2	-	4	2
8	Program Evaluation & Review Technique (PERT) (Part 2) Midterm Exam	8	2	-	4	2
9	Probability Aspects of Project Completion Time	8	2	-	4	2
10	Project Cost Control (Part 1)	8	2	-	4	2
11	Project Cost Control (Part 2)	8	2	-	4	2
12	Resource Allocation (Part 1)	8	2	-	4	2
13	Resource Allocation (Part 2)	8	2	-	4	2
14	Forecasting Funds Requirements + Review	8	2	-	4	2
15	Final Written Exam					

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving
4. Projects

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm, quizzes, assignments and project)	Midterm (8 th) and others in any week	20+10+5+5=40	%40
2	Final Written Exam	15 th	60	%60

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	Project Management Institute and Project Management Institute. A Guide to the Project Management Body of Knowledge (PMBOK Guide) (7 th Edition, 2022).
	Other References	- Frederick Gould and Nancy Joyce (5th Edition, 2024) "Construction Project Management" - Lavagnon Ika (2023) "Managing Fuzzy Projects in 3D: A Proven, Multi-Faceted Blueprint for Overseeing Complex Projects" - Alison Dykstra and Linda Kade (2023) "Construction Project Management. - Paul Mason (2023) "Construction Project Management 101: For Beginners & New Graduates 2024 Student Edition"

		- Tim Mather (2024) "Construction Project Management: A Practical Guide to Managing Residential and Commercial Construction Projects"
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator
 Dr. Elin A. Eldars

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Reinforced Concrete (3)				
Course Code	CIE 321				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	3	2	-	5	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Prof. Dr./ Khaled Fawzy & Dr./ Hamdy Abd-Elatty				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				



2. Course Overview (Brief summary of scientific content)

This course aims to design of halls with reinforced concrete (R.C.) beam girders, Design of R.C. frames, Design of arches, Design of R.C. trusses and Vierendeel girder and Design of saw tooth roofs.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to reinforced concrete.
		2	Apply engineering design procedures to generate cost-effective solutions while adhering to the principles and contexts of sustainable design and development.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe codes of practice
		2	Utilize modern technologies.
		3	Apply quality assurance procedures and follow codes.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and	1	Achieve an optimum design of Reinforced Concrete.



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	Harbors; or any other emerging field relevant to the discipline.		

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.
5. Brainstorming

Course Schedule

Number of the week	Scientific content of the course (Course Topics)	Totally Weekly Hours	Expected number of the learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Design of eccentric sections	9	3	2	-	4
2	Design of long columns	9	3	2	-	4
3	Design of long columns (continued)	9	3	2	-	4
4	Design of halls with beam girders	9	3	2	-	4
5	Design of halls with beam girders (continued)	9	3	2	-	4
6	Design of frames	9	3	2	-	4
7	Design of frames (continued)	9	3	2	-	4
8	Design of frames (continued) Mid-term written Exam	9	3	2	-	4
9	Design of saw tooth roofs.	9	3	2	-	4



10	Design of saw tooth roofs (continued)	9	3	2	-	4
11	Design of arches	9	3	2	-	4
12	Design of arches (continued)	9	3	2	-	4
13	Design of arches (continued)	9	3	2	-	4
14	Design of trusses and Vierendeel girder	9	3	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	8%
2	Exam 2 written..... (Midterm)	8 th	25	20%
3	Assignments and Project	Any week	10+5=15	12%
4	Final Written Exam	15 th	75	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	- Richardson, M. G. (2023). Fundamentals of durable reinforced concrete. CRC Press
	Other References	- Yan, J. B., & Xie, J. (2024). Materials and Structures in Cold Regions. Elsevier Cambridge, MA, United States.



		- Pyo, S. (2022). High performance concrete (p. 408). MDPI-Multidisciplinary Digital Publishing Institute. - Reinforced Concrete, Design theory and examples Third edition Prab Bhatt, Thomas J.MacGinley and Ban Seng Choo - James K. Wight - Reinforced Concrete_Mechanics and Design-Prentice Hall - American Concrete Institute. (2024). ACI Collection of Concrete Codes, Specifications, and Practices
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	SAP, ETABS, SAFE, CSI Columns and Excel

Name and Signature
Course Coordinator
Prof. Dr./ Khaled Fawzy &
Dr./ Hamdy Abd-Elatty

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Soil Mechanics and Foundation				
Course Code	CIE 322				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Hany Hashish				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to master a broad range of engineering knowledge and specialized skills, as well as the ability to apply acquired knowledge in soil mechanics and foundations by applying theories in analytic; solve the geotechnical problems of varying complexity and variation. Geotechnical design of various types of shallow foundations. Achieve an optimum geotechnical design of foundations and earth retaining



structures. Also, select appropriate and sustainable technologies for construction of buildings, using experiment measurements of soil mechanics.

Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	Explain the basic principles of engineering in geology and soil mechanics.
		2	Use scientific concepts and theories that are relevant to soil works.
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to Foundations
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of structural analysis and mechanics, properties and strength of materials, soil mechanics, hydrology and fluid mechanics.
		2	Summarize the appropriate and sustainable technologies for soil mechanics
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and	1	Achieve an optimum design of soil mechanics and retaining structures.

Program Outcomes (NARS 2018)		Course Learning Outcomes	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.		

3. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Stresses in soil mass	8	2	2	-	4
2	Stresses in soil mass (continued)	8	2	2	-	4
3	Consolidation of soil and Settlement and contact pressure	8	2	2	-	4
4	Consolidation of soil and Settlement and contact pressure (continued)	8	2	2	-	4
5	Soil bearing capacity	8	2	2	-	4
6	Soil bearing capacity (continued)	8	2	2	-	4
7	Lateral earth pressure	8	2	2	-	4



8	Lateral earth pressure (continued) Mid-term written Exam	8	2	2	-	4
9	Retaining walls	8	2	2	-	4
10	Retaining walls (continued)	8	2	2	-	4
11	sheet piles	8	2	2	-	4
12	sheet piles (continued)	8	2	2	-	4
13	Slope stability	8	2	2	-	4
14	Introduction to Foundation Engineering	8	2	2	-	4
15	Final Exam					

4. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	15	12%
2	Exam 2 written..... (Midterm)	8 th	20	16%
3	Assignments	Any week	15	12%
4	Final Written Exam	15 th	75	60%

5. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Sivakugan, S. (2021). Soil Mechanics and Foundation Engineering. McGraw-Hill.
	Other References	Babu, K. K., Beena, K. S., & Raji, A. K. (2024). Geotechnical Engineering. Techsar Pvt. Ltd.
	Electronic Sources (Links must be added)	https://www.accessengineeringlibrary.com/content/book/9781260468489
	Learning Platforms	Institute Electronic MOODLE: http://3.217.6.68



	(Links must be added)	
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	

Name and Signature
Course Coordinator
Dr. Hany Hashish

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Computer Applications in Civil Engineering				
Course Code	CIE323				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	2	-	2	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr/ Nesreen Elawadly				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				



1. Course Overview (Brief summary of scientific content)

This course develops students' skills in designing reinforced concrete, steel structures, hydraulic systems, and sanitary works using computer applications. Emphasizing sustainability and modern technologies, it enhances simulation, analysis, and problem-solving abilities with tools like MATLAB, SAP2000, Excel, and other programs, preparing students for advanced civil engineering challenges.

2. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define, basic characteristics, properties, concepts, and techniques to design reinforced concrete and steel structures, hydraulic applications (such as gradually and rapidly varied flow – channel cross-section) and sanitary works (such as water distribution .system) using computer application
		2	Choose relevant mathematical and computer-based methodologies for problem modelling and analysis in civil engineering.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Utilize modern technologies to simulate hydraulic engineering, sanitary Engineering and constructions.



Program Outcomes (NARS)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Use software programs (MATLAB or SAP 2000, Excel, EPANET) to design reinforced concrete and steel structures, hydraulic applications (such as gradually and rapidly varied flow – channel cross-section) and sanitary works (such as storm water network and water distribution system).

3. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.
5. Project
6. Practical

Course Schedule



Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Study of theoretical models for the analysis of structures. Practical: analyze beams, frames, trusses and slabs	8	2	-	2	4
2	Study of theoretical models for the analysis of structures. Practical: analyze beams, frames.	8	2	-	2	4
3	Study of how to choose suitable methods for analysis of various structures. Practical: choose suitable methods	8	2	-	2	4
4	Study of how to choose suitable methods for analysis of various structures. Practical: designing trusses and slabs	8	2	-	2	4
5	Preparation of simple programs based on these models. Practical: design programs for structure analysis using excel or Matlab	8	2	-	2	4
6	Study of available programs and modifying them for analysis of certain problems. Practical: solving some hydraulic problems	8	2	-	2	4
7	Training on the use of available commercial software programs. Practical: using SAP 2000, Excel	8	2	-	2	4
8	Training on the use of available commercial software	8	2	-	2	4



	programs.Practical: using SAP 2000, Excel; midterm exam					
9	Flow resistance (channels with composite roughness).	8	2	-	2	4
10	Gradually varied flow (types of slopes – dynamic equation of G.V.F).	8	2	-	2	4
11	Computer applications. Practical: choosing a civil engineering case study for structural analysis.	8	2	-	2	4
12	Computer applications. Practical: choosing a civil engineering case study for, pipe network design	8	2	-	2	4
13	Computer applications. Practical: choosing a civil engineering case study for, hydraulics, and sanitary engineering.	8	2	-	2	4
14	Computer applications. Practical: choosing a civil engineering case (general). Practical: choosing a civil engineering case Practical Exam	8	2	-	2	4
15	Final Exam					



4. *Methods of students' assessment*

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	5	5%
2	Exam 2 written..... (Midterm)	8 th	15	15%
3	Assignments + Project	Any week	10+10=20	20%
4	Final Practical Exam	14 th	10	10
5	Final Written Exam	15 th	50	50%

5. *Learning Resources and Supportive Facilities*

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Arya, Chanakya. (2022) Design of structural elements: concrete, steelwork, masonry and timber designs to eurocodes. CRC Press.
	Other References	Sham Tickoo. (2024). Exploring Autodesk Revit 2024 for Structure (14th ed.) Springer, .Cham
	Electronic Sources (Links must be added)	https://doi.org/10.1007/978-3-031-65276-9_8
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68



Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet
	Skill Labs/ Simulators	Computer programs of civil Engineering

Name and Signature
Course Coordinator
Dr/ Nesreen Elawadly

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Steel structures Design (2)				
Course Code	CIE324				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	3	2	-	5	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Prof. Dr. Ashraf ElSabbagh				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				



2. Course Overview (Brief summary of scientific content)

This course equips the civil engineering students with advanced knowledge and analytical skills to solve design of steel structures; Steel frames design – riveted and bolted connections – high strength bolted connections – welded constructions – base connections – roof trusses – rigid frames design. As well as the ability to analyze data from the intended tests to manage resources creatively and achieve an optimum design of steel structures.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	Apply engineering basics that are relevant to the steel structures design
		2	Solve complex engineering problems by applying engineering fundamentals
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to reinforced concrete and steel structures, foundations and earth retaining structures
		2	Apply the various construction defects, instability and quality issues and assesses environmental impacts of projects.
		3	Apply engineering design procedures to generate cost-effective solutions while



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
			adhering to the principles and contexts of sustainable design and development.
A5	Practice research techniques and methods of investigation as an inherent part of learning.	1	Search for information to engage in lifelong self-learning discipline.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of steel structures.



4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Project

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction to steel frames design.	9	3	2	-	4
2	steel frames design (design of C.T.G as rolled section)	9	3	2	-	4
3	steel frames design (design of C.T.G as built up section)	9	3	2	-	4
4	steel frames design (design of Columns)	9	3	2	-	4
5	Riveted and bolted connections	9	3	2	-	4
6	High strength bolted connections	9	3	2	-	4
7	Welded connections	9	3	2	-	4
8	Welded connections (Continued) Mid-term written Exam	9	3	2	-	4
9	Base connections (hinged base)	9	3	2	-	4
10	Base connections (fixed base)	9	3	2	-	4
11	Roof trusses	9	3	2	-	4
12	Roof trusses (continued)	9	3	2	-	4



13	Rigid frames design	9	3	2	-	4
14	Rigid frames design (continued)	9	3	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	8%
2	Exam 2 written..... (Midterm)	8 th	25	20%
3	Assignments + Project	Any week	10+5=15	12%
4	Final Written Exam	15 th	75	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Arya, Chanakya. (2022) Design of structural elements: concrete, steelwork, masonry and timber designs to eurocodes. CRC Press.



references, etc.)	Other References	El-Reedy, Mohamed Abdallah. (2023) Steel-reinforced concrete structures: Assessment and repair of corrosion. CRC press.
		Ellobody, Ehab. (2023) Finite element analysis and design of steel and steel–concrete composite bridges. Elsevier
		Sham Tickoo. (2024). Exploring Autodesk Revit 2024 for Structure (14th ed).
	Essential books (textbooks)	• Egyptian Code of Practice for Steel Construction and Bridges (ASD), Code No. 205, HBRC, 2016. • Egyptian Code of Loads, Code No. 201, HBRC, 2012.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Prof. Dr. Ashraf ElSabbagh

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Training 2				
Course Code	CIE325				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms regulation)	Lectures	Tutorial	Practical	Student's Load	Training
	-	-	-	-	80 hours
	The student should make training in the summer following the 2 nd semester for 4 weeks.				
Course Type	compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

1. Course Overview

Students should spend 4 weeks in field training, after completing the Third level, in any Engineering Institution or Engineering Firms. They should prepare a technical report implying a full description of the processes they joined for training. Students should demonstrate the professional and practical skills they acquired during discussion of report with their assigned tutors.



2. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the various construction defects, instability and quality issues and assess environmental impacts of projects.
		2	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
		3	Apply engineering design procedures to generate cost-effective solutions while adhering to the principles and contexts of sustainable design and development.
A5	Practice research techniques and methods of investigation as an inherent part of learning.	1	Prepare technical reports.
		2	Search for information to engage in lifelong self-learning discipline.
A6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	1	Show the appropriate and sustainable technologies for construction of buildings, infrastructures and water structures.
A7	Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.	1	Collaborate within multidisciplinary team.
		2	Work in stressful environment and within constraints.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize, appropriate and sustainable technologies for construction of buildings, infrastructures and water structures.
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and	1	Address construction defects, instability, and quality issues.



Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
	assess environmental impacts of projects.		
B4	Deal with biddings, contracts and financial issues including project insurance and guarantees.	1	Address biddings, contracts and financial issues including project insurance and guarantees.
		2	Apply biddings, contracts, and financial issues on civil engineering projects

3. Teaching and Learning Methods

1. Discussion
2. Problem solving
3. Brain storming
4. Self-learning and Research
5. Site visits

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours				
			Lectures	Tutorial	Practical	Students Load	Training
1	Students should demonstrate the professional and practical skills they acquired during discussion with their assigned tortures, regarding the Data collection regarding the project (project contents – project contract and the construction drawings – project site investigations)	20	-	-	-	-	20
2	Students should demonstrate the professional and practical	20	-	-	-	-	20



	skills during the project construction stage methods						
3	Students should demonstrate the professional and practical skills during the project construction stage methods	20	-	-	-	-	20
4	Students should demonstrate the professional and practical skills during the project construction stage methods	20	-	-	-	-	20
5	The students will prepare their training reports and presentations						
6	Final exam						

4. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (reports + presentation)	During the training	10+20=30	60%
2	Final term examination	6 th	20	40%

5. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	- Subject studies



	Learning Platforms (Links must be added)	- Institute Electronic MOODLE: <u>http://3.217.6.68</u>
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	Site visiting, Lab, lecture classroom

Name and Signature

Course Coordinator

Assoc. Prof. / Mohamed Gabr

Name and Signature

Program Coordinator

Assoc. Prof. / Mohamed Gabr



Course Specification

(2025-2026)

1. Basic Information

Course Title	Water and Wastewater Treatment				
Course Code	CIE326				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	-	2	4	3
Course Type	Compulsory				
Academic level at which the course is taught	Level 3				
Academic Program	Civil Engineering Program.				
Faculty/Institute	The Higher Institute of Engineering and Technology in Nem Damietta.				
University	Ministry of higher education				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to provide students with both theoretical understanding and practical skills for designing, planning, and operating sewerage systems and wastewater treatment plants. It focuses on achieving optimal designs for treatment facilities and pollution control units, emphasizing key technologies and sustainable practices aligned with environmental engineering principles. The course begins with an introduction to sewerage systems and their design, followed by an in-depth study of the sources and characteristics of wastewater—domestic, industrial, stormwater, and infiltration—along with their physical, chemical, and biological properties. Students learn how to calculate wastewater discharges, design sewer pipes and manholes, and plan efficient gravity-based or pumped collection systems. The course also covers the design of pump stations, including energy and automation considerations. A core component involves the design of wastewater treatment plants, starting from primary treatment units such as screens, grit chambers, and sedimentation tanks. It extends to secondary biological treatment processes like activated sludge and trickling filters. Sludge management—thickening, digestion, dewatering, and disposal—is also addressed with attention to environmental safety and public health.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the basic design principles for wastewater treatment systems, including treatment processes and sewerage systems.
		2	Apply knowledge of wastewater characteristics and sources domestic, industrial, stormwater, and infiltration in design calculations and planning.
		3	Apply engineering design principles for wastewater treatment plants, sludge management, and sewer systems, ensuring sustainability and cost-effectiveness.

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, industry standards, codes of practice, and relevant health, safety, and environmental regulations in the context of wastewater treatment and sewerage systems.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select appropriate and sustainable technologies for wastewater treatment systems, including sewage collection and treatment.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and	1	Achieve an optimum design of wastewater treatment plants and sewerage system.

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	Harbors; or any other emerging field relevant to the discipline.		

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
 2. Discussion.
 3. Problem solving.
 4. Project.
 5. Brain storming.
 6. Site visits.
-

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Introduction to sewerage system works.	7	2	2	-	3
2	design of sewerage system works.	7	2	2	-	3
3	Characteristics and sources of wastewater; domestic.	7	2	2	-	3
4	Characteristics and sources of wastewater; industrial, rain and infiltration.	7	2	2	-	3
5	Calculation of discharges. Design of sewer pipes and manholes.	7	2	2	-	3
6	Design of waste water Pump stations.	7	2	2	-	3
7	Introduction to collection works of sewerage system.	7	2	2	-	3
8	Design of collection works of sewerage system. Mid-term written Exam	7	2	2	-	3
9	Wastewater treatment plant design (Primary treatment)	7	2	2	-	3
10	Wastewater treatment plant design (deceleration tank, screen and approach channel)	7	2	2	-	3
11	Wastewater treatment plant design (grit removal chamber and design of proportional weir).	7	2	2	-	3
12	Wastewater treatment plant design (primary sedimentation tank)	7	2	2	-	3
13	Wastewater treatment plant design (secondary treatment)	7	2	2	-	3

14	Wastewater treatment plant design (sludge treatment and disposal).	7	2	2	-	3
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	15	15%
2	Exam 2 written..... (Midterm)	8 th	25	25%
3	Assignments + project	Any week	5+5=10	10%
4	Final Written Exam	15 th	75	75%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	• Mojiri, A., & Bashir, M. J. K. (2022). Wastewater treatment: Current and future techniques. <i>Water</i>, 14(3), 448. https://doi.org/10.3390/books978-3-0365-3275-2
	Other References	• Bui, X.-T., Chiemchaisri, C., Fujioka, T., & Varjani, S. (Eds.). (2019). <i>Water and wastewater treatment technologies</i>. Springer. https://doi.org/10.1007/978-981-13-3259-3 • Egyptian Code of Practice. (2004). Fundamentals of design and construction of drinking water treatment plants, wastewater treatment plants, and pumping stations (3rd ed., Ministerial Decree No. 169 of 1997). Housing and Building National Research Center. • Abdel-Azim, M. (2010). Review of the design of wastewater treatment plants. Egypt. • Farag, M. A. (1990). Sanitary engineering. Alexandria University, Egypt.

	Electronic Sources (Links must be added)	• https://doi.org/10.3390/books978-3-0365-3275-2. • https://link.springer.com/book/10.1007/978-981-13-3259-3.
	Learning Platforms (Links must be added)	Institute Electronic model: <u>http://3.217.6.68</u>
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	White board, lecture classroom
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
 Assoc. Prof. / Mohamed Gabr

Name and Signature
Program Coordinator
 Assoc. Prof. / Mohamed Gabr



وحدة ضمان الجودة



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة

الفرقة الرابعة

الفصل الدراسي الأول



Foundation Engineering 1

CIE411

1. Basic Information

Course Title	Foundation Engineering 1				
Course Code	CIE 411				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	2	2	-	4	5
Course Type	Compulsory				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry Of Higher Education & Scientific Research				
Name of Course Coordinator	Dr. Hany Hashish				
Course Specification Approval Date	26/07/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/07/2025				

2. Course Overview (Brief summary of scientific content)

Introduction to Deep foundations; Pile types, piles classifications, Design of pile foundation, pile loading and pile capacity, Geotechnical pile capacity, Lateral load capacity of piles, pile settlement, pile loading tests, Design of pile cap.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)



Program Outcomes (NARS 2018)		Course Learning Outcomes	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to Foundations
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as environmental concerns for geotechnical behavior.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline	1	Achieve an optimum design of soil mechanics and retaining structures.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Design of strip footing	9	2	2	-	5
2	Design of strip footing Continued	9	2	2	-	5
3	Design Isolated footing	9	2	2	-	5
4	Design Isolated footing Continued	9	2	2	-	5
5	Design combined footing	9	2	2	-	5
6	Design combined footing Continued	9	2	2	-	5
7	Design of strap beam	9	2	2	-	5
8	Design of strap beam Continued Mid-term written Exam	9	2	2	-	5
9	Design of raft foundations	9	2	2	-	5
10	Design of raft foundations Continued	9	2	2	-	5
11	Design of raft foundations Continued	9	2	2	-	5
12	Design of raft foundations Continued	9	2	2	-	5
13	Pile cap	9	2	2	-	5
14	pile Foundation	9	2	2	-	5
15	Final Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	15	10%
2	Exam 2 written..... (Midterm)	8 th	30	20%
3	Assignments	Any week	15	10%
4	Final Written Exam	15 th	90	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Kouretzis, G. (2025). Fundamentals of foundation engineering and their applications.
	Other References	Essential books (textbooks): (2002), Egyptian Code of Practice for Soil Mechanics and Foundations (2002)
	Electronic Sources (Links must be added)	-address: <Bengt@Fellenius.net> Web site: www.Fellenius.net
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	-

Name and Signature
Course Coordinator
Dr. Hany Hashish

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Inland Navigation and Harbor Engineering

CIE412

1. Basic Information

Course Title	Inland Navigation and Harbor Engineering				
Course Code	CIE412				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Prof. Dr. Osami Rageh				
Course Specification Approval Date	26/07/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/07/2025				

2. Course Overview (Brief summary of scientific content)

This course introduces the fundamentals of harbor and marine structure engineering. Topics include wind, waves, tides, and currents, as well as wave forces and surf zone dynamics. Students will learn the principles



of harbor planning and the design of key structures such as breakwaters, quay walls, and ship repair facilities. The course emphasizes cost-effective and environmentally responsible design, applying modern codes, safety standards, and risk management practices. By the end, students will be able to plan, design, and evaluate marine infrastructure effectively.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to harbors and marine structures
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns .
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of marine structures.
		2	Achieve an optimum design of works for harbors



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Assess environmental impacts of projects.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.
5. Project



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Wind	8	2	2	-	4
2	Current and tide	8	2	2	-	4
3	Wave theories	8	2	2	-	4
4	Wave theories (continued)	8	2	2	-	4
5	Surf zone hydrodynamics	8	2	2	-	4
6	Wave forces	8	2	2	-	4
7	Wave forces Continued	8	2	2	-	4
8	Harbor planning Mid-term written Exam	8	2	2	-	4
9	Design of breakwater	8	2	2	-	4
10	Design of breakwater (continued)	8	2	2	-	4
11	Design of quay walls	8	2	2	-	4
12	Design of quay walls Continued	8	2	2	-	4
13	Ship repair structures	8	2	2	-	4
14	Inland navigation	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	8%
2	Exam 2 written..... (Midterm)	8 th	25	20%
3	Assignments + Project	Any week	10 + 5 = 15	12%
4	Final Written Exam	15 th	75	60%



6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Burgess, K. (Ed.). (2024). Coasts, Marine Structures and Breakwaters 2023: Resilience and adaptability in a changing climate. Emerald Publishing Limited.
	Other References	S. I. Khassaf (2021) for harbor engineering and marine structure, Publisher: Research gate.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Prof. Dr. Osami Rageh

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Design of Irrigation works

CIE413

1. Basic Information

Course Title	Design of Irrigation works				
Course Code	CIE413				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	Total contact house	Student's Load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/07/2025				
Course Specification Approval	29/07/2025				

2. Course Overview (Brief summary of scientific content)

This course develops advanced competency in designing and optimizing hydraulic structures (retaining walls, bridges, culverts, syphons, aqueducts, locks, and heading up works) for irrigation infrastructure using modern engineering tools. Students will master structural design methodologies for water conveyance, flow control, and energy dissipation systems while implementing sustainable construction technologies.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of classifications of rivers, data collection method; velocity and flow rate measurements, counter measure on sediment control; and corrosion deposition scour
		2	Judge engineering decisions for design of weirs and locks considering safety quality and environmental impact.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize, appropriate and sustainable technologies for the construction of retaining walls, bridges, culverts, syphons, aqueducts, weirs and locks.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline. Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics:	1	Achieve an optimum design of retaining walls, culverts, bridges, syphons, aqueducts, weirs, and locks.



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.		

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming.
5. Self-learning and research.
6. Project



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Introduction regarding irrigation works functions and classifications.	8	2	2	-	4
2	Classification of retaining walls (R.W.)	8	2	2	-	4
3	Design of gravity retaining walls	8	2	2	-	4
4	Design of reinforced concrete retaining walls	8	2	2	-	4
5	Design of reinforced concrete counterfort retaining walls.	8	2	2	-	4
6	Hydraulic Design of reinforced concrete bridges	8	2	2	-	4
7	Structural Design of reinforced concrete bridge	8	2	2	-	4
8	Design of rolled steel joist bridge. Mid-term written Exam	8	2	2	-	4
9	Design of culverts	8	2	2	-	4
10	Design of syphons	8	2	2	-	4
11	Design of aqueducts	8	2	2	-	4
12	Heading up water structures Bligh's and Lane's theories	8	2	2	-	4
13	Design of floor for Heading up works (weirs)	8	2	2	-	4
14	Types and parts of the navigation locks	8	2	2	-	4
15	Final Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1.... (Semester work)	4 th	10	8%
2	Exam 2 written (midterm)	8 th	25	20%
3	Final Written Exam	15 th	75	60%
4	Assignments + Project	Any week	10+5 = 15	12%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	S. K. Ukarande (2023) Irrigation Engineering and Hydraulic Structures, Publisher: Springer Nature Switzerland.
	Other References	Younan, N.A. (1991), "Design Textbook in Irrigation Structures", Delta press Center, Alex, Egypt. P C Punmia Et Al. Irrigation And Water Power Engineering, Sixteenth Edition, 2009 الكود المصري للموارد المائية وأعمال الري المجلد السابع الطبعة الأولى 2003
	Electronic Sources (Links must be added)	https://link.springer.com/book/10.1007/978-3-030-34086-5
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet

Name and Signature
Course Coordinator
Assoc. Prof. Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Project 1

CIE 414

1. Basic Information

Course Title	Project 1				
Course Code	CIE 414				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	3	2	-	5	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry Of Higher Education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/07/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/07/2025				

2. Course Overview (Brief summary of scientific content)

The graduation project aims to explore students' ability and skills to comprehensively address and manage architectural and technical issues associated with a large-scale design project. The project examines and measures students' knowledge, skills, and collective outputs gained throughout their study in the faculty and department in a combined manner, that reflects identity and creativity in all its preliminary and analytical phases. A complete set of appropriately presented drawings, accompanied by a detailed report of the project's attributable studies and potential considerations, should be implemented by each student.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Identify the relevant mathematical principles and theories in the discipline.
		2	Formulate math ideas and theories that are applicable to the field.
		3	Apply engineering basics that are relevant to the subject.
		4	Solve complex engineering problems by applying the concepts and the theories of sciences, appropriate to the discipline.
		5	Solve complex engineering problems by applying engineering fundamentals
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to reinforced concrete and steel structures, foundations and earth retaining structures.
		2	Apply the professional ethics and impacts of engineering solutions on society and environment.
		3	Apply the various construction defects, instability and quality issues and assess environmental impacts of projects.
		4	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns.



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	requirements, environmental issues, and risk management principles.	2	List the engineering-related business and management principles.
		3	Define contemporary engineering technologies and their applications in relation to disciplines.
		4	Use fundamental organizational and project management abilities.
		5	Utilize modern technologies.
A5	Practice research techniques and methods of investigation as an inherent part of learning.	1	Assess different ideas, views, and knowledge from a range of sources.
		2	Prepare technical reports.
		3	Search for information to engage in lifelong self-learning discipline.
A6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	1	Interpret data derived from laboratory observation from equipment flow sheets, charts, and curves to interpret data derived from laboratory observation.
		2	Conduct experimental work related to the reinforced concrete and steel structures, foundations and earth retaining structures.
		3	Acquire entrepreneurial skills.
A7	Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.	1	Collaborate within multidisciplinary team.
		2	Work in stressful environment and within constraints.
		3	Function professionally to motivate individuals.



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	1	Communicate successfully graphically, verbally and in writing.
		2	Demonstrate efficient IT capabilities.
A9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	1	Refer to relevant literature.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize, appropriate and sustainable technologies for construction of buildings, infrastructures and water structures.
		2	Use either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of: structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and irrigation, and fluid mechanics.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures.
		2	Achieve an optimum design of works for transportation and traffic, roadways and airports, railways, sanitary works, irrigation, open channel hydraulics, water resources and harbors; river engineering or any other emerging field relevant to the discipline.
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Define construction process.
		2	Address construction defects, instability, and quality issues



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
		3	Assess environmental impacts of projects.
B4	Deal with biddings, contracts and financial issues including project insurance and guarantees.	1	Define biddings, contracts, and financial issues.
		2	Address biddings, contracts and financial issues including project insurance and guarantees.
		3	Apply biddings, contracts, and financial issues on civil engineering projects

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brainstorming
5. Self-learning and research.
6. Site visits
7. Practical
8. Cooperative
9. Discovering



Course schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	The graduation project aims to explore students' ability and skills to comprehensively address and manage architectural and technical issues associate with a large-scale design project	9	3	2	-	4
2	The graduation project aims to explore students' ability and skills to comprehensively address and manage architectural and technical issues associate with a large-scale design project	9	3	2	-	4
3	The graduation project aims to explore students' ability and skills to comprehensively address and manage architectural and technical issues associate with a large-scale design project	9	3	2	-	4
4	The graduation project aims to explore students' ability and skills to comprehensively address and manage architectural and technical issues associate with a large-scale design project	9	3	2	-	4
5	The project examines and measures students' knowledge, skills, and collective outputs gained throughout their study in the faculty and department in a combined manner, that reflects identity and creativity in all its preliminary and analytical phases.	9	3	2	-	4
6	The project examines and measures students' knowledge, skills, and collective outputs gained throughout their study in the faculty and department in a combined manner, that reflects identity and creativity in all its preliminary and analytical phases.	9	3	2	-	4



7	The project examines and measures students' knowledge, skills, and collective outputs gained throughout their study in the faculty and department in a combined manner, that reflects identity and creativity in all its preliminary and analytical phases.	9	3	2	-	4
8	The project examines and measures students' knowledge, skills, and collective outputs gained throughout their study in the faculty and department in a combined manner, that reflects identity and creativity in all its preliminary and analytical phases.	9	3	2	-	4
9	The project examines and measures students' knowledge, skills, and collective outputs gained throughout their study in the faculty and department in a combined manner, that reflects identity and creativity in all its preliminary and analytical phases.	9	3	2	-	4
10	A complete set of appropriately presented drawings, accompanied by a detailed report of the project's attributable studies and potential considerations should be implemented by each student	9	3	2	-	4
11	A complete set of appropriately presented drawings, accompanied by a detailed report of the project's attributable studies and potential considerations should be implemented by each student	9	3	2	-	4
12	A complete set of appropriately presented drawings, accompanied by a detailed report of the project's attributable studies and potential considerations should be implemented by each student	9	3	2	-	4
13	A complete set of appropriately presented drawings, accompanied by a detailed report of the project's attributable studies and potential considerations should be implemented by each student	9	3	2	-	4



14	A complete set of appropriately presented drawings, accompanied by a detailed report of the project's attributable studies and potential considerations should be implemented by each student	9	3	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (Semester work+ Project note book + Drawings+ Initial discussion))	Any week	10+15+15+20=60	40%
3	Final Exam	15 th	90	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Subject studies
	Other References	Subject studies
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: <u>http://3.217.6.68</u>
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Skill Labs/ Simulators	Computer Lab & Digital Library

Name and Signature
Course Coordinator
Assoc. Prof. Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Bridge Engineering

CIE415A

1. Basic Information

Course Title	Bridge Engineering				
Course Code	CIE 415A				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective 1				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Faculty/Institute	The Higher Institute of Engineering and Technology in New Damietta.				
Name of Course Coordinator	Dr. Rafik Wadia				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course provides a comprehensive introduction to bridge engineering, covering types of bridges, construction methods, and load analysis. The course contains the following topics: different types of bridges – different methods in bridges construction –load calculations and its different effects – methods of bridges design using the standard specifications codes – using

commercial computer packages for bridge design. Planning bridge projects; Design, analysis and construction of various types of bridges including reinforced and pre-stressed concrete bridges, steel bridges, composite bridges, and cable-supported bridges.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define, basic characteristics, properties, concepts, and techniques of: structural analysis and mechanics, properties and strength of materials.
A9	Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	1	Use creatively in solving problems of design.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Different types of bridges.	8	2	2	-	4
2	Different methods in bridges construction.	8	2	2	-	4
3	Load calculations and its different effects.	8	2	2	-	4
4	Load calculations and its different effects. (Continued)	8	2	2	-	4
5	methods of bridges design using the standard specifications codes	8	2	2	-	4
6	methods of bridges design using the standard specifications codes Continued	8	2	2	-	4
7	methods of bridges design using the standard specifications codes.	8	2	2	-	4
8	methods of bridges design using the standard specifications codes. (Continued) Mid-term written Exam	8	2	2	-	4
9	Methods of bridges design using commercial computer packages.	8	2	2	-	4
10	Methods of bridges design using commercial computer packages. (Continued)	8	2	2	-	4
11	Planning bridge projects	8	2	2	-	4
12	Design, analysis and construction of various types of bridges including reinforced and prestressed concrete bridge.	8	2	2	-	4
13	Design, analysis and construction of various types of bridges including reinforced and prestressed concrete bridge. (Continued)	8	2	2	-	4
14	Design, analysis and construction of various types of bridges including steel bridges, composite	8	2	2	-	4

	bridges, and cable supported bridges.					
15	Final Exam					

4. *Teaching and Learning Methods*

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving

5. *Methods of students' assessment*

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Assignments / Project	Any week	5/5	5%/5%
4	Final Written Exam	15 th	60	60%

6. *Learning Resources and Supportive Facilities*

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Bo Hu Dongzhou Huang, "Concrete Segmental Bridges: Theory, Design, and Construction", 2022
	Other References	- Milo Smith Ketchum, "The Design of Highway Bridges of Steel, Timber and Concrete", 2017. - John F. Unsworth, "Design and Construction of Modern Steel Railway", 2017.

		- Egyptian Code of practice for steel construction and bridges (allowable stress design) code No (205) 2008. - Metwally Abu Hamid "Steel bridges". Faculty of engineering, Cairo University. "Cairo 2007.
	Learning Platforms (Links must be added)	Institute Electronic model: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Rafik Wadia

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Coastal Engineering Fundamentals

CIE415B

1. Basic Information

Course Title	Coastal Engineering Fundamentals				
Course Code	CIE415B				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Prof. Dr. Osami Rageh				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to study effect of waves on coastal structures, design of seawalls and breakwaters, jetties, harbors, ship channels and pipelines, intentional and accidental discharge of pollutants, diffusion and spreading, oil spill containment and collection, wave theory and applications to engineering problems, analysis of wave data.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to coastal engineering.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns to Coastal areas.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of coastal areas protection
		2	Summarize appropriate and sustainable technologies for the construction of coastal structures, and shoreline protection systems
		3	Use numerical techniques, physical measurements, and/or experimental testing by applying civil engineering concepts in structural analysis, material mechanics, geotechnical engineering, hydrology, and fluid mechanics for coastal infrastructure assessment and design.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of reinforced concrete, steel structures, foundations, and coastal earth-retaining structures considering marine environmental conditions
		2	Achieve an optimum design of coastal structures, harbors, marine works, relevant to coastal engineering.
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Assess environmental impacts of coastal engineering projects

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Flipped Classroom
3. Discussion
4. Problem solving

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Effect of waves on coastal structures	8	2	2	-	4
2	Effect of waves on coastal structures (continued)	8	2	2	-	4
3	Effect of waves on coastal structures (continued)	8	2	2	-	4
4	Design of seawalls and jetties	8	2	2	-	4
5	Design of harbors and ship channels	8	2	2	-	4
6	Design of pipelines	8	2	2	-	4
7	Diffusion and spreading	8	2	2	-	4
8	Diffusion and spreading Continued Mid-term written Exam	8	2	2	-	4
9	Oil spill containment and collection	8	2	2	-	4
10	Oil spill containment and collection Continued	8	2	2	-	4
11	Oil spill containment and collection Continued	8	2	2	-	4
12	Analysis of wave data.	8	2	2	-	4
13	Analysis of wave data. Continued	8	2	2	-	4
14	Analysis of wave data. Continued	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work)	4 th	10	10%
2	Exam 2 (Semester work)	8 th	20	20%
3	Assignments	Any week	10	10%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Ringsberg, J. W., & Soares, C. G. (Eds.). (2023). Advances in the Analysis and Design of Marine Structures. CRC Press Taylor & Francis Group.
	Other References	Thoresen, C. A. (2014). Port Designer's Handbook (Vol. 638). London: ICE publishing.
	Electronic Sources (Links must be added)	https://www.sciencedirect.com/journal/coastal-engineering
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	MIKE 21/3 (DHI) SWAN (Simulating Waves Nearshore)
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
Prof. Dr. Osami Rageh

Name and Signature
Program Coordinator
Assoc. Prof. Dr. Mohamed Gabr

**Concrete Structure Technology
CIE415C**

1. Basic Information

Course Title	Concrete Structures Technology				
Course Code	CIE415C				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr/ Nesreen Elawadly				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course equips civil engineering students with essential engineering skills and tools, emphasizing sustainable construction technologies. The scientific content of this course is to study the concrete mixing method, mixing time, delivery, pumping and casting. Concrete casting method and precautions. Concrete compaction method. Concrete surface finishing. Concrete curing method, curing time and precautions. Casting concrete in hot weather and its

precautions. Self-compact concrete manufacturing, pumping, casting and testing. Hot weather concrete. Special type of concrete. Quality control.

Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles, basic properties, and features of construction material, as well as their use in sustainable technologies for construction of buildings.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe codes of practice, and standards.
		2	Define contemporary engineering technologies and their applications in relation to disciplines.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of properties and strength of materials,
		2	Summarize, appropriate and sustainable technologies for construction of buildings.

3. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Concrete mixing method, mixing time, delivery	8	2	2	-	4
2	Pumping and casting. Concrete casting method and precautions	8	2	2	-	4
3	Concrete compaction method. Concrete surface finishing.	8	2	2	-	4
4	Concrete curing method, curing time and precautions.	8	2	2	-	4
5	Casting concrete in hot weather and its precautions	8	2	2	-	4
6	Self-compact concrete manufacturing	8	2	2	-	4
7	Concrete testing	8	2	2	-	4
8	Special type of concrete Hot weather concrete; midterm exam	8	2	2	-	4
9	Special type of concrete: mass concrete	8	2	2	-	4
10	Special type of concrete: high strength concrete	8	2	2	-	4
11	Special type of concrete: light weight concrete	8	2	2	-	4
12	Special type of concrete: fiber reinforced concrete	8	2	2	-	4
13	Special type of concrete: polymer concrete	8	2	2	-	4
14	Quality control	8	2	2	-	4
15	Final Exam					

4. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%

2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Final Written Exam	15 th	60	60%
4	Assignments + Scientific Report	Any week	3+7	3% / 7%

5. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Neville, A. M., & Brooks, J. J. (2023). Concrete technology (3rd.). Pearson Education.
	Other References	Alexander, M., & Mindess, S. (2024). Aggregates in concrete: Properties and performance. CRC Press.
	Electronic Sources (Links must be added)	https://www.concrete.org/Portals/0/Files/PDF/Previews/318-19_preview.pdf
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet

Name and Signature
Course Coordinator
Dr / Nesreen Elawadly

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Construction Contracts CIE415D

1. Basic Information

Course Title	Construction Contracts				
Course Code	CIE415D				
Department/s participating in the delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Elin Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Summary of scientific content)

This course aims to plan construction processes, address construction defects, instability, and quality issues, maintain safety measures in construction and materials handling, and assess the environmental impacts of projects. Dealing with bidding, contracts, and financial issues, including project insurance and guarantees. The scientific content of this course is: Construction contracting for contractors, architects, and owners. Organization and administration; industry structure, construction contracts, bonds, insurance. Planning, estimating, and control; quantity takeoff and pricing; labor and equipment estimates; estimating excavation and concrete; proposal preparation; scheduling; accounting; and cost control. Students use contract documents to prepare detailed estimates.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Use fundamental organizational and project management abilities.
B3	Plan and manage construction processes, addressing construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects.	1	Define the construction process.
B4	Dealing with bidding, contracts, and financial issues, including project insurance and guarantees.	1	Define bidding, contracts, and financial issues.
		2	Address bidding, contracts, and financial issues, including project insurance and guarantees.
		3	Apply bidding, contracts, and financial issues to civil engineering projects.

4. Teaching and Learning Methods

- Face-to-Face Lectures
- Discussions
- Problem Solving
- Brainstorming
- Self-Learning and Research
- Projects

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Construction Contracting for Contractors, Architects, Owners	8	2	2	-	4
2	Organization and Administration; Industry Structure	8	2	2	-	4
3	Construction Contracts, Bonds, Insurance (Part 1)	8	2	2	-	4
4	Construction Contracts, Bonds, Insurance (Part 2)	8	2	2	-	4
5	Planning, Estimating, and Control (Part 1)	8	2	2	-	4
6	Planning, Estimating, and Control (Part 2)	8	2	2	-	4
7	Quantity Takeoff and Pricing (Labor Estimates)	8	2	2	-	4
8	Quantity Takeoff and Pricing (Equipment Estimates) Midterm Written Exam	8	2	2	-	4
9	Estimating Excavation	8	2	2	-	4
10	Estimating Concrete	8	2	2	-	4
11	Proposal Preparation (Part 1)	8	2	2	-	4
12	Proposal Preparation (Part 2)	8	2	2	-	4
13	Scheduling and Accounting	8	2	2	-	4
14	Cost Control	8	2	2	-	4
15	Final Written Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of Total Course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Projects / Sheets / Quizzes / Research	Any week	2/2/2/2/2	2%/2%/2%2%2%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	- Project Management Institute. (2021, July). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition and The Standard for Project Management. Project Management Institute.
	Other References	- Okoh, O. F., Ukpoju, E. A., Otakwu, A., Ayoola, V. B., & Enyejo, L. A. (2024). Construction Management: Some Issues in The Construction Project. Engineering Heritage Journal (GWK), 8(1), 42-50. - Dykstra, A. (2018). Construction project management: A complete introduction. Kirshner Publishing Company. - Mason, J., & Potts, K. (2023). Construction law: from beginner to practitioner. Routledge. - Garcés, G., & Peña, C. (2023). A review of lean construction for construction project management. Revista ingeniería de construcción, 38(1). - Bagshaw, K. B. (2021). PERT and CPM in project management with practical examples. American Journal of Operations Research, 11(4), 215-226. - Kerzner, H. (2025). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons. - Venkataraman, R. R., & Pinto, J. K. (2023). Cost and value management in projects. John Wiley & Sons. - Wideman, R. M. (2022). Project and program risk management guide to managing project risks and opportunities. Project Management Institute, Inc. - Hillson, D. (2024). Managing risk in projects. Routledge. - Parsamehr, M., Perera, U. S., Dodanwala, T. C., Perera, P., & Ruparathna, R. (2023). A review of construction management challenges and BIM-based solutions: perspectives from the schedule, cost, quality, and safety management. Asian Journal of Civil Engineering, 24(1), 353-389. - Schaufelberger, J., & Holm, L. (2024). Management of construction projects: a constructor's perspective. Routledge.
	Learning Platforms	Institute Electronic MOODLE: http://3.217.6.68



	(Links must be added)	
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Elin Eldars

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Cost Analysis for Structure Projects CIE415E

1. Basic Information

Course Title	Cost Analysis for Structure Projects				
Course Code	CIE415E				
Department/s participating in the delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Elin Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Summary of scientific content)

This course aims to analyze data from the intended tests to manage resources creatively. Plan construction processes and address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects. The scientific content of this course is: Direct costs, indirect costs, collective systems, comparisons between projects, fundamentals of cost analysis for wood, steel, and concrete buildings, preparing a project, and report writing and case study.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety	1	Use fundamental organizational and project management abilities.

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	requirements, environmental issues, and risk management principles.		
A9	Utilize creative, innovative, and flexible thinking to acquire entrepreneurial and leadership skills, enabling you to anticipate and respond effectively to new situations.	1	Effectively manage tasks, time, and resources.
B3	Plan and manage construction processes, addressing construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects.	1	Define the construction process.

4. Teaching and Learning Methods

- Face-to-Face Lectures
- Discussions
- Problem Solving
- Brainstorming
- Self-Learning and Research

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Direct Costs (Part 1)	8	2	2	-	4
2	Direct Costs (Part 2)	8	2	2	-	4
3	Indirect Costs (Part 1)	8	2	2	-	4
4	Indirect Costs (Part 2)	8	2	2	-	4
5	Collective Systems (Part 1)	8	2	2	-	4
6	Collective Systems (Part 2)	8	2	2	-	4
7	Comparisons Between Projects (Part 1)	8	2	2	-	4
8	Comparisons Between Projects (Part 2) Midterm Written Exam	8	2	2	-	4
9	Fundamentals of Cost Analysis for Wood and Steel Buildings (Part 1)	8	2	2	-	4
10	Fundamentals of Cost Analysis for Concrete Buildings (Part 2)	8	2	2	-	4
11	Preparing Project	8	2	2	-	4
12	Report Writing	8	2	2	-	4
13	Case Study (Part 1)	8	2	2	-	4
14	Case Study (Part 2)	8	2	2	-	4
15	Final Written Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of Total Course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Projects / Sheets / Quizzes / Research	Any week	2/2/2/2/2	2%/2%/2%/2%/2%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books,	The main (essential) reference for the course	- Project Management Institute. (2021, July). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition and The

scientific references, etc.)	(must be written in full according to the scientific documentation method)	Standard for Project Management. Project Management Institute.
	Other References	- Okoh, O. F., Ukpoju, E. A., Otakwu, A., Ayoola, V. B., & Enyejo, L. A. (2024). Construction Management: Some Issues in The Construction Project. Engineering Heritage Journal (GWK), 8(1), 42-50. - Dykstra, A. (2018). Construction project management: A complete introduction. Kirshner Publishing Company. - Mason, J., & Potts, K. (2023). Construction law: from beginner to practitioner. Routledge. - Garcés, G., & Peña, C. (2023). A review of lean construction for construction project management. Revista ingeniería de construcción, 38(1). - Bagshaw, K. B. (2021). PERT and CPM in project management with practical examples. American Journal of Operations Research, 11(4), 215-226. - Kerzner, H. (2025). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons. - Venkataraman, R. R., & Pinto, J. K. (2023). Cost and value management in projects. John Wiley & Sons. - Wideman, R. M. (2022). Project and program risk management guide to managing project risks and opportunities. Project Management Institute, Inc. - Hillson, D. (2024). Managing risk in projects. Routledge. - Parsamehr, M., Perera, U. S., Dodanwala, T. C., Perera, P., & Ruparathna, R. (2023). A review of construction management challenges and BIM-based solutions: perspectives from the schedule, cost, quality, and safety management. Asian Journal of Civil Engineering, 24(1), 353-389. - Schaufelberger, J., & Holm, L. (2024). Management of construction projects: a constructor's perspective. Routledge.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities &	Devices/Instruments	Data show, Sounding system



equipment teaching learning	for and	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Elin Eldars

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Highway Materials and Construction (CIE415F)

1. Basic Information

Course Title	Highway Materials and Construction				
Course Code	CIE415F				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course aims to make the student able to design and analyze high-quality, durable highway systems using modern engineering principles by application of soil classification methods, material characterization, sub-grade and sub-base stabilization, material variability and quality control, pavement evaluation and rehabilitation, highway construction.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	Explain the basic principles of engineering for road materials included hot mix asphalt (flexible pavement) and concrete mixture (rigid pavement).
		2	Use scientific concepts and theories that are relevant to road materials to select the appropriate thickness of road layers.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize appropriate and sustainable technologies for roads construction and rehabilitation, bituminous materials and concrete mixtures.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of flexible pavement and rigid pavement based on the appropriate selection of materials and their strengths.

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving



4. Brain storming
5. Self-learning and Research

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Application of soil classification methods and material characterization.	8	2	2	-	4
2	Application of soil classification methods and material characterization. (continued)	8	2	2	-	4
3	Application of soil classification methods and material characterization. (continued)	8	2	2	-	4
4	Sub-grade stabilization, material variability and quality control	8	2	2	-	4
5	Sub-base stabilization, material variability and quality control	8	2	2	-	4
6	Sub-base stabilization, material variability and quality control Continued	8	2	2	-	4
7	Pavement evaluation and rehabilitation.	8	2	2	-	4
8	Pavement evaluation and rehabilitation. Continued	8	2	2	-	4
9	Pavement evaluation and rehabilitation. Continued	8	2	2	-	4
10	Pavement evaluation and rehabilitation. Continued	8	2	2	-	4
11	Highway construction	8	2	2	-	4
12	Highway construction (continued)	8	2	2	-	4
13	Highway construction (continued)	8	2	2	-	4
14	Highway construction (continued)	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Final Written Exam	15 th	60	60%
4	Assignments / Project	Any week	5 / 5	5% / 5%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	- Y.Z., Jialiang. Highway Engineering Materials and Application. Changsha: Changsha University, 2022.
	Other References	- Papagiannakis, A. T., & Masad, E. A. (2020). Pavement design and materials. Wiley. - Ministry of Housing, Utilities & Urban Communities (Egypt). (2020). Egyptian code of practice for urban and rural roads.
	Learning Platforms (Links must be added)	- Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator
Dr. Ayman Helal

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr

Modern Structure Materials

CIE415G

1. Basic Information

Course Title	Modern structure materials				
Course Code	CIE415G				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Nesreen Elawadly				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course provides students with broad engineering knowledge and specialized skills in High strength concrete. High performance concrete. Ultra-high strength concrete. Ultra-high-performance concrete. Light weight concrete. Supplementary cementing materials. Compound materials and their applications. Insulating materials.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles, basic properties, and features of construction material, as well as their use in sustainable technologies for construction of buildings
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe codes of practice, and standards
		2	Define contemporary engineering technologies and their applications
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics	1	Select the fundamentals of properties and strength of materials
		2	Summarize, appropriate and sustainable technologies for construction of buildings.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	High strength concrete	8	2	2	-	4
2	High performance concrete.	8	2	2	-	4
3	Ultra high strength concrete	8	2	2	-	4
4	Ultra high performance concrete	8	2	2	-	4
5	Light weight concrete	8	2	2	-	4
6	Ultra-light weight concrete	8	2	2	-	4
7	Supplementary cementing materials.	8	2	2	-	4
8	Compound materials, midterm exam	8	2	2	-	4
9	Types of composite materials	8	2	2	-	4
10	Mass concrete	8	2	2	-	4
11	Fiber reinforced polymer	8	2	2	-	4
12	Heavy weight concrete	8	2	2	-	4
13	Compound materials applications	8	2	2	-	4
14	Insulating materials.	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Final Written Exam	15 th	60	60%
6	Assignments / Reports	Any week	5 / 5	5% / 5%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Ashby, M. F., & Jones, D. R. H. (2023). Engineering materials 2: An introduction to microstructures, processing, and design (5th ed.). Butterworth-HeiNewann.
	Other References	Callister, W. D., & Rethwisch, D. G. (2023). Materials science and engineering: An introduction (11th ed.). Wiley.
	Electronic Sources (Links must be added)	https://basalt-fibers.com/wp-content/uploads/2021/05/Standart_ACI-4401R15.pdf
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet
	Skill Labs/ Simulators	-

**Name and Signature
Course Coordinator
Dr. Nesreen Elawadly**

**Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr**



Planning of Buildings Maintenance and Protection

CIE 415H

1. Basic Information

Course Title	Planning of Buildings Maintenance and Protection				
Course Code	CIE415H				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr./ Ayman Helal				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

The syntenic content of this course is Building maintenance important, objective, type, planning, cost and problem. Types of cracks and damage. Non-destructive test. Repairs and protection materials. Method and techniques of repair. Isolation of buildings and structural elements against moisture. Technical reports.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to reinforced concrete
B3	Plan and manage construction processes; address construction defects, instability and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Address construction defects, instability and quality issues
		2	Assess environmental impacts of projects.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brainstorming
5. Self-learning and research.
6. Project



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Review on of deterioration of building materials	8	2	2	-	4
2	Review on of deterioration of building materials Continued	8	2	2	-	4
3	Concept of life cycle cost	8	2	2	-	4
4	Protection methods against deterioration and corrosion of building materials	8	2	2	-	4
5	Protection methods against deterioration and corrosion of building materials Continued	8	2	2	-	4
6	Protection methods against deterioration and corrosion of building materials Continued	8	2	2	-	4
7	Types of defects and damages.	8	2	2	-	4
8	Non-destructive tests Mid-term written Exam	8	2	2	-	4
9	Non-destructive tests Continued	8	2	2	-	4
10	Partially destructive tests.	8	2	2	-	4
11	Load tests.	8	2	2	-	4
12	Materials for repair and isolation.	8	2	2	-	4
13	Methods and techniques of repair.	8	2	2	-	4
14	Rehabilitation and retrofitting.	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1..... (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Assignments / Research / Project	Any week	4 / 3 / 3	4% / 3% / 3%
	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Dr. John L. Smith, 2024 "Advanced Methods in Building Preservation and Restoration"
	Other References	Dr. Hassan El-Masry, 2023 "Methods of Restoration and Conservation of Architectural Heritage"
		Dr. Ali Al-Said, 2022 "Structural Repair and Restoration of Buildings"
	Electronic Sources (Links must be added)	
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet

Name and Signature
Course Coordinator
Dr. / Ayman Helal

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Reliability of Structures CIE415I

1. Basic Information

Course Title	Reliability of Structures				
Course Code	CIE415I				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Nesreen Elawadly				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to master a broad range of engineering knowledge and specialized skills regarding probability theories and hypothesis testing in analytic critical and systemic thinking to solve engineering problems of varying complexity and variation. Plan construction processes; address construction defects,



instability and quality issues; maintain safety measures in construction and materials. The scientific content of this course is: Fundamental concepts related to structural reliability, safety measures, load models, resistance models, and system reliability. Optimum safety levels, and optimization of design codes.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations
		2	Apply safe systems at work by taking the necessary precautions to manage hazards.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of Reinforced Concrete

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Fundamental concepts related to structural reliability	8	2	2	-	4
2	Fundamental concepts related to structural reliability Continued	8	2	2	-	4
3	Fundamental concepts related to structural reliability Continued	8	2	2	-	4
4	Safety measures	8	2	2	-	4
5	Load models	8	2	2	-	4
6	Resistance models	8	2	2	-	4
7	System reliability	8	2	2	-	4
8	Optimum safety levels Mid-term written Exam	8	2	2	-	4
9	Optimum safety levels Continued	8	2	2	-	4
10	Optimum safety levels Continued	8	2	2	-	4
11	Optimization of design codes	8	2	2	-	4
12	Optimization of design codes (continued)	8	2	2	-	4
13	Optimization of design codes (continued)	8	2	2	-	4
14	Revision					
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of Total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Project	Any week	5 / 5	%5 / %5
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Essential books (text books / design codes): Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2010.
	Other References	Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2012. Analysis, Design and Construction of Foundations 2nd Edition, Yung Ming Cheng, Chi Wai Law, Leilei Liu, CRC Press; 2nd edition (2024), ISBN-10 : 1032650567
	Electronic Sources (Links must be added)	
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	-
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
Dr. Nesreen Elawadly

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Environmental Pollution Control

CIE415J

1. Basic Information

Course Title	Environmental Pollution Control				
Course Code	CIE415J				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Contact hours	Student load
	2	-	2	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Faculty/Institute	The Higher Institute of Engineering and Technology in Nem Damietta.				
University	Ministry of higher education				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

The course aims to equip students with the ability to plan and implement effective pollution control projects, with a particular focus on wastewater treatment systems and minimizing environmental impacts. Students will also learn to evaluate and select sustainable and appropriate technologies for pollution mitigation while

assessing their environmental consequences. The course covers key environmental quality parameters and examines the relationships between population growth, resource consumption, and pollution. It addresses major types of pollution, including air, water, and land pollution, alongside solid waste management strategies. Additional topics include thermal, noise, and radiation pollution, as well as the interplay between energy consumption and environmental degradation. The course introduces methods for predicting and assessing environmental impacts using practical tools. Special emphasis is placed on the environmental challenges facing developing nations. Through real-world case studies, students will critically analyze existing pollution control measures and propose improvements based on sustainability and effectiveness.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS2018)

Program Outcomes (NARS2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles	1	Describe key quality factors for environmental management, including sources of pollution and associated environmental challenges.
		2	Define modern engineering technologies and their applications in environmental control.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical	1	Select appropriate concepts related to environmental control, population and resources, prediction and assessment of environmental impact, and challenges in developing nations.

Program Outcomes (NARS2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	2	Summarize, appropriate and sustainable technologies for environmental pollution control.
B3	Plan and manage construction processes; address construction defects, instability and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Assess the environmental impacts of pollution control and management projects.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion.
3. Problem solving.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Quality factors for environmental control.	8	2	-	2	4
2	Continued	8	2	-	2	4
3	Population and resource use.	8	2	-	2	4
4	Population and resource use. Continued	8	2	-	2	4
5	Air pollution	8	2	-	2	4
6	water pollution	8	2	-	2	4
7	land pollution	8	2	-	2	4
8	Solid waste management. Midterm Exam	8	2	-	2	4
9	Solid waste management. Continued	8	2	-	2	4
10	Solid waste management. Continued	8	2	-	2	4
11	Thermal pollution, noise pollution.	8	2	-	2	4
12	Radiation.	8	2	-	2	4
13	Energy and the environment.	8	2	-	2	4
14	Prediction and assessment of environmental impact.	8	2	-	2	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	15	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Final Written Exam	15 th	60	60%
64	Assignments	Any week	10	10%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Shareefdeen, Z., Geara, E., Khan, H., Rahman, N. A., & AlNimran, S. (2022). Pollution Prevention Methods and Related Regulations. In Hazardous Waste Management: Advances in Chemical and Industrial Waste Treatment and Technologies (pp. 95-111). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-95262-4_4
	Other References	• Pollution: Engineering and Scientific Solutions. (2023). In Handbook of Global Environmental Pollution (pp. 1–). Springer. • Egyptian Code of Practice. (2004). Fundamentals of design and construction of drinking water treatment plants, wastewater treatment plants, and pumping stations (3rd ed., Ministerial Decree No. 169 of 1997). Housing and Building National Research Center. • Abdel-Azim, M. (2010). Review of the design of wastewater treatment plants. Egypt. • Farag, M. A. (1990). Sanitary engineering. Alexandria University, Egypt.
	Electronic Sources (Links must be added)	• https://doi.org/10.1007/978-3-030-95262-4_4. • https://link.springer.com/book/10.1007/978-1-4899-0330-3.
	Learning Platforms (Links must be added)	Institute Electronic model: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	White board, lecture classroom
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
Assoc. Prof. / Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. / Mohamed Gabr



Design of Earthquake Structures CIE416A

1. Basic Information

Course Title	Design of Earthquake Structures				
Course Code	CIE 416A				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective 2				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Faculty/Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Rafik Wadia				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course focuses on the structural design of earthquake-resistant buildings. Topics include earthquakes: causes, seismic waves, scales, equation of motion for single degree of freedom and multi-degree of freedom systems – Structures behavior under random forces – Spectral analysis depending on soil conditions – Modal analysis for multi-strong buildings – design principles for earthquake structures according to the Egyptian code.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	1	Show the appropriate and sustainable technologies for design of reinforced concrete and metallic structures.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns.
		2	List the engineering-related business and management principles.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline	1	Achieve an optimum design of reinforced concrete and metallic structures to geo-technical and foundations

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Causes of earthquakes	8	2	2	-	4
2	Seismic waves, scales of earthquakes	8	2	2	-	4
3	Seismic waves, scales of earthquakes (cont.)	8	2	2	-	4
4	Equation of motion for single degree of freedom and multi-degree of freedom systems	8	2	2	-	4
5	Equation of motion for single degree of freedom and multi-degree of freedom systems (cont.)	8	2	2	-	4
6	Structural behavior under random forces	8	2	2	-	4
7	Structural behavior under random forces (cont.)	8	2	2	-	4
8	Spectral analysis depending on soil conditions Midterm Exam	8	2	2	-	4
9	Spectral analysis depending on soil conditions (cont.)	8	2	2	-	4
10	Modal analysis for multi strong buildings	8	2	2	-	4
11	Modal analysis for multi strong buildings (cont.)	8	2	2	-	4
12	Seismic analysis in ECP	8	2	2	-	4
13	Design principles for earthquake structures according to the Egyptian code	8	2	2	-	4
14	Design principles for earthquake structures according to the Egyptian code (cont.)	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Assignments / Research	Any week	5 / 5	5% / 5%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	• Egyptian Code for Design and Construction of Reinforced Concrete Structures 2032001. • BK Raghu Prasad, "Structural Dynamics in Earthquake and Blast Resistant Design", 2022. • Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2018. • Azer A. Kasimzade, Erdal Şafak, Carlos .E ,Ventura "Seismic Isolation, Structural Health Monitoring", 2018.
	Other References	
	Learning Platforms (Links must be added)	Institute Electronic model: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Rafik Wadia

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Design of Marine Platforms

CIE416B

1. Basic Information

Course Title	Design of Marine Platforms				
Course Code	CIE416B				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Prof. Dr. Osami Rageh				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to apply knowledge of mathematics, science, engineering concepts, and construct structures to solve fundamental engineering problems related to marine platforms and achieving the design of fixed marine platforms. The scientific content of this course is to define and recognize different types of marine platforms, loads affecting the marine platforms – tide and wind forces – design of fixed marine platforms.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to reinforced concrete and steel marine platforms, foundations, and coastal retaining structures
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards for marine platform design, including health and safety regulations and environmental considerations specific to offshore structures.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize appropriate and sustainable technologies for the construction of marine platforms and related offshore structures
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of marine structures.
		2	Achieve an optimum design of reinforced concrete and steel marine platforms, and associated coastal support structures

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Flipped Classroom
3. Problem solving
4. Project

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction on Marine platform	8	2	2	-	4
2	Marine platform (definition)	8	2	2	-	4
3	Types of Marine platform	8	2	2	-	4
4	Loads affecting the marine platforms	8	2	2	-	4
5	Loads affecting the marine platforms Continued	8	2	2	-	4
6	Loads affecting the marine platforms Continued	8	2	2	-	4
7	Loads affecting the marine platforms Continued	8	2	2	-	4
8	Tide and wind forces Mid-term written Exam	8	2	2	-	4
9	Tide and wind forces Continued	8	2	2	-	4
10	Tide and wind forces Continued	8	2	2	-	4
11	Design of fixed marine platforms	8	2	2	-	4
12	Design of fixed marine platforms Continued	8	2	2	-	4
13	Design of fixed marine platforms Continued	8	2	2	-	4
14	Design of fixed marine platforms Continued	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work)	4 th	10	10%
2	Exam 2 (Semester work)	8 th	20	20%
3	Assignments / Project	Any week	5 / 5	5% / 5%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Egyptian Code for Water Resources and Irrigation Works, the Egyptian Ministry of Water Resources and Irrigation, published in 2003, titled Volume Seven, First Edition.
	Other References	Paik, J. K. (2022). Ship-shaped offshore installations: design, construction, operation, healthcare and decommissioning (Vol. 9). Cambridge University Press. Chandrasekaran, S. (2020). Design of marine risers with functionally graded materials. Woodhead Publishing.
	Electronic Sources (Links must be added)	https://www.mdpi.com/journal/jmse/special_issues/NW9A4O60A1
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Abaqus - Excel



teaching and learning	Skill Labs/ Simulators	-

**Name and Signature
Course Coordinator
Prof. Dr. Osami Rageh**

**Name and Signature
Program Coordinator
Assoc. Prof. Dr. Mohamed Gabr**



Design of shell Structures CIE416C

1. Basic Information

Course Title	Design of shell Structures				
Course Code	CIE 416C				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry Of Higher Education & Scientific Research				
Name of Course Coordinator	Prof. Dr./ Khaled Fawzy & Dr./ Hamdy Abd-Elatty				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)



The scientific content of this course is Forces and stresses affecting the shell structures, analysis of shell structures and design of shell structures.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define, basic characteristics, properties, concepts, and techniques of: structural analysis and mechanics, properties and strength of materials.
A9	Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	1	Use creatively in solving problems of design.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of Reinforced Concrete structures

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research.



Course schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Forces affecting the shell structures	8	2	2	-	4
2	Forces affecting the shell structures (Continued)	8	2	2	-	4
3	Stresses affecting the shell structures	8	2	2	-	4
4	Stresses affecting the shell structures (Continued)	8	2	2	-	4
5	Analysis of shell structures	8	2	2	-	4
6	Analysis of shell structures Continued	8	2	2	-	4
7	Analysis of shell structures Continued	8	2	2	-	4
8	Analysis of shell structures Continued Mid term Exam	8	2	2	-	4
9	Analysis of shell structures Continued	8	2	2	-	4
10	Design of shell structures	8	2	2	-	4
11	Design of shell structures Continued	8	2	2	-	4



12	Design of shell structures Continued	8	2	2	-	4
13	Design of shell structures Continued	8	2	2	-	4
14	Design of shell structures Continued	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work)	4 th	10	10%
2	Exam 2 (Semester work)	8 th	20	20%
4	Assignments / Research	Any week	5 / 5	5% / 5%
3	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Iakov Iskhakov, Yuri Ribakov · (2022), Design Principles and Analysis of Thin Concrete Shells.
	Other References	Eisenbach, Philipp · (2017), Processing of Slender Concrete Shells – Fabrication.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
	Devices/Instruments	Data show, Sounding system



Supportive facilities & equipment for teaching and learning	Supplies	Lecture Classroom
	Electronic Programs	-

Name and Signature
Course Coordinator
Prof. Dr./ Khaled Fawzy &
Dr./ Hamdy Abd-Elatty

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Engineering Project Evaluation CIE416D

1. Basic Information

Course Title	Engineering Project Evaluation				
Course Code	CIE416D				
Department/s participating in the delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Elin Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Summary of scientific content)

This course aims to plan construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects. The scientific content of this course is: Fundamentals of project appraisal and feasibility study; Planning of civil engineering projects; Economic analysis of civil engineering projects; Introduction to environmental impact assessment and social impact assessment; Case studies on civil engineering project appraisal.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Use fundamental organizational and project management abilities.
A9	Utilize creative, innovative, and flexible thinking to acquire entrepreneurial and leadership skills, enabling you to	1	Manage tasks, time, and resources.

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	anticipate and respond effectively to new situations.		
A7	Function efficiently as an individual and as a member of multidisciplinary and multicultural teams.	1	Collaborate within a multidisciplinary team.
		2	Work in a stressful environment and within constraints.
B3	Plan and manage construction processes, addressing construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects.	1	Assess the environmental impacts of projects.

4. Teaching and Learning Methods

- Face-to-Face Lectures
- Discussions
- Problem Solving
- Brainstorming
- Self-Learning and Research
- Projects

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Fundamentals of Project Appraisal (Part 1)	8	2	2	-	4
2	Fundamentals of Project Appraisal (Part 2)	8	2	2	-	4
3	Feasibility Study (Part 1)	8	2	2	-	4
4	Feasibility Study (Part 2)	8	2	2	-	4
5	Planning of Projects (Part 1)	8	2	2	-	4
6	Planning of Projects (Part 2)	8	2	2	-	4
7	Economic Analysis of Projects (Part 1)	8	2	2	-	4
8	Economic Analysis of Projects (Part 2) Midterm Written Exam	8	2	2	-	4
9	Environmental Impact Assessment on Project (Part 1)	8	2	2	-	4
10	Environmental Impact Assessment on Project (Part 2)	8	2	2	-	4
11	Social Impact Assessment on Project (Part 1)	8	2	2	-	4
12	Social Impact Assessment on Project (Part 2)	8	2	2	-	4
13	Case Studies (Part 1)	8	2	2	-	4
14	Case Studies (Part 2)	8	2	2	-	4
15	Final Written Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of Total Course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%

3	Assignments / Projects / Sheets / Quizzes / Research	Any week	2/2/2/2/2	2%/2%/2%/2%/2%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	- Project Management Institute. (2021, July). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition and The Standard for Project Management. Project Management Institute.
	Other References	- Okoh, O. F., Ukpoju, E. A., Otakwu, A., Ayoola, V. B., & Enyejo, L. A. (2024). Construction Management: Some Issues in The Construction Project. Engineering Heritage Journal (GWK), 8(1), 42-50. - Dykstra, A. (2018). Construction project management: A complete introduction. Kirshner Publishing Company. - Mason, J., & Potts, K. (2023). Construction law: from beginner to practitioner. Routledge. - Garcés, G., & Peña, C. (2023). A review of lean construction for construction project management. Revista ingeniería de construcción, 38(1). - Bagshaw, K. B. (2021). PERT and CPM in project management with practical examples. American Journal of Operations Research, 11(4), 215-226. - Kerzner, H. (2025). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons. - Venkataraman, R. R., & Pinto, J. K. (2023). Cost and value management in projects. John Wiley & Sons. - Wideman, R. M. (2022). Project and program risk management guide to managing project risks and opportunities. Project Management Institute, Inc. - Hillson, D. (2024). Managing risk in projects. Routledge. - Parsamehr, M., Perera, U. S., Dodanwala, T. C., Perera, P., & Ruparathna, R. (2023). A review of construction management challenges and BIM-based solutions: perspectives from the schedule, cost, quality, and safety management. Asian Journal of Civil Engineering, 24(1), 353-389.



		- Schaufelberger, J., & Holm, L. (2024). Management of construction projects: a constructor's perspective. Routledge.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities equipment teaching learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Elin Eldars

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr

Fiber Reinforced Cement Composites

CIE416E

1. Basic Information

Course Title	Fiber Reinforced Cement Composites				
Course Code	CIE416E				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Nesreen Elawadly				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course develops students' abilities to apply broad engineering knowledge and specialized skills to solve complex problems. Emphasizing modern tools, codes, and sustainable technologies, it focuses on reinforced cement composites in construction. Students will learn to identify and apply appropriate solutions using contemporary engineering practices, ensuring safety, efficiency, and sustainability in real-world civil engineering applications.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS2018)

Program Outcomes (NARS2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe codes of practice, and standards, as well as health and safety regulations
		2	Define contemporary engineering technologies and their applications in relation to disciplines.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics	1	Select the fundamentals of Reinforced Cement Composites
		2	Summarize, appropriate and sustainable technologies for Reinforced Cement Composites

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Project
5. Self-learning and research.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Fiber-reinforcement of cement-based matrices	8	2	2	-	4
2	Continuous and discontinuous fibers and meshes.	8	2	2	-	4
3	Fiber-reinforced concrete and Ferro-cement.	8	2	2	-	4
4	Laminated cementations composites	8	2	2	-	4
5	Behavior and mechanical properties	8	2	2	-	4
6	Mechanics of fiber reinforcement	8	2	2	-	4
7	Constitutive models; shear strength sheets	8	2	2	-	4
8	Constitutive models; short column sheets; Midterm exam	8	2	2	-	4
9	Constitutive models; flexural sheets	8	2	2	-	4
10	High-strength composites	8	2	2	-	4
11	High-performance fiber composites	8	2	2	-	4
12	Hybrid and smart composites	8	2	2	-	4
13	Lectures, projects and laboratory	8	2	2	-	4
14	Tests of FRP	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%

3	Final Written Exam	15 th	60	60%
4	Final Practical Exam	14 th	-	-
5	Final Oral Exam	-	-	-
6	Assignments / project	Any week	3/7	3% / 7%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Viktor Mechtcherine, Cesare Signorini, Dominik Junger (2024) Transforming Construction: Advances in Fiber Reinforced Concrete, Springer Cham,
	Other References	High performance fiber reinforced cement composite / 2012 / gustavoj. puraa
	Electronic Sources (Links must be added)	/ https://doi.org/10.1007/978-3-031-70145-0
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet
	Skill Labs/ Simulators	-

**Name and Signature
Course Coordinator
Dr/ Nesreen Elawadly**

**Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr**



Project Decision Analysis CIE416F

1. Basic Information

Course Title	Project Decision Analysis				
Course Code	CIE416F				
Department/s participating in the delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Elin Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Summary of scientific content)

This course aims to create a plan for construction processes; address construction defects, instability, and quality issues; uphold safety measures in construction and materials; and evaluate the environmental impacts of projects. The scientific content of this course is to study the quantitative methods of decision-making. Important mathematical models useful in decision processes. Model-structure assumptions, limitations, and methods for use. Concepts and models of support systems for management decision problems.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Use fundamental organizational and project management abilities.
A9	Utilize creative, innovative, and flexible thinking to acquire entrepreneurial and leadership skills,	1	Manage tasks, time, and resources.

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	enabling you to anticipate and respond effectively to new situations.		
B3	Plan and manage construction processes, addressing construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects.	1	Assess the environmental impacts of projects.

4. Teaching and Learning Methods

- Face-to-Face Lectures
- Discussions
- Problem Solving
- Brainstorming
- Self-Learning and Research
- Projects

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Quantitative methods of decision-making (Part 1)	8	2	2	-	4
2	Quantitative methods of decision-making (Part 2)	8	2	2	-	4
3	Important mathematical models useful in decision processes (Part 1)	8	2	2	-	4
4	Important mathematical models useful in decision processes (Part 2)	8	2	2	-	4
5	Assumptions of the model structure (Part 1)	8	2	2	-	4
6	Assumptions of the model structure (Part 2)	8	2	2	-	4
7	Limitations of the model structure (Part 1)	8	2	2	-	4
8	Limitations of the model structure (Part 2) Midterm Written Exam	8	2	2	-	4
9	Methods for using the model structure (Part 1)	8	2	2	-	4
10	Methods for using the model structure (Part 2)	8	2	2	-	4

11	Concepts of support systems for management decision problems (Part 1)	8	2	2	-	4
12	Concepts of support systems for management decision problems (Part 2)	8	2	2	-	4
13	Models of support systems for management decision problems (Part 1)	8	2	2	-	4
14	Models of support systems for management decision problems (Part 2)	8	2	2	-	4
15	Final Written Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of Total Course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Projects / Sheets / Quizzes / Research	Any week	2+2+2+2+2 = 10	20%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	- Project Management Institute. (2021, July). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition and The Standard for Project Management. Project Management Institute.
	Other References	- Okoh, O. F., Ukpoju, E. A., Otakwu, A., Ayoola, V. B., & Enyejo, L. A. (2024). Construction Management: Some Issues in The Construction Project. Engineering Heritage Journal (GWK), 8(1), 42-50. - Dykstra, A. (2018). Construction project management: A complete introduction. Kirshner Publishing Company. - Mason, J., & Potts, K. (2023). Construction law: from beginner to practitioner. Routledge. - Garcés, G., & Peña, C. (2023). A review of lean construction for construction project management. Revista ingeniería de construcción, 38(1). - Bagshaw, K. B. (2021). PERT and CPM in project management with practical examples. American Journal of Operations Research, 11(4), 215-226.

		- Kerzner, H. (2025). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons. - Venkataraman, R. R., & Pinto, J. K. (2023). Cost and value management in projects. John Wiley & Sons. - Wideman, R. M. (2022). Project and program risk management guide to managing project risks and opportunities. Project Management Institute, Inc. - Hillson, D. (2024). Managing risk in projects. Routledge. - Parsamehr, M., Perera, U. S., Dodanwala, T. C., Perera, P., & Ruparathna, R. (2023). A review of construction management challenges and BIM-based solutions: perspectives from the schedule, cost, quality, and safety management. Asian Journal of Civil Engineering, 24(1), 353-389. - Schaufelberger, J., & Holm, L. (2024). Management of construction projects: a constructor's perspective. Routledge.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Elin Eldars

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Project Financial Management CIE416G

1. Basic Information

Course Title	Project Financial Management				
Course Code	CIE416G				
Department/s participating in the delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Elin Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Summary of scientific content)

This course aims to analyze data from the intended tests to manage resources creatively. Plan construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects. The scientific content of this course is: Cash flow and its analysis, project budget, project financial methods, risk and cost control, financial path for the project, time value, profit rate, and inflation effects.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Use fundamental organizational and project management abilities.
A9	Utilize creative, innovative, and flexible thinking to acquire entrepreneurial and	1	Manage tasks, time, and resources.

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	leadership skills, enabling you to anticipate and respond effectively to new situations.		
B3	Plan and manage construction processes, addressing construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects.	1	Define the construction process.

4. Teaching and Learning Methods

- Face-to-Face Lectures
- Discussions
- Problem Solving
- Brainstorming
- Self-Learning and Research
- Projects

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction to Cash Flow	8	2	2	-	4
2	Cash Flow Analysis	8	2	2	-	4
3	Project Budget	8	2	2	-	4
4	Project Financial Methods	8	2	2	-	4
5	Risk Control	8	2	2	-	4
6	Cost Control	8	2	2	-	4
7	Financial Path for Project (Part 1)	8	2	2	-	4
8	Financial Path for Project (Part 2) Midterm Written Exam	8	2	2	-	4
9	Time Value (Part 1)	8	2	2	-	4
10	Time Value (Part 2)	8	2	2	-	4
11	Profit Rate (Part 1)	8	2	2	-	4
12	Profit Rate (Part 2)	8	2	2	-	4
13	Inflation Effects (Part 1)	8	2	2	-	4
14	Inflation Effects (Part 2)	8	2	2	-	4
15	Final Written Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of Total Course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Projects / Sheets / Quizzes / Research	Any week	2/2/2/2/2	2%/2%/2%/2%/2%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	- Project Management Institute. (2021, July). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition and The Standard for Project Management. Project Management Institute.
	Other References	- Okoh, O. F., Ukpoju, E. A., Otakwu, A., Ayoola, V. B., & Enyejo, L. A. (2024). Construction Management: Some Issues in The Construction Project. Engineering Heritage Journal (GWK), 8(1), 42-50. - Dykstra, A. (2018). Construction project management: A complete introduction. Kirshner Publishing Company. - Mason, J., & Potts, K. (2023). Construction law: from beginner to practitioner. Routledge. - Garcés, G., & Peña, C. (2023). A review of lean construction for construction project management. Revista ingeniería de construcción, 38(1). - Bagshaw, K. B. (2021). PERT and CPM in project management with practical examples. American Journal of Operations Research, 11(4), 215-226. - Kerzner, H. (2025). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons. - Venkataraman, R. R., & Pinto, J. K. (2023). Cost and value management in projects. John Wiley & Sons. - Wideman, R. M. (2022). Project and program risk management guide to managing project risks and opportunities. Project Management Institute, Inc.

		- Hillson, D. (2024). Managing risk in projects. Routledge. - Parsamehr, M., Perera, U. S., Dodanwala, T. C., Perera, P., & Ruparathna, R. (2023). A review of construction management challenges and BIM-based solutions: perspectives from the schedule, cost, quality, and safety management. Asian Journal of Civil Engineering, 24(1), 353-389. - Schaufelberger, J., & Holm, L. (2024). Management of construction projects: a constructor's perspective. Routledge.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Elin Eldars

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Risk Management and Construction Safety CIE416H

1. Basic Information

Course Title	Risk Management and Construction Safety				
Course Code	CIE416H				
Department/s participating in the delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Elin Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Summary of scientific content)

This course aims to plan construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects. The scientific content of this course is: Principles and practice regarding safety in building. Accidental prevention and safety control. Fire control. Fire resistance of building materials, safety provisions for fire and other hazards in buildings. Safety standards and codes. Governmental regulations and inspection procedures.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Use fundamental organizational and project management abilities.
A7		1	Collaborate within a multidisciplinary team.

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	Function efficiently as an individual and as a member of multidisciplinary and multicultural teams.	2	Work in a stressful environment and within constraints.
A9	Utilize creative, innovative, and flexible thinking to acquire entrepreneurial and leadership skills, enabling you to anticipate and respond effectively to new situations.	1	Manage tasks, time, and resources.
B3	Plan and manage construction processes, addressing construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects.	1	Define the construction process.

4. Teaching and Learning Methods

- Face-to-Face Lectures
- Discussions
- Problem Solving
- Brainstorming
- Self-Learning and Research
- Projects.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Principles of Safety in Building (Part 1)	8	2	2	-	4
2	Practice Regarding Safety in Building (Part 2)	8	2	2	-	4
3	Accidental Prevention	8	2	2	-	4
4	Safety Control (Part 1)	8	2	2	-	4
5	Safety Control (Part 2)	8	2	2	-	4
6	Fire Control (Part 1)	8	2	2	-	4
7	Fire Control (Part 2)	8	2	2	-	4
8	Fire Resistance of Building Materials. Midterm Written Exam	8	2	2	-	4
9	Safety Provisions for Fire and Other Hazards in Buildings.	8	2	2	-	4
10	Safety Standards and Codes (Part 1)	8	2	2	-	4
11	Safety Standards and Codes (Part 2)	8	2	2	-	4

12	Governmental Regulations (Part 1)	8	2	2	-	4
13	Governmental Regulations (Part 2)	8	2	2	-	4
14	Inspection Procedures	8	2	2	-	4
15	Final Written Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of Total Course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Projects / Sheets / Quizzes / Research	Any week	2/2/2/2/2	2%/2%/2%2%2%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	- Project Management Institute. (2021, July). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition and The Standard for Project Management. Project Management Institute.
	Other References	- Okoh, O. F., Ukpoju, E. A., Otakwu, A., Ayoola, V. B., & Enyejo, L. A. (2024). Construction Management: Some Issues in The Construction Project. Engineering Heritage Journal (GWK), 8(1), 42-50. - Dykstra, A. (2018). Construction project management: A complete introduction. Kirshner Publishing Company. - Mason, J., & Potts, K. (2023). Construction law: from beginner to practitioner. Routledge. - Garcés, G., & Peña, C. (2023). A review of lean construction for construction project management. Revista ingeniería de construcción, 38(1). - Bagshaw, K. B. (2021). PERT and CPM in project management with practical examples. American Journal of Operations Research, 11(4), 215-226.

		- Kerzner, H. (2025). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons. - Venkataraman, R. R., & Pinto, J. K. (2023). Cost and value management in projects. John Wiley & Sons. - Wideman, R. M. (2022). Project and program risk management guide to managing project risks and opportunities. Project Management Institute, Inc. - Hillson, D. (2024). Managing risk in projects. Routledge. - Parsamehr, M., Perera, U. S., Dodanwala, T. C., Perera, P., & Ruparathna, R. (2023). A review of construction management challenges and BIM-based solutions: perspectives from the schedule, cost, quality, and safety management. Asian Journal of Civil Engineering, 24(1), 353-389. - Schaufelberger, J., & Holm, L. (2024). Management of construction projects: a constructor's perspective. Routledge.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Elin Eldars

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Air Conditioning systems for Building CIE 416I

1. Basic Information

Course Title	Air Conditioning systems for Building				
Course Code	CIE 416I				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Moataz Mostafa				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to psychometric and process of air. Cooling load estimation. Refrigeration cycles. Water chiller systems. Air handling system. Cooling towers. Equipment selection. Installation, operation and maintenance of air conditioning systems.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	State the principle of conservation of energy and give examples of conversions state the principle of conservation of energy and give examples of conversions.
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Describe the different analyzing procedures to handle problems related to heating systems via hot water and air.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
B4	Deal with biddings, contracts and financial issues including project insurance and guarantees.	1	Address biddings, contracts and financial issues including project insurance and guarantees.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Problem solving
3. Brain storming
4. Self-learning and research.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Psychometric and process of air	8	2	2	-	4
2		8	2	2	-	4
3		8	2	2	-	4
4	Cooling load estimation	8	2	2	-	4
5	Cooling load estimation (continued)	8	2	2	-	4
6	Refrigeration cycles.	8	2	2	-	4
7	Refrigeration cycles. Continued	8	2	2	-	4
8	Water chiller systems Mid-term written Exam	8	2	2	-	4
9	Water chiller systems	8	2	2	-	4
10	Air handling system	8	2	2	-	4
11	Cooling towers	8	2	2	-	4
12	Equipment selection.	8	2	2	-	4
13	Installation, operation and maintenance of air conditioning systems	8	2	2	-	4
14		8	2	2	-	4
15	Final Written exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1..... (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Assignments / Project / Researchh	Any week	5 / 5 / 5	3.33% / 3.33 % / 3.33%
4	Final Written Exam	15 th	60	60%



6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	McQuiston, F. C., Parker, J. D., Spitler, J. D., & Taherian, H. (2023). Heating, ventilating, and air conditioning: analysis and design. John Wiley & Sons.
	Other References	1- Miller, J. P., Vavrin, J. L., & Stidwell, S. I. (2021). Study of maintenance of high-performance sustainable buildings (HPSB). 2- Sugarman, S. C. (2022). Testing and balancing HVAC air and water systems. River Publishers.
	Learning Platforms	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room

Name and Signature
Course Coordinator
DR. / Moataz Mostafa

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Construction Estimating and Tendering CIE416J

1. Basic Information

Course Title	Construction Estimating and Tendering				
Course Code	CIE416J				
Department/s participating in the delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Elin Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Summary of scientific content)

This course aims to analyze data from the intended tests to manage resources creatively. Plan construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects. Dealing with bidding, contracts, and financial issues including project insurance and guarantees. The scientific content of this course is: Principles of construction cost estimating; Quantity takeoff; Methods of detailed cost estimating; Analysis of labor and equipment costs; Construction tendering process;



Bidding and contracting systems for construction projects; Laws and regulations related to the construction industry.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Use fundamental organizational and project management abilities.
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects.	1	Define the construction process.
B4	deals with bidding, contracts, and financial issues including project insurance and guarantees.	1	Define bidding, contracts, and financial issues.
		2	Address bidding, contracts, and financial issues including project insurance and guarantees.
		3	Apply bidding, contracts, and financial issues to civil engineering projects.

4. Teaching and Learning Methods

- Face-to-Face Lectures
- Discussions
- Problem Solving
- Brainstorming Self-Learning and Research
- Projects

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Principles of Construction Cost Estimating (Part 1)	8	2	2	-	4
2	Principles of Construction Cost Estimating (Part 2)	8	2	2	-	4
3	Quantity Take Off (Part 1)	8	2	2	-	4
4	Quantity Take Off (Part 2)	8	2	2	-	4
5	Methods of Detailed Cost Estimating (Part 1)	8	2	2	-	4
6	Methods of Detailed Cost Estimating (Part 2)	8	2	2	-	4
7	Analysis of Labor	8	2	2	-	4
8	Equipment Costs Midterm Written Exam	8	2	2	-	4
9	Construction Tendering Process (Part 1)	8	2	2	-	4
10	Construction Tendering Process (Part 2)	8	2	2	-	4
11	Bidding and Contracting Systems for Construction Projects (Part 1)	8	2	2	-	4
12	Bidding and Contracting Systems for Construction Projects (Part 2)	8	2	2	-	4
13	Laws and Regulations Related to The Construction Industry (Part 1)	8	2	2	-	4
14	Laws and Regulations Related to the Construction Industry (Part 2)	8	2	2	-	4
15	Final Written Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of Total Course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Projects / Sheets / Quizzes / Research	Any week	2/2/2/2/2	2%/2%/2%2%2%

4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	- Project Management Institute. (2021, July). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition and The Standard for Project Management. Project Management Institute.
	Other References	- Okoh, O. F., Ukpoju, E. A., Otakwu, A., Ayoola, V. B., & Enyejo, L. A. (2024). Construction Management: Some Issues in The Construction Project. Engineering Heritage Journal (GWK), 8(1), 42-50. - Dykstra, A. (2018). Construction project management: A complete introduction. Kirshner Publishing Company. - Mason, J., & Potts, K. (2023). Construction law: from beginner to practitioner. Routledge. - Garcés, G., & Peña, C. (2023). A review of lean construction for construction project management. Revista ingeniería de construcción, 38(1). - Bagshaw, K. B. (2021). PERT and CPM in project management with practical examples. American Journal of Operations Research, 11(4), 215-226. - Kerzner, H. (2025). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons. - Venkataraman, R. R., & Pinto, J. K. (2023). Cost and value management in projects. John Wiley & Sons. - Wideman, R. M. (2022). Project and program risk management guide to managing project risks and opportunities. Project Management Institute, Inc. - Hillson, D. (2024). Managing risk in projects. Routledge. - Parsamehr, M., Perera, U. S., Dodanwala, T. C., Perera, P., & Ruparathna, R. (2023). A review of construction management challenges and BIM-based solutions: perspectives from the schedule, cost, quality, and safety management. Asian Journal of Civil Engineering, 24(1), 353-389. - Schaufelberger, J., & Holm, L. (2024). Management of construction projects: a constructor's perspective. Routledge.
	Learning Platforms	Institute Electronic MOODLE: http://3.217.6.68



	(Links must be added)	
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Elin Eldars

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



وحدة ضمان الجودة



وزارة التعليم العالي
المعهد العالي للهندسة والتكنولوجيا
بدمياط الجديدة

الفرقة الرابعة

الفصل الدراسي الثاني



Research and Analytic Skills

BAS421

1. Basic Information

Course Title	Research and Analytic Skills				
Course Code	BAS421				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	-	-	2	2
Course Type	Compulsory				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education& Scientific Research				
Name of Course Coordinator	Assoc. Prof. Amal Beheiry, Dr. Ahmed Lotfy				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

يُعد إطار التحليل للمسائل الهندسية شاملاً، حيث يأخذ في الاعتبار الجوانب الفنية والاقتصادية والبيئية والأخلاقية، مع التركيز على مراحل حل المشكلة من فهمها وصياغتها، وضع خطة الحل، والتنفيذ، والتقييم، والمراجعة. يُعزز الإبداع في التحليل قدرة المهندس على ابتكار حلول جديدة ومبتكرة، بينما يُساعد تحليل SWOT في تحديد نقاط القوة والضعف، الفرص والتهديدات، لتقييم البدائل المختلفة بشكل فعال. كما يلعب تحليل التكلفة-الفائدة وتقييم المخاطر دوراً مهماً في اختيار الحلول الأنسب. ويؤكد على أهمية العمل الجماعي والتعاون لنجاح المشاريع الكبيرة، فضلاً عن أهمية جمع البيانات والمعلومات الموثوقة من خلال مهارات البحث باستخدام أدوات وتقنيات متقدمة، مع تقييم مصادر المعلومات لضمان مصداقيتها. هذا كله يعزز من قدرة المهندس على اتخاذ قرارات مدروسة ومستندة إلى معلومات دقيقة وموثوقة.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Analyze and interpret data.
		2	Evaluate Research Findings
		3	Apply Analytical and Statistical Tools

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures)	Training (Practical)	Self-learning (Tasks/ Assignment s/ Projects)	Tutorial
1	-مقدمة في تحليل المشكلات الهندسية: المفهوم، الأهمية، والأهداف.	4	2	-	-	2
2	-طار التحليل الهندسي مع مراعاة النواحي الفنية، الاقتصادية، البيئية، والأخلاقية.	4	2	-	-	2
3	-مراحل حل المشكلات: فهم وصياغة المشكلة.	4	2	-	-	2
4	-خطة الحل وتنفيذ الخطة.	4	2	-	-	2
5	-لتقييم والمراجعة – ودور الإبداع في التحليل.	4	2	-	-	2
6	-تحليل SWOT: أوجه القوة والضعف والفرص والمخاطر.	4	2	-	-	2
7	-تحليل التكلفة والفائدة – التحليل التفصيلي.	4	2	-	-	2
8	-تحليل المخاطر ودور التعاون والعمل الجماعي في المشكلات المعقدة.	4	2	-	-	2
9	-أهمية العثور على البيانات والمعلومات والمعرفة المناسبة.	4	2	-	-	2
10	-مهارات البحث: استخدام العبارات والمنطق (AND, OR, NOT).	4	2	-	-	2
11	-البحث باستخدام العناوين، النطاق، URL، والمضيف.	4	2	-	-	2
12	-تقييم نتائج البحث واختيار محرك البحث المناسب.	4	2	-	-	2
13	-تقييم مصداقية المصادر على الشبكة العالمية.	4	2	-	-	2
14	-مراجعة عامة، تقديم المشاريع أو الأنشطة التقييمية.	4	2	-	-	2
15	Final Written Exam					

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Self-learning and Research

4. Problem solving
5. Brain storming

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (assignments)	any week	10	20%
2	Final Written Exam	15 th	40	80%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	Analytical Tools in Research, L N Pattanaik, Educreation Publishing, Feb 23, 2017
	Other References	Babazade, Yasin. "Critical thinking in elt: developing analytical skills in English learners." International journal of philosophical studies and social sciences 3.6 (2023): 1-13.
		Timmermans, Stefan, and Iddo Tavory. <i>Data analysis in qualitative research: Theorizing with abductive analysis</i> . University of Chicago Press, 2022.
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator

Assoc. Prof. Amal Beheiry, Dr. Ahmed Lotfy

Name and Signature
Program Coordinator

Assoc. Prof. Mohamed Gabr



Environmental Management

BAS422

1. Basic Information

Course Title	Environmental Management				
Course Code	BAS422				
Department/s participating in delivery of the course	Basic Science and Engineering Department				
Number of hours of the course	Theoretical	Practical	Exercise	Total contact hours	Student load
	2	-	1	3	3
Course Type	Compulsory				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Ramadan Elkateb				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

Studying environmental science is essential for understanding the complex interactions between human activities and the natural world, particularly in the context of modern technology, which has significantly contributed to environmental degradation through pollution and resource depletion. The course explores how technological advancement, while beneficial, poses challenges to environmental sustainability. It also

examines the quality of the environment as a key component of development, emphasizing the need to balance economic growth with ecological preservation. Major sources of environmental pollution, such as air and water contamination, are analyzed along with effective control methods to mitigate their impact. Additionally, the course addresses issues related to solid waste and noise pollution, the economic considerations in managing environmental harm, and the importance of legislation in enforcing environmental protection and promoting sustainable practices.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
		2	Incorporate economic, societal, global, environmental, and risk management factors into design.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns.
		2	Apply safe systems at work by taking the necessary precautions to manage hazards.
		3	Utilize modern technologies.
A10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.	1	Search for information to engage in lifelong self-learning discipline.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures)	Training (Practical)	Self-learning (Tasks/ Assignments/ Projects)	Tutorial
1	Introduction: Importance of studying environmental science.	6	2	-	3	1
2	Modern technology and its effect on the environment.	6	2	-	3	1
3	Continuation: Technology and environment – real-world examples	6	2	-	3	1
4	Environmental quality and elements of sustainable development.	6	2	-	3	1
5	Environmental quality (continued): Indicators and assessment tools	6	2	-	3	1
6	Sources of air pollution: Types, causes, and effects.	6	2	-	3	1
7	Air pollution control methods and technologies	6	2	-	3	1
8	Sources of water pollution: Industrial, agricultural, and domestic sources. Midterm Exam	6	2	-	3	1
9	Water pollution control: Treatment techniques and prevention strategies	6	2	-	3	1
10	Solid waste pollution: Types, impacts, and management practices.	6	2	-	3	1
11	Noise pollution: Sources, health impacts, and mitigation.	6	2	-	3	1
12	Economics of environmental pollution control.	6	2	-	3	1
13	Environmental legislation and policies for environmental protection.	6	2	-	3	1
14	Course review and student presentations.	6	2	-	3	1
15	Final Written Exam					

4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and Research

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (midterm + quizzes + assignments)	Midterm (8 th) and others in any week	20+10+10= 40	%40
2	Final Written Exam	15 th	60	%60

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	Adsorption characteristics and applications of andesite in removing some pollutants from wastewater, Abdalla M. Khedr , Nadia Elwakiel , Sameh E. Halawia& Ramadan Abdelghany Mansour, Scientific reports, 2024.
	Other References	-Marc Lame "Environmental Management" Cambridge University Press; , (2023). -Tracy Dathe, René Dathe, Isabel Dathe, Marc Helmold "Corporate Social Responsibility (CSR), Sustainability and Environmental Social Governance (ESG)" Springer ; , (2023).
	Learning Platforms	MOODLE http://www.ees.ndeti.edu.eg/

Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature

Course Coordinator

Assoc. Prof. Dr./ Ramadan Elkateb

Name and Signature

Program Coordinator

Assoc. Prof. Mohamed Gabr



Legislation and contracts

CIE 421

1. Basic Information

Course Title	Legislation and contracts				
Course Code	CIE 421				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	1	-	3	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr./ Ayman Helal				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to study the Legislation and laws in the construction industry. Legal concepts in the field of construction contracts. Defining the relationship between the owner, contractor, and engineer. Explaining the different types of construction contracts and the contractual obligations.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	1	Manage tasks, time, and resources.
A10	Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.	1	Search for information to engage in lifelong self-learning discipline.
		2	Merge engineering knowledge, understanding, and feedback to improve design, products, and/or services.
B4	Deal with biddings, contracts and financial issues including project insurance and guarantees.	1	Define biddings, contracts, and financial issues.
		2	Address bidding, contracts, and financial issues including project insurance and guarantees.
		3	Apply biddings, contracts, and financial issues on civil engineering projects.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research.

Course Schedule



Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Legislation and Laws in Construction Industry	7	2	1	-	4
2	Definitions (Legislative and Legal Aspects of The Construction Industry)	7	2	1	-	4
3	Definitions (Legislative and Legal Aspects of The Construction Industry) (continue)	7	2	1	-	4
4	Legal Concepts in The Field of The Construction Contracts	7	2	1	-	4
5	Legal Concepts in The Field of The Construction Contracts (continue)	7	2	1	-	4
6	Construction Contracts and Their Elements	7	2	1	-	4
7	Construction Contracts and Their Elements (continue)	7	2	1	-	4
8	Construction Contracts and Their Elements (continue) Mid-term written Exam	7	2	1	-	4
9	The Different Types of Contracting Contracts	7	2	1	-	4
10	The Different Types of Contracting Contracts (continue)	7	2	1	-	4
11	Types of Obligation in The Contracting Contract (The Engineer's Insight into His Responsibilities and Rights That are Regulated by Law and Determine His Relationship with The Parties to The Construction Triangle	7	2	1	-	4



	(Owner - Contractor - Engineer))					
12	Types of Obligation in The Contracting Contract (The Engineer's Insight into His Responsibilities and Rights That are Regulated by Law and Determine His Relationship with The Parties to The Construction Triangle (Owner - Contractor - Engineer)) (continue)	7	2	1	-	4
13	Types of Obligation in The Contracting Contract (The Engineer's Insight into His Responsibilities and Rights That are Regulated by Law and Determine His Relationship with The Parties to The Construction Triangle (Owner - Contractor - Engineer))	7	2	1	-	4
14	Types of Obligation in The Contracting Contract (The Engineer's Insight into His Responsibilities and Rights That are Regulated by Law and Determine His Relationship with The Parties to The Construction Triangle (Owner - Contractor - Engineer)) (continue)	7	2	1	-	4
15	Final Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1..... (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Final Written Exam	15 th	60	60%
4	Assignments + Project	Any week	5+5=10	10%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Ministry of Housing, Utilities, and Urban Communities, General Egyptian Book Organization, 2022 "Egyptian Building Codes and Standards"
	Other References	Ahmed Seif El-Din, Egyptian Law Journal, 2023 "The Legal Framework for Construction Contracts in Egypt: Challenges and Developments"
		Hossam Nasser Ibrahim, Legal Publishing House, 2020 "Legal and Contractual Aspects of Construction Projects in Egypt"
	Electronic Sources (Links must be added)	
	Learning Platforms	Institute Electronic MOODLE: http://3.217.6.68



	(Links must be added)	
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet

Name and Signature
Course Coordinator
Dr. / Ayman Helal

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Reinforced Concrete (4)

CIE 422

1. Basic Information

Course Title	Reinforced Concrete (4)				
Course Code	CIE 422				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Compulsory				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Prof. Dr./ Khaled Fawzy & Dr./ Hamdy Abd-Elatty				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to design of water structures, design of concrete sections subjected to moments without cracking, Design of rectangular tanks, Design of circular tanks and Design of elevated tanks



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to reinforced concrete.
		2	Apply engineering design procedures to generate cost-effective solutions while adhering to the principles and contexts of sustainable design and development.
A6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	1	Show the appropriate and sustainable technologies for construction of buildings, infrastructures and water structures.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of Reinforced Concrete structures.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Self-learning and research.
5. Brainstorming



Course Schedule

Number of the week	Scientific content of the course (Course Topics)	Totally Weekly Hours	Expected number of the learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Design of water structures	8	2	2	-	4
2	Design of concrete sections subjected to moments without cracking	8	2	2	-	4
3	Design of concrete sections subjected to moments without cracking (continue)	8	2	2	-	4
4	Design of elevated tanks	8	2	2	-	4
5	Design of elevated tanks (continue)	8	2	2	-	4
6	Design of rectangular tanks	8	2	2	-	4
7	Design of rectangular tanks (continue)	8	2	2	-	4
8	Design of rectangular tanks (continue) Mid-term written Exam	8	2	2	-	4
9	Design of circular tanks	8	2	2	-	4



10	Design of circular tanks (continue)	8	2	2	-	4
11	Design of Ground tanks	8	2	2	-	4
12	Design of Ground tanks (continue)	8	2	2	-	4
13	Design of under Ground tanks	8	2	2	-	4
14	Design of under Ground tanks (continue)	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	5	5%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments	Any week	15	15%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities



Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Chmielewski, Ryszard, Leopold Kruszka, and Paweł Muzolf. (2022) "The selection of methods for strengthening of the reinforced-concrete structure of the open tank." Case Studies in Construction Materials.
	Other References	Nallanathel, Mr. Manoj, Mr. B. Ramesh, and L. Jagadeesh. (2018) "Effective Utilization of Staad Pro in The Design and Analysis of Water Tank." International Journal of Pure and Applied Mathematics.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	-

**Name and Signature
Course Coordinator
Prof. Dr./ Khaled Fawzy &
Dr./ Hamdy Abd-Elatty**

**Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr**



Project 2

CIE423

1. Basic Information

Course Title	Project 2				
Course Code	CIE 423				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	4	-	6	5
Course Type	Compulsory				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

Continuation and conclusion of the investigations on the civil problems of Project 1; written reports and team presentations are required.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Identify the relevant mathematical principles and theories in the discipline.
		2	Formulate math ideas and theories that are applicable to the field.
		3	Apply engineering basics that are relevant to the subject.
		4	Solve complex engineering problems by applying the concepts and the theories of sciences, appropriate to the discipline.
		5	Solve complex engineering problems by applying engineering fundamentals
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to reinforced concrete and steel structures, foundations and earth retaining structures.
		2	Apply the professional ethics and impacts of engineering solutions on society and environment.
		3	Apply the various construction defects, instability and quality issues and assess environmental impacts of projects.
		4	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns.
		2	List the engineering-related business and management principles.
		3	Define contemporary engineering technologies and their applications in relation to disciplines.
		4	Use fundamental organizational and project management abilities.
		5	Utilize modern technologies.
A5	Practice research techniques and methods of investigation as an inherent part of learning.	1	Assess different ideas, views, and knowledge from a range of sources.
		2	Prepare technical reports.
		3	Search for information to engage in lifelong self-learning discipline.
A6	Plan, supervise and monitor implementation of engineering projects,	1	Interpret data derived from laboratory observation from equipment flow sheets,

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	taking into consideration other trades requirements.		charts, and curves to interpret data derived from laboratory observation.
		2	Conduct experimental work related to the reinforced concrete and steel structures, foundations and earth retaining structures.
		3	Acquire entrepreneurial skills.
A7	Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.	1	Collaborate within multidisciplinary team.
		2	Work in stressful environment and within constraints.
		3	Function professionally to motivate individuals.
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	1	Communicate successfully, graphically, verbally and in writing.
		2	Demonstrate efficient IT capabilities.
A9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	1	Refer to relevant literature.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize, appropriate and sustainable technologies for construction of buildings, infrastructures and water structures.
		2	Use either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of: structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and irrigation, and fluid mechanics.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures.
		2	Achieve an optimum design of works for transportation and traffic, roadways and airports, railways, sanitary works, irrigation, open channel hydraulics, water resources and harbors; river engineering or any other emerging field relevant to the discipline.

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Define construction process.
		2	Address construction defects, instability, and quality issues
		3	Assess environmental impacts of projects.
B4	Deal with biddings, contracts and financial issues including project insurance and guarantees.	1	Define biddings, contracts, and financial issues.
		2	Address biddings, contracts and financial issues including project insurance and guarantees.
		3	Apply biddings, contracts, and financial issues on civil engineering projects

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brainstorming
5. Self-learning and research.
6. Practical
7. Site visits
8. Cooperative
9. Discovering

Course schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Project overview	11	2	4	-	5
2	Project data collection and field investigations	11	2	4	-	5
3		11	2	4	-	5
4	Experimental work	11	2	4	-	5
5	Project design and modeling	11	2	4	-	5
6	Project design and modeling (continue)	11	2	4	-	5
7	Project design and modeling (continue)	11	2	4	-	5
8	Project design and modeling (continue)	11	2	4	-	5
9	Project Drawing (continue)	11	2	4	-	5
10	Project Drawing (continue)	11	2	4	-	5
11	Project Drawing (continue)	11	2	4	-	5
12	Project Drawing (continue)	11	2	4	-	5
13	Project Book not and Presentation	11	2	4	-	5
14	Project Book not and Presentation (continue)	11	2	4	-	5
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Periodic exams (Semester work+ Project note book + Drawings+ Initial discussion))	Any week	10+15+15+20=60	40%
3	Final Exam (project discussion)	15 th	90	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Subject studies
	Other References	Subject studies
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Skill Labs/ Simulators	Computer Lab & Digital Library

Name and Signature
Course Coordinator
Assoc. Prof. Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Groundwater hydraulics CIE424A

1. Basic Information

Course Title	Groundwater hydraulics				
Course Code	CIE424A				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of Higher Education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course scientific content aims to study the fundamentals of Groundwater and Properties of Soil (types of aquifers – porosity – rock and water – degree of saturation – hydraulic conductivity and intrinsic



permeability). Groundwater movement and well hydraulics (Darcy law – direction of the hydraulic gradient – groundwater recharge – seepage through porous media – homogeneity and isotropy – flow in stratified media – steady and unsteady flow toward a well in various types of aquifers). Well design and construction (well design – well construction and maintenance). Saltwater intrusion in coastal aquifers (introduction – Ghyben-Herzberg equation – formulation of saltwater intrusion – modeling of saltwater intrusion – theory of images – controlling of saltwater intrusion).

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, economic, environmental, ethical and other aspects as appropriate the principles and contexts of sustainable design and development.	1	Apply the general principles of the groundwater aquifer system– porosity – rock and water – degree of saturation – hydraulic conductivity and intrinsic permeability- Groundwater movement and well hydraulics (Darcy law – direction of the hydraulic gradient – groundwater recharge – seepage through porous media – homogeneity and isotropy –flow in stratified media – steady and unsteady flow toward a well in various types of aquifers)
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.	1	Describe contemporary technologies for groundwater wells. Define the Ghyben-Herzberg equation – formulation of saltwater intrusion.



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve optimum planning, design and construction of groundwater wells.
B3	Plan and manage construction processes; address construction defects, instability and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Assess saltwater intrusion in coastal aquifers (modeling of saltwater intrusion – theory of images – controlling of saltwater intrusion) and its related environmental impacts

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Fundamentals of Groundwater and properties of soil (types of aquifers – porosity – rock and water – degree of saturation)	8	2	2	-	4
2	Fundamentals of Groundwater and properties of soil (hydraulic conductivity and intrinsic permeability)	8	2	2	-	4
3	Groundwater movement and well hydraulics (Darcy law – direction of the hydraulic gradient – groundwater recharge)	8	2	2	-	4
4	Groundwater recharge	8	2	2	-	4
5	Groundwater movement and well hydraulics (seepage through porous media)	8	2	2	-	4
6	Groundwater movement and well hydraulics (homogeneity and isotropy)	8	2	2	-	4
7	Groundwater movement and well hydraulics (flow in stratified media)	8	2	2	-	4
8	Steady and unsteady flow toward a well in various types of aquifers. Midterm term exam	8	2	2	-	4
9	Groundwater movement and well hydraulics (steady and unsteady flow toward a well in various types of aquifers)	8	2	2	-	4
10	Well design and construction (well construction and maintenance).	8	2	2	-	4
11	Saltwater intrusion in coastal aquifers (introduction – Ghyben-Herzberg equation).	8	2	2	-	4
12	Saltwater intrusion in coastal aquifers (formulation of saltwater).	8	2	2	-	4
13	Saltwater intrusion in coastal aquifers (modeling of saltwater).	8	2	2	-	4
14	Saltwater intrusion in coastal aquifers (theory of images – controlling of saltwater intrusion).	8	2	2	-	4
15	Final Exam					



5. *Methods of students' assessment*

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1..... (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Assignments / Report	Any week	5 / 5	5% / 5%
4	Final Written Exam	15 th	60	60%

6. *Learning Resources and Supportive Facilities*

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Robert E. Mace (2022) Groundwater Sustainability, Publisher Palgrave Macmillan Cham.
	Other References	John H. Cushman, Daniel M. Tartakovsky. (2017) The Handbook of Groundwater Engineering. Available on Taylor & Francis eBooks
	Electronic Sources (Links must be added)	https://link.springer.com/book/10.1007/978-981-10-0669-2
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet

Name and Signature
Course Coordinator
Assoc. Prof. Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Pavement Design CIE424B

1. Basic Information

Course Title	Pavement Design				
Course Code	CIE424B				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Ayman Helal				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course focuses on studying the characteristics of pavement loads, stress analysis in pavements, design practices, construction, rehabilitation and maintenance, optimization of the design of rigid and Flexible pavements systems, empirical and mechanistic stochastic structural subsystems, utility theory, serviceability concept, cost studies, traffic delay, environmental deterioration, rehabilitation and maintenance optimization systems.

3. Course Learning Outcomes CLOs



Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact of pavement materials.
		2	Apply engineering design procedures to generate cost-effective solutions while adhering to the principles and contexts of sustainable design and development.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of roadways and airports pavement design.
		2	Summarize appropriate and sustainable technologies for pavement design.
		3	Testing and analysis properties and strength of materials of roadways and airports pavement design.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design for roadways and airports pavement materials
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	define plan and manage pavement construction process.
		2	Address construction defects, instability and quality issues of pavement materials.
		3	Assess environmental impacts of pavement projects.

4. Teaching and Learning Methods

1. Face-to-Face Lecture



2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and Research
6. **Project**

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Characteristics of pavement loads.	8	2	2	-	4
2		8	2	2	-	4
3	Stress analysis in pavements.	8	2	2	-	4
4		8	2	2	-	4
5	Design practices, construction, rehabilitation and maintenance.	8	2	2	-	4
6		8	2	2	-	4
7	Optimization of the design of rigid pavements systems.	8	2	2	-	4
8	Optimization of the design of flexible pavements systems.	8	2	2	-	4
9	Empirical stochastic structural subsystems.	8	2	2	-	4
10	Mechanistic stochastic structural subsystems.	8	2	2	-	4
11	Utility theory, serviceability concept	8	2	2	-	4
12	cost studies, traffic delay	8	2	2	-	4
13	environmental deterioration	8	2	2	-	4
14	Rehabilitation and maintenance optimization systems.	8	2	2	-	4
15	Final Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Final Written Exam	15 th	60	60%
4	Assignments / Project	Any week	5 / 5	5 % / 5%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	- Jialiang, Y. Z. (2022). Highway engineering materials and application. Changsha University.
	Other References	- Ministry of Housing, Utilities & Urban Communities (Egypt). (2020). Egyptian code of practice for urban and rural roads. - Mamlouk, M. S., & Zaniewski, J. P. (2016). Materials for civil and construction engineers (4th ed.). Pearson. ISBN: 0-13-147714-5 - Huang, S. C., & Di Benedetto, H. (Eds.). (2015). Advances in asphalt materials: Road and pavement construction. Woodhead Publishing. - Pasindu, H. R., Bandara, S., Mampearachchi, W. K., & Fwa, T. F. (Eds.). (2022). Road and airfield pavement technology. Springer. https://doi.org/10.1007/978-3-030-87379-0 .
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator
Dr. Ayman Helal

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Pre-Fabricated Concrete Frames

CIE424C

1. Basic Information

Course Title	Pre-Fabricated Concrete Frames				
Course Code	CIE424C				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Department				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr / Ayman Helal				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to use the techniques, skills, and current engineering tools required for engineering practice by taking full responsibility for one's own learning and development, participating in lifelong learning, and demonstrating the ability to pursue postgraduate and research studies. Select appropriate and sustainable technologies for construction of buildings, infrastructures and water structures; using numerical techniques, experiment measurements, and testing by applying a full range of civil engineering fields such as Pre-Fabricated Concrete Frames. The scientific content of this course is: Prefabricated concrete performance, design of concrete supported to shear Stress, design of Columbus, roofs and building frame, design project using the computer and detailed report.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles, basic properties, and features of construction material, as well as their use in sustainable technologies for construction of buildings.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles	1	Describe codes of practice, and standards, as well as health and safety regulations.
		2	Define contemporary engineering technologies and their applications in relation to disciplines.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the fundamentals of properties and strength of materials.
		2	Summarize, appropriate and sustainable technologies for construction of buildings.



4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion.
3. Problem solving.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Performance of prefabricated concrete	8	2	2	-	4
2	Performance of prefabricated concrete (continue)	8	2	2	-	4
3	Design of concrete supported to shear stress	8	2	2	-	4
4	Design of concrete supported to shear stress (continue)	8	2	2	-	4
5	Design of columns	8	2	2	-	4
6	Design of columns (continue)	8	2	2	-	4
7	Design of roofs	8	2	2	-	4
8	Design of roofs (continue) Mid-term written Exam	8	2	2	-	4
9	Design of building frames	8	2	2	-	4
10	Design of building frames (continue)	8	2	2	-	4
11	Design projects using the computer	8	2	2	-	4
12	Design projects using the computer (continue)	8	2	2	-	4
13	Detailed reports	8	2	2	-	4
14	Detailed reports (continue)	8	2	2	-	4
15	Final Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments	Any week	10	10%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Wu, Gang, De-Cheng Feng, and Chun-Lin Wang 2023, Novel Precast Concrete Structure Systems. Singapore: Springer.
	Other References	Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2018. Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2018. MacGregor J., 1988, "Reinforced Concrete: Mechanics and Design," Printice Hall, New Jersey.
	Electronic Sources (Links must be added)	
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	-
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
Dr / Ayman Helal

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Project Management 2 CIE424D

1. Basic Information					
Course Title	Project Management 2				
Course Code	CIE424D				
Department/s participating in the delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Elin Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Summary of scientific content)

This course aims to analyze data from the intended tests to manage resources creatively. Plan construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects. The scientific content of this course is: Construction Projects Work Breakdown Structure (WBS), Time Planning and Scheduling Techniques: “Networks, Line of Balance Method for Repetitive Units Projects”, Cash Flow, Cost Planning: “Cost Estimation, Cost Control”, and Using Computer Programs in Construction Project Management.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018 2018)

Program Outcomes (NARS 2018 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Use fundamental organizational and project management abilities.
A9	Utilize creative, innovative, and flexible thinking to acquire entrepreneurial and leadership skills, enabling you to anticipate and respond effectively to new situations.	1	Manage tasks, time, and resources.
B3	Plan and manage construction processes, addressing construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects.	1	Define the construction process.

4. Teaching and Learning Methods

- Face-to-Face Lectures
- Discussions
- Problem Solving
- Brainstorming
- Self-Learning and Research
- Projects



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Construction Projects Work Breakdown Structure (WBS)	8	2	2	-	4
2	Time Planning and Scheduling Techniques (Arrow Diagram Method)	8	2	2	-	4
3	Time Planning and Scheduling Techniques (Predecessor Diagram Method)	8	2	2	-	4
4	Time Planning and Scheduling Techniques (Line of Balance Method) (Part 1)	8	2	2	-	4
5	Time Planning and Scheduling Techniques (Line of Balance Method) (Part 2)	8	2	2	-	4
6	Project Cash Flow (Cash In)	8	2	2	-	4
7	Project Cash Flow (Cash Out)	8	2	2	-	4
8	Project Net Cash Flow Midterm Written Exam	8	2	2	-	4
9	Cost Planning (Cost Estimation) (Part 1)	8	2	2	-	4
10	Cost Planning (Cost Estimation) (Part 2)	8	2	2	-	4
11	Cost Planning (Cost Control) (Part 1)	8	2	2	-	4
12	Cost Planning (Cost Control) (Part 2)	8	2	2	-	4
13	Using Computer Programs in Construction Project Management (Part 1)	8	2	2	-	4
14	Using Computer Programs in Construction Project Management (Part 2)	8	2	2	-	4
15	Final Written Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing	Marks/ Scores	Percentage of



		(Week Number)		Total Course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Projects / Sheets / Quizzes / Research	Any week	2/2/2/2/2	2%/2%/2%2%2%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	- Project Management Institute. (2021, July). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition and The Standard for Project Management. Project Management Institute.
	Other References	- Okoh, O. F., Ukpoju, E. A., Otakwu, A., Ayoola, V. B., & Enyejo, L. A. (2024). Construction Management: Some Issues in The Construction Project. Engineering Heritage Journal (GWK), 8(1), 42-50. - Dykstra, A. (2018). Construction project management: A complete introduction. Kirshner Publishing Company. - Mason, J., & Potts, K. (2023). Construction law: from beginner to practitioner. Routledge. - Garcés, G., & Peña, C. (2023). A review of lean construction for construction project management. Revista ingeniería de construcción, 38(1). - Bagshaw, K. B. (2021). PERT and CPM in project management with practical examples. American Journal of Operations Research, 11(4), 215-226. - Kerzner, H. (2025). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons. - Venkataraman, R. R., & Pinto, J. K. (2023). Cost and value management in projects. John Wiley & Sons. - Wideman, R. M. (2022). Project and program risk management guide to managing project risks and opportunities. Project Management Institute, Inc. - Hillson, D. (2024). Managing risk in projects. Routledge. - Parsamehr, M., Perera, U. S., Dodanwala, T. C., Perera, P., & Ruparathna, R. (2023). A review



		of construction management challenges and BIM-based solutions: perspectives from the schedule, cost, quality, and safety management. Asian Journal of Civil Engineering, 24(1), 353-389.
		- Schaufelberger, J., & Holm, L. (2024). Management of construction projects: a constructor's perspective. Routledge.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Elin Eldars

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Project Visibility Study CIE424E

1. Basic Information

Course Title	Project Visibility Study				
Course Code	CIE424E				
Department/s participating in the delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	-	2	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Elin Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Summary of scientific content)

The course aims to enhance students' ability to optimize project feasibility and design with a strong focus on cost-effectiveness, sustainability, and practical implementation. It equips students with tools to select appropriate and sustainable technologies for construction projects using numerical analysis, experimental data, and feasibility evaluation methods. The course introduces the concept and historical development of visibility studies, followed by an exploration of project principles, types, and initial feasibility assessments. Key components include environmental, financial, monetary, and marketing evaluations, in addition to pricing strategies and the role of governmental and competitive influences. Students also examine product presentation, consumer behavior, and socio-economic factors impacting project viability. The technical and engineering aspects of visibility studies are addressed to ensure holistic project evaluation. The course concludes with methods for assessing and presenting the overall feasibility of civil engineering projects.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of design techniques specific to project feasibility, including structural and environmental aspects.
		2	Apply engineering design procedures to generate cost-effective solutions while adhering to the principles and contexts of sustainable design and development.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns.
		2	Create methodical approaches when dealing with new and advancing technology.
A7	Function efficiently as an individual and as a member of multidisciplinary and multicultural teams.	1	Collaborate within a multidisciplinary team.
		2	Work in a stressful environment and within constraints.
B3	Plan and manage construction processes, addressing construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects.	1	Define the construction process
		2	Address construction defects, instability, and quality issues.

4. Teaching and Learning Methods

- Face-to-Face Lectures
- Discussions
- Problem Solving
- Brainstorming
- Self-Learning and Research
- Projects.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Importance of the Visibility Study	8	2	2	-	4
2	Definition of The Visibility Study and Historical Development for It.	8	2	2	-	4
3	The Project Essence and Its Principles and Forms.	8	2	2	-	4
4	Initial Visibility Studies and Their Elements.	8	2	2	-	4
5	Environmental Visibility Studies.	8	2	2	-	4
6	Important Financial Sides in the Visibility Study.	8	2	2	-	4
7	The Important Monetary Sides in Visibility Study.	8	2	2	-	4
8	The Important Marketing Sides. Midterm Written Exam	8	2	2	-	4
9	The Exhibition of The Products and The Effective Parameters in It.	8	2	2	-	4
10	Pricing Policies.	8	2	2	-	4
11	The Situation of The Government The Consumer and The Competitive Projects.	8	2	2	-	4
12	The Engineering and Technical Visibility for The Project.	8	2	2	-	4
13	Study of Social Visibility.	8	2	2	-	4
14	Evaluation Methods of The Visibility Study	8	2	2	-	4
15	Final Written Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of Total Course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Projects / Sheets / Quizzes / Research	Any week	2/2/2/2/2	2%/2%/2%2%2%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	- Project Management Institute. (2021, July). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition and The Standard for Project Management. Project Management Institute.
	Other References	- Okoh, O. F., Ukpoju, E. A., Otakwu, A., Ayoola, V. B., & Enyejo, L. A. (2024). Construction Management: Some Issues in The Construction Project. Engineering Heritage Journal (GWK), 8(1), 42-50. - Dykstra, A. (2018). Construction project management: A complete introduction. Kirshner Publishing Company. - Mason, J., & Potts, K. (2023). Construction law: from beginner to practitioner. Routledge. - Garcés, G., & Peña, C. (2023). A review of lean construction for construction project management. Revista ingeniería de construcción, 38(1). - Bagshaw, K. B. (2021). PERT and CPM in project management with practical examples. American Journal of Operations Research, 11(4), 215-226. - Kerzner, H. (2025). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons. - Venkataraman, R. R., & Pinto, J. K. (2023). Cost and value management in projects. John Wiley & Sons. - Wideman, R. M. (2022). Project and program risk management guide to managing project risks and opportunities. Project Management Institute, Inc. - Hillson, D. (2024). Managing risk in projects. Routledge.



		- Parsamehr, M., Perera, U. S., Dodanwala, T. C., Perera, P., & Ruparathna, R. (2023). A review of construction management challenges and BIM-based solutions: perspectives from the schedule, cost, quality, and safety management. Asian Journal of Civil Engineering, 24(1), 353-389. - Schaufelberger, J., & Holm, L. (2024). Management of construction projects: a constructor's perspective. Routledge.
	Learning Platforms	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Whiteboard, lecture classroom

Name and Signature
Course Coordinator
Dr. Elin Eldars

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Urban Transportation Planning

CIE424F

1. Basic Information

Course Title	Urban Transportation Planning				
Course Code	CIE424F				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	Higher Institute for Engineering and Technology-New Damietta				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr./ Ayman Helal				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims land use-transportation interaction. The process of urban transportation planning, urban transport problems, goals, and objectives, data and information, survey design, travel demand forecasting: 1) trip generation, 2) trip distribution, 3) modal choice, 4) route assignment. The evaluation of urban transport systems, transport system management, demand management, and control.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	÷Identify the fundamentals of Transportation, Roadways and Airports.
		2	Summarize, appropriate and sustainable technologies for Transportation, Roadways and Airports.
		3	Use the properties and strength of materials of Transportation, Roadways and Airports for optimum design.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of Transportation, Roadways and Airports.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Land use-transportation interaction.	8	2	2	-	4
2	Land use-transportation interaction.	8	2	2	-	4
3	The process of urban transportation planning,	8	2	2	-	4
4	The process of urban transportation planning,	8	2	2	-	4
5	urban transport problems, goals, objectives, data and information.	8	2	2	-	4
6	urban transport problems, goals, objectives, data and information.	8	2	2	-	4
7	urban transport problems, goals, objectives, data and information.	8	2	2	-	4
8	survey design. Mid-term written Exam	8	2	2	-	4
9	travel demand forecasting: 1) trip generation, 2) trip distribution, 3) modal choice, 4) route assignment.	8	2	2	-	4
10	travel demand forecasting: 1) trip generation, 2) trip distribution, 3) modal choice, 4) route assignment.	8	2	2	-	4
11	The evaluation of urban transport systems.	8	2	2	-	4
12	The evaluation of urban transport systems.	8	2	2	-	4
13	transport system management, demand management, and control.	8	2	2	-	4
14	transport system management, demand management, and control.	8	2	2	-	4
15	Final Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1..... (Semester work)	4th	10	10%
2	Exam 2 written (midterm)	8th	20	20%
4	Assignments / Project / Research	Any week	5 / 5 / 5	3.33% / 3.33% / 3.33%
3	Final Written Exam	15th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Bruton, M. J. (2021). Introduction to transportation planning. Routledge.
	Other References	1- van Wee, B., Annema, J. A., Banister, D., & Pud��ne, B. (Eds.). (2023). The transport system and transport policy: an introduction. Edward Elgar Publishing. 1- Dimitriou, H. T. (2022). A Developmental Approach to urban transport planning: an Indonesian illustration. Taylor & Francis.
	Learning Platforms	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room

Name and Signature
Course Coordinator
Dr. / Ayman Helal

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Special Concrete Structures 1

CIE424G

1. Basic Information

Course Title	Special Concrete Structures 1				
Course Code	CIE424G				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Nesreen Elawadly				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course equips students with advanced knowledge and skills in concrete structures, focusing on the analysis and optimum design of reinforced concrete systems. Emphasizing real-world application, students will apply theories, critical thinking, and statistical analysis to solve complex engineering problems. The course also covers construction materials, sustainable technologies, and the use of relevant codes and standards in structural design.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS2018)

Program Outcomes (NARS2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles, basic properties, and features of construction material, as well as their use in sustainable technologies for construction of buildings, infrastructures.
		2	Applying statistical analyses and objective engineering judgment to draw conclusions.
A9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	1	Use creatively in solving problems of design.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of Reinforced Concrete

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. modelling



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction to tall building structures — shear walls	4	2	2	-	4
2	Tall building structures.	4	2	2	-	4
3	Tall building structures	4	2	2	-	4
4	Design criteria for tall building structures	4	2	2	-	4
5	Design for tall building structures	4	2	2	-	4
6	Design for tall building structures	4	2	2	-	4
7	loading - structural formation	4	2	2	-	4
8	modeling for analysis – braced frames, midterm exam	4	2	2	-	4
9	Rigid frames1	4	2	2	-	4
10	Rigid frames 2	4	2	2	-	4
11	shear walls1	4	2	2	-	4
12	shear walls2	4	2	2	-	4
13	shear walls3	4	2	2	-	4
14	Applications and projects	4	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	10	10%
3	Final Written Exam	15 th	60	60%
6	Assignments / Project	Any week	5/5	5% / 5%



6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Aïtcin, P.-C., & Flatt, R. J. (2023). Advanced concrete structures: Innovations in design and materials. Elsevier.
	Other References	Mehta, P. K., & Monteiro, P. J. M. (2023). Special concretes for modern structures: High-performance and sustainable solutions. CRC Press.
	Electronic Sources (Links must be added)	https://www.guinnessworldrecords.com/records/hall-of-fame/burj-khalifa-tallest-building-in-the-world
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet
	Skill Labs/ Simulators	-

**Name and Signature
Course Coordinator
Dr. Nesreen Elawadly**

**Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr**



Foundation Engineering 2

CIE 424H

1. Basic Information

Course Title	Foundation Engineering 2				
Course Code	CIE 424H				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Hany Hashish				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to introduce advanced study of soil hydraulics, Flow through porous media and one-dimensional flow two, also design of deep foundation, Sheet pile design. Determination of pile capacity and Design of pile cap.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	Explain the basic principles of engineering.
		2	Apply engineering basics that are relevant to the subject.
		3	solve complex engineering problems by applying engineering fundamentals.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of soil mechanics and retaining structures.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Introduction to soil hydraulics	8	2	2	-	4
2		8	2	2	-	4
3	hydraulic Conductivity determination	8	2	2	-	4
4	Flow through porous media	8	2	2	-	4
5		8	2	2	-	4
6	One dimensional flow	8	2	2	-	4
7	two dimensional flows	8	2	2	-	4
8		8	2	2	-	4
9	Retaining walls.	8	2	2	-	4
10		8	2	2	-	4
11		8	2	2	-	4
12	Sheet piles design	8	2	2	-	4
13		8	2	2	-	4
14		8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Report	Any week	5 / 5	5% / 5%
4	Final Written Exam	15 th	60	60%



6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Cheng, Y. M., Law, C. W., & Liu, L. (2024). Analysis, design and construction of foundations. CRC Press.
	Other References	Frank, R., Cuira, F., & Burlon, S. (2021). Design of shallow and deep foundations. CRC Press.
	Learning Platform	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	

Name and Signature
Course Coordinator
Dr. Hany Hashish

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Productivity Enhancement Methods CIE424I

1. Basic Information

Course Title	Productivity Enhancement Methods				
Course Code	CIE424I				
Department/s participating in the delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Elin Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Summary of scientific content)

The Productivity Enhancement Methods course aims to improve efficiency and performance in civil engineering by focusing on the optimization of construction techniques, resource management, and project workflows. It equips students with the ability to apply sustainable practices, advanced numerical tools, and performance evaluation techniques to enhance productivity across various civil engineering activities. The course emphasizes project planning, effective utilization of materials, labor efficiency, and minimizing operational delays. Key topics include the identification of productivity bottlenecks, analysis of human performance and its impact on construction output, and the influence of technological advancements when integrated with human capabilities. In addition, the course covers the implementation of cost reduction strategies and productivity improvement programs, providing students with practical tools to maximize efficiency and achieve high-performance project delivery.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with	1	Apply the various construction defects, instability, and quality issues, and assess the environmental impacts of projects.



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	2	Judging engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
		3	Apply engineering design procedures to generate cost-effective solutions while adhering to the principles and contexts of sustainable design and development.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns.
		2	Create methodical approaches when dealing with new and advancing technology.
		3	Apply safe systems at work by taking the necessary precautions to manage hazards.
B3	Plan and manage construction processes, addressing construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess the environmental impacts of projects.	1	Define the construction process.
		2	Address construction defects, instability, and quality issues.
		3	Assess the environmental impacts of projects.

4. Teaching and Learning Methods

- Face-to-Face Lectures
- Discussions
- Problem Solving
- Brainstorming
- Self-Learning and Research
- Projects



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Identification of Bottlenecks (Part 1)	8	2	2	-	4
2	Identification of Bottlenecks (Part 2)	8	2	2	-	4
3	Impact of Human Performance on Productivity (Part 1)	8	2	2	-	4
4	Impact of Human Performance on Productivity (Part 2)	8	2	2	-	4
5	Effect of The Interaction Between Technological Advances and Human Capabilities on Performance and Productivity (Part 1)	8	2	2	-	4
6	Effect of The Interaction Between Technological Advances and Human Capabilities on Performance and Productivity (Part 2)	8	2	2	-	4
7	Influence of technological advancements (Part 1)	8	2	2	-	4
8	Influence of technological advancements (Part 2) Midterm Written Exam	8	2	2	-	4
9	Maximize efficiency and achieve high-performance project delivery (Part 1)	8	2	2	-	4
10	Maximize efficiency and achieve high-performance project delivery (Part 2)	8	2	2	-	4
11	Cost Reduction (Part 1)	8	2	2	-	4
12	Cost Reduction (Part 2)	8	2	2	-	4
13	Productivity Improvement Programs (Part 1)	8	2	2	-	4



14	Productivity Improvement Programs (Part 2)	8	2	2	-	4
15	Final Written Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of Total Course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Projects / Sheets / Quizzes / Research	Any week	2/2/2/2/2	2%/2%/2%2%2%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	- Project Management Institute. (2021, July). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition and The Standard for Project Management. Project Management Institute.
	Other References	- Okoh, O. F., Ukpoju, E. A., Otakwu, A., Ayoola, V. B., & Enyejo, L. A. (2024). Construction Management: Some Issues in The Construction Project. Engineering Heritage Journal (GWK), 8(1), 42-50. - Dykstra, A. (2018). Construction project management: A complete introduction. Kirshner Publishing Company. - Mason, J., & Potts, K. (2023). Construction law: from beginner to practitioner. Routledge. - Garcés, G., & Peña, C. (2023). A review of lean construction for construction project management. Revista ingeniería de construcción, 38(1). - Bagshaw, K. B. (2021). PERT and CPM in project management with practical examples. American Journal of Operations Research, 11(4), 215-226. - Kerzner, H. (2025). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons. - Venkataraman, R. R., & Pinto, J. K. (2023). Cost and value management in projects. John Wiley & Sons. - Wideman, R. M. (2022). Project and program risk management guide to managing project risks and opportunities. Project Management Institute, Inc.



		- Hillson, D. (2024). Managing risk in projects. Routledge. - Parsamehr, M., Perera, U. S., Dodanwala, T. C., Perera, P., & Ruparathna, R. (2023). A review of construction management challenges and BIM-based solutions: perspectives from the schedule, cost, quality, and safety management. Asian Journal of Civil Engineering, 24(1), 353-389. - Schaufelberger, J., & Holm, L. (2024). Management of construction projects: a constructor's perspective. Routledge.
	Learning Platform	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Elin Eldars

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Quality Assurance

CIE424J

1. Basic Information

Course Title	Quality Assurance				
Course Code	CIE424J				
Department/s participating in the delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of Higher Education and Scientific Research				
Name of Course Coordinator	Dr. Elin Eldars				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Summary of scientific content)

The Quality Assurance course aims to equip students with the fundamental engineering tools and methodologies required to ensure quality in civil engineering projects, while promoting continuous professional development and adherence to industry standards. The course emphasizes the importance of reliability in engineering systems and its direct impact on product and service quality. Students will explore the reliability of both parallel and serial systems and engage in life testing to evaluate system durability and performance over time. The course also examines how reliability influences the design process in various engineering disciplines, including mechanical, electrical, and structural engineering. Additionally, it investigates the critical role of equipment reliability in maintaining and enhancing product quality, providing students with the analytical skills needed to improve system performance and reduce failure risks.

3. Course Learning Outcomes CLOs



Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the various construction defects, instability, and quality issues, and assess the environmental impacts of projects.
		2	Judging engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
		3	Incorporate economic, societal, global, environmental, and risk management factors into design.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns.
		2	Apply quality assurance procedures and follow codes and standards.
B4	Dealing with bidding, contracts, and financial issues, including project insurance and guarantees.	1	Define bidding, contracts, and financial issues.
		2	Address bidding, contracts, and financial issues, including project insurance and guarantees.

4. Teaching and Learning Methods

- Face-to-Face Lectures
- Discussions
- Problem Solving
- Brainstorming
- Self-Learning and Research
- Projects



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Fundamental engineering tools and methodologies required to ensure quality (Part 1)					
2	Fundamental engineering tools and methodologies required to ensure quality (Part 2)	8	2	2	-	4
3	Reliability of parallel and serial engineering systems (Part 1)	8	2	2	-	4
4	Reliability of parallel and serial engineering systems (Part 2)	8	2	2	-	4
5	Life testing (Part 1)	8	2	2	-	4
6	Life testing (Part 2)	8	2	2	-	4
7	Impact of reliability on the design process in engineering fields (Part 1)	8	2	2	-	4
8	Impact of reliability on the design process in engineering fields (Part 2) Midterm Written Exam	8	2	2	-	4
9	Studies on the effect of equipment reliability on product quality (Part 1)	8	2	2	-	4
10	Studies on the effect of equipment reliability on product quality (Part 2)	8	2	2	-	4
11	Studies on the effect of equipment reliability on product quality (Part 3)	8	2	2	-	4
12	System performance and reduce failure risks (Part 1)	8	2	2	-	4
13	System performance and reduce failure risks (Part 2)	8	2	2	-	4
14	System performance and reduce failure risks (Part 3)	8	2	2	-	4
15	Final Written Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of Total Course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Projects / Sheets / Quizzes / Research	Any week	2/2/2/2/2	2%/2%/2%2%2%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	- Project Management Institute. (2021, July). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition and The Standard for Project Management. Project Management Institute.
	Other References	- Okoh, O. F., Ukpoju, E. A., Otakwu, A., Ayoola, V. B., & Enyejo, L. A. (2024). Construction Management: Some Issues in The Construction Project. Engineering Heritage Journal (GWK), 8(1), 42-50. - Dykstra, A. (2018). Construction project management: A complete introduction. Kirshner Publishing Company. - Mason, J., & Potts, K. (2023). Construction law: from beginner to practitioner. Routledge. - Garcés, G., & Peña, C. (2023). A review of lean construction for construction project management. Revista ingeniería de construcción, 38(1). - Bagshaw, K. B. (2021). PERT and CPM in project management with practical examples. American Journal of Operations Research, 11(4), 215-226. - Kerzner, H. (2025). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons. - Venkataraman, R. R., & Pinto, J. K. (2023). Cost and value management in projects. John Wiley & Sons. - Wideman, R. M. (2022). Project and program risk management guide to managing project risks and opportunities. Project Management Institute, Inc. - Hillson, D. (2024). Managing risk in projects. Routledge.



		- Parsamehr, M., Perera, U. S., Dodanwala, T. C., Perera, P., & Ruparathna, R. (2023). A review of construction management challenges and BIM-based solutions: perspectives from the schedule, cost, quality, and safety management. Asian Journal of Civil Engineering, 24(1), 353-389. - Schaufelberger, J., & Holm, L. (2024). Management of construction projects: a constructor's perspective. Routledge.
	Learning Platform	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Whiteboard, lecture classroom

Name and Signature
Course Coordinator
Dr. Elin Eldars

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



**River Engineering
CIE425A**

1. Basic Information

Course Title	River Engineering				
Course Code	CIE425A				
Departments participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)



This course aims to achieve an optimum design of hydraulic structures on rivers. To plan instability and quality issues and materials related to hydraulic structures on rivers and to select appropriate and sustainable technologies for dike, spillway, dam, gate, pumping stations, sheet pile. The scientific content of this course is to study the classifications of rivers, data collection method; velocity and flow rate measurement, design of hydraulic structures: dike, spillway, dam, gate, pumping station, sheet pile, countermeasure on sediment control: corrosion, deposition, scour, bill of quantity and cost estimation, operation and maintenance.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, economic, environmental, ethical and other aspects as appropriate the principles and contexts of sustainable design and development.	1	Apply the general principles of classifications of rivers, data collection method; velocity and flow rate measurements, counter measure on sediment control; and corrosion deposition scour
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.	1	Describe codes of practice, and standards to design of hydraulic structures: dike, spillway, and dam.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth	2	Achieve an optimum design of dike, spillway, pump station, sheet pile, and dam, prepare bill



Program Outcomes (NARS 2018)		Course Learning Outcomes	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
	Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.		of quantity and cost estimation, operation and maintenance.
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Assess environmental impact of projects on rivers.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brainstorming
5. Self-learning and research.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Classifications of rivers	8	2	2	-	4
2	Data collection method regarding the river engineering	8	2	2	-	4
3	Velocity and flow rate measurements in rivers.	8	2	2	-	4
4	Design of hydraulic structures: Dike	8	2	2	-	4
5	Design of hydraulic structures: Spillway	8	2	2	-	4
6	Design of hydraulic structures: Dam	8	2	2	-	4
7	Design of gates	8	2	2	-	4
8	Design of pumping station Mid-term written Exam	8	2	2	-	4
9	Continue Design of pumping station	8	2	2	-	4
10	Design of sheet pile.	8	2	2	-	4
11	Countermeasure on sediment control.	8	2	2	-	4
12	Countermeasure on corrosion deposition and scour	8	2	2	-	4
13	Preparation the bill of quantity and cost estimation for water structures	8	2	2	-	4
14	Operation and maintenance of the control water structures.	8	2	2	-	4
15	Final exam					

5. Methods of students' assessment



No.	Assessment Methods	Assessment Timing (Week Number)	Marks	Percentage of total course marks
1	Exam 1 written (Semester work)	4 th	10	10%
2	Exam 2 (Semester work)	8 th	20	20%
3	Assignments / Research	Any week	5 / 5	5% / 5%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Ramakar Jha, V. P. Singh, Vivekanand Singh, L. B. Roy, Roshni Thendiyath (2022) River Hydraulics, Springer Cham. https://doi.org/10.1007/978-3-030-81768-8
	Other References	Zhao-Yin Wang, Joseph H. W. Lee, Charles S. Melching (2015) River Dynamics and Integrated River Management, Publisher Springer Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-25652-3
	Electronic Sources (Links must be added)	https://doi.org/10.1007/978-3-031-05057-2
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Spread Excel sheet

Name and Signature
Course Coordinator
Assoc. Prof. Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Hydraulics Engineering CIE 425B

1. Basic Information

Course Title	Hydraulics Engineering				
Course Code	CIE 425B				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr. Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

The course aims to achieve an optimum design of water control structures and water distribution systems. To plan construction processes for water distribution systems and pump stations and select appropriate and sustainable technologies for water distribution systems. The scientific content of this course is Basic governing equations of fluid flow (Bernoulli, continuity, application), Flow through orifices (types of orifices, vena contracta, hydraulic coefficients, flow through different types of orifices, time for filling and empty tanks). Flow over weirs (types of weirs and flow over different types of weirs). Momentum equation (application of momentum equation). Steady flow in pipelines (basics of flow in pipelines and hydraulic analysis of pipe network). Unsteady flow in pipelines (water hammer, Euler equation, continuity equation and application). Hydraulic machinery (design of pump station).

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)



Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply the general principles of Basic governing equations of fluid flow (Bernoulli – continuity – application)
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe contemporary technologies and codes of practice for flow through orifices (types of orifices – vena contracta – hydraulic coefficients – flow through different types of orifices – time for filling and emptying tanks)
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design for orifices, weirs, pump stations, and pipe networks
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and	1	Assess the construction processes of water control structures and pipe net works projects.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Basic governing equations (Bernoulli - Applications)	8	2	2	-	4
2	Basic governing equations (Continuity – Applications)	8	2	2	-	4
3	Flow through orifices (types – equations – time of filling and emptying tanks)	8	2	2	-	4
4		8	2	2	-	4
5	Flow over weirs (types – equations)	8	2	2	-	4
6		8	2	2	-	4
7	Application of Momentum equation	8	2	2	-	4
8	Steady flow in pipe lines (Basics)	8	2	2	-	4
9		8	2	2	-	4
10	Hydraulic analysis of pipe line networks.	8	2	2	-	4
11		8	2	2	-	4
13	Unsteady flow in pipeline networks.	8	2	2	-	4
14		8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work)	4 th	10	10%
2	Exam 2 (Semester work)	8 th	20	20%
4	Assignments	Any week	5 / 5	5% / 5%
3	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities



Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Potter, M. C., & Ramadan, B. H. (2025). An Introduction to Fluid Mechanics. Springer International Publishing.
	Other References	Chadwick, A., Morfett, J., & Borthwick, M. (2021). Hydraulics in civil and environmental engineering. Crc Press.
	Electronic Sources (Links must be added)	<u>https://www.classcentral.com/course/swayam-hydraulic-engineering-17638</u>
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: <u>http://3.217.6.68</u>
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Excel
	Skill Labs/ Simulators	Flow-3D

Name and Signature
Course Coordinator
Assoc. Prof. Dr. Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. Dr. Mohamed Gabr



Traffic Control Systems CIE425C

1. Basic Information

Course Title	Traffic Control Systems				
Course Code	CIE425C				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr./ Ayman Helal				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims Introduction to existing and new traffic control systems strategies including both off-line signal optimization techniques and real-time computer traffic responsive control concepts. Control concepts and methods for signal intersections, arterial systems and area traffic networks. Traffic control system evaluation techniques using Measures of Effectiveness (M.O.E.) for single intersections, arterial, and networks.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	List the engineering-related business and management principles for the traffic control systems
		2	Utilize modern technologies.
		3	Apply quality assurance procedures and follow codes and standards for the traffic control system.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize, appropriate and sustainable technologies for signal intersections, arterial systems and area traffic networks
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design for traffic systems.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Problem solving
3. Brain storming
4. Self-learning and research.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction to existing and new traffic control systems strategies including both off-line signal optimization techniques and real-time computer traffic-responsive control concepts.	8	2	2	-	4
2	Introduction to existing and new traffic control systems strategies including both off-line signal optimization techniques and real-time computer traffic-responsive control concepts.	8	2	2	-	4
3	Introduction to existing and new traffic control systems strategies including both off-line signal optimization techniques and real-time computer traffic-responsive control concepts.	8	2	2	-	4
4	Introduction to existing and new traffic control systems strategies including both off-line signal optimization techniques and real-time computer traffic-responsive control concepts.	8	2	2	-	4
5	Control concepts and methods for signal intersections, arterial systems and area traffic networks.	8	2	2	-	4
6	Control concepts and methods for signal intersections, arterial systems and area traffic networks.	8	2	2	-	4
7	Control concepts and methods for signal intersections, arterial systems and area traffic networks.	8	2	2	-	4
8	Control concepts and methods for signal intersections, arterial systems and area traffic networks.	8	2	2	-	4
9	Control concepts and methods for signal intersections, arterial	8	2	2	-	4



	systems and area traffic networks.					
10	Traffic control system evaluation techniques using measures of effectiveness (M.O.E) for signal intersections, arterial, and networks	8	2	2	-	4
11	Traffic control system evaluation techniques using measures of effectiveness (M.O.E) for signal intersections, arterial, and networks	8	2	2	-	4
12	Traffic control system evaluation techniques using measures of effectiveness (M.O.E) for signal intersections, arterial, and networks	8	2	2	-	4
13	Traffic control system evaluation techniques using measures of effectiveness (M.O.E) for signal intersections, arterial, and networks	8	2	2	-	4
14	Traffic control system evaluation techniques using measures of effectiveness (M.O.E) for signal intersections, arterial, and networks	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1..... (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
4	Assignments / Research	Any week	10 / 5	7% / 3%
3	Final Written Exam	15th	60	60%



6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Vijayalakshmi, S., & Raj, K. (2023). Economic and Environmental Cost of Traffic Congestion in India. Routledge India.
	Other References	1- Kuhn, B. T. (2022). Transportation engineering: a practical approach to highway design, traffic analysis, and systems operation. 2. Sutandi, A. C. (2020). Advanced traffic control systems: Performance evaluation in a developing country. LAP Lambert Academic Publishing.
	Learning Platforms	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show system, sound system
	Supplies	White board, lecture class room

Name and Signature
Course Coordinator
DR. /Ayman Helal

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Tunneling and underground Excavation

CIE425D

1. Basic Information

Course Title	Tunneling and underground Excavation				
Course Code	CIE425D				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Hany Hashish				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to study a numerical method in tunnel constructions and using a computer software packages and its applications in tunnels design. Tunneling and excavations in hard rock and basic rock mechanics and the Kirsch solution must be studied. Selection of methods of attack for excavation of tunnels and deep vertical sided openings. Tunneling procedures based on behavioral characteristics of soil and rock, study of tunnel boring machines, shielded and drill-and-blast operations, linings, soil linear interaction. Deep excavation procedures related to support of excavation systems, methods of installation and dewatering.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles, basic properties, and features of construction material, as well as their use in sustainable technologies for construction of buildings, infrastructures.
		2	Apply analyses and objective engineering judgment to draw conclusions.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe quality assurance systems, codes of practice, and standards, as well as health and safety regulations and environmental concerns.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of soil mechanics and retaining structures.

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Problem solving
3. Brain storming
4. Self-learning and research.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Introduction to tunnels	8	2	2	-	4
2	Numerical methods in tunnel constructions	8	2	2	-	4
3		8	2	2	-	4
4	Computer software packages and its applications in tunnels.	8	2	2	-	4
5		8	2	2	-	4
6	Tunneling and excavations in hard rock	8	2	2	-	4
7		8	2	2	-	4
8	Basic rock mechanics, shape, size and orientation of an opening, elastic deformation and the Kirsch solution, rock mass classification, support design and ground reaction curve, drill and blast method, NATM tunneling method.	8	2	2	-	4
9	Tunneling in soft ground	8	2	2	-	4
10	problems of urban tunneling, deformation and surface settlement, load on liners, face stability.	8	2	2	-	4
11	methods of soft ground tunneling including EPB and slurry shield methods	8	2	2	-	4
12	Selection of methods of attack for excavation of tunnels and deep vertical sided openings.	8	2	2	-	4
13	Tunneling procedures based on behavioral characteristics of soil and rock, study of tunnel boring machines, shielded and drill-and-blast operations, linings, soil linear interaction	8	2	2	-	4
14	Deep excavation procedures related to support of	8	2	2	-	4



	excavation systems, methods of installation and dewatering					
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written (Midterm)	8 th	20	20%
3	Assignments / Reportd	Any week	5 / 5	5 % / 5%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Jones, B. (2021). Soft Ground Tunnel Design. CRC Press.
	Other References	Chapman, D. N., Metje, N., & Stark, A. (2017). Introduction to tunnel construction. Crc Press.
	Electronic Sources (Links must be added)	
	Learning Platform	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	Plaxis 3D, Sap 2000, Abaqus

Name and Signature
Course Coordinator
Dr. / Hany Hashish

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Special Concrete Structures 2 CIE425E

1. Basic Information

Course Title	Special Concrete Structures 2				
Course Code	CIE425E				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Nesreen Elawadly				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to achieve the optimum design of reinforced concrete structure. The scientific content of this course is: Introduction to composite construction, materials of composite constructions, simply supported composite beams, continuous beams, the shear connections, composite columns, and composite slabs.

3. Course Learning Outcomes CLOs



Matrix of course learning outcomes CLOs with program outcomes POs (NARS2018)

Program Outcomes (NARS2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles, basic properties, and features of construction material, as well as their use in sustainable technologies for construction of buildings, infrastructures and water structures.
		2	Apply statistical analyses and objective engineering judgment to draw conclusions.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe codes of practice
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of Reinforced Concrete

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Online Lecture
3. Discussion
4. Problem solving



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction to composite construction	8	2	2	-	4
2	Materials of composite structures	8	2	2	-	4
3	Materials of composite structures (continue)	8	2	2	-	4
4	Materials of composite structures(continue)	8	2	2	-	4
5	Simply supported composite beams.	8	2	2	-	4
6	Simply supported composite beams (continue)	8	2	2	-	4
7	Simply supported composite beams (continue)	8	2	2	-	4
8	Continuous supported composite beams, Midterm exam	8	2	2	-	4
9	Continuous supported composite beams (continue)	8	2	2	-	4
10	Continuous supported composite beams (continue)	8	2	2	-	4
11	Shear connections	8	2	2	-	4
12	composite columns	8	2	2	-	4
13	Composite slabs	8	2	2	-	4
14	Composite slabs Continued	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment



No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Final Written Exam	15 th	60	60%
6	Assignments + Reports	Any week	5+5 =10	10%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	Aïtcin, P.-C., & Flatt, R. J. (2023). Advanced concrete structures: Innovations in design and materials. Elsevier.
	Other References	Mehta, P. K., & Monteiro, P. J. M. (2023). Special concretes for modern structures: High-performance and sustainable solutions. CRC Press. EL-Metwally, S.E., and Hosny, H.M.H. Design Fundamental of Structure Concrete. Egyptian Code for Design and Construction of Reinforced Concrete Structures. Ministry of Housing, Utilities and Urban Communities, Cairo 2022.
	Electronic Sources (Links must be added)	
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	-
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
Dr Nesreen Elawadly

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Railway Engineering (CIE425F)

1. Basic Information

Course Title	Railway Engineering				
Course Code	CIE425F				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student's Load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program				
Institute	The Higher Institute of Engineering and Technology in New Damietta				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Assoc. Prof. Dr./ Mohamed Gabr				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview

This course aims to make the student able to design, analyze, and manage railway systems using modern engineering techniques by studying engineering principles for railways planning, railways components and specifications, design of different parts of railways, types of stations, types of signals, maintenance, planning of the railway's lines transportation economy and management and insurance.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	Explain the basic principles of engineering for railways planning.
		2	Using scientific concepts and theories that are relevant to railway engineering.
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
		2	Apply engineering design procedures to generate cost-effective solutions while adhering to the principles and contexts of sustainable design and development.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Summarize, appropriate and sustainable technologies for railways planning and railways components and specifications.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of different parts of railways included railways stations and railways signals



4. Teaching and Learning Methods

1. Face-to-Face Lecture
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and Research

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Engineering principals for railway planning	8	2	2	-	4
2	Railway's components and specifications	8	2	2	-	4
3	Railway's specifications	8	2	2	-	4
4	Design of different parts of railway	8	2	2	-	4
5		8	2	2	-	4
6		8	2	2	-	4
7	Types of stations Midterm Exam in 8 th week	8	2	2	-	4
8		8	2	2	-	4
9	Types of signals	8	2	2	-	4
10	Maintenance	8	2	2	-	4
11		8	2	2	-	4
12	Planning of railways lines	8	2	2	-	4
13		8	2	2	-	4
14	Transportation economy, management, and insurance	8	2	2	-	4
15	Final Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Final Written Exam	15 th	60	60%
6	Assignments / Research	Any week	5 / 5	5% / 5%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course	- B.J., S. (2022). Sustainable railway engineering and operation. University of Southampton.
	Other References	- Mera, J. M. (2021). Railway engineering design and operation. Proceedings of the International Conference on Railway Engineering.
	Learning Platform	- Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show system, Sound system
	Supplies	White board, lecture classroom

Name and Signature
Course Coordinator
Assoc. Prof. Mohamed Gabr

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Reinforced Concrete 5 CIE425G

1. Basic Information

Course Title	Reinforced Concrete 5				
Course Code	CIE 425G				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry Of Higher Education & Scientific Research				
Name of Course Coordinator	Prof. Dr./ Khaled Fawzy & Dr./ Hamdy Abd-Elatty				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course equips the civil engineering students with advanced methodologies to optimize Shell structure system design. Design of shell structures and Design of Pre-stressed reinforced concrete

3. Course Learning Outcomes CLOs



Matrix of course learning outcomes CLOs with program outcomes POs (NARS2018)

Program Outcomes (NARS2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Define the principles, basic properties, and features of construction material, as well as their use in sustainable technologies for construction of buildings, infrastructures and water structures.
		2	Apply statistical analyses and objective engineering judgment to draw conclusions.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	1	Describe codes of practice.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of Reinforced Concrete

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research.



Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction of shell structure	8	2	2	-	4
2	Design of dome	8	2	2	-	4
3	Design of dome (continue)	8	2	2	-	4
4	Design of dome (continue)	8	2	2	-	4
5	Design of cone	8	2	2	-	4
6	Design of cone (continue)	8	2	2	-	4
7	Design of cone (continue)	8	2	2	-	4
8	Design of folded plates Mid term	8	2	2	-	4
9	Design of folded plates Continued	8	2	2	-	4
10	Introduction of pre-stressed reinforced concrete	8	2	2	-	4
11	Design of pre-stressed reinforced concrete beam	8	2	2	-	4
12	Design of pre-stressed reinforced concrete beam(continue)	8	2	2	-	4
13	Design of pre-stressed reinforced concrete slab	8	2	2	-	4
14	Design of pre-stressed reinforced concrete slab(continue)	8	2	2	-	4
15	Final Exam					



5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1..... (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Assignments + Research	Any week	5 / 5	55 / 5%
4	Final Written Exam	15 th	60	60%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Course notes: Are delivered during the lecture, including handout materials such as solved problems, design charts, tables, etc. Essential books (text books / design codes)
	Other References	- Egyptian Code for Design and Construction of Reinforced Concrete Structures 2018. - Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 2018. - Hilal.M., "Reinforced Concrete Water Tanks." Marcou - Hilal M., (2015) "Design of Reinforced Concrete Halls". - EL-Metwally, (2022), S.E., and Hosny, H.M.H., "Design Fundamental of Structure Concrete." Ministry of Housing. Utilities and Urban Communities, "Egyptian Code for Design and Construction of Reinforced Concrete Structures". - James K. (2015), Wight - Reinforced Concrete_ Mechanics and Design-Prentice Hall.
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68



Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	

Name and Signature
Course Coordinator
Prof. Dr./ Khaled Fawzy &
Dr./ Hamdy Abd-Elatty

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Course Specification

2025-2026

1. Basic Information

Course Title	Design of lighting Systems for buildings				
Course Code	CIE425H				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	Total contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Rabab Reda				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

Principles of lighting, lighting design for buildings which includes artificial lighting, point, line and area light sources, types and properties of luminaires, polar curves, design methods and calculations, glare index, lighting design standard, luminaire heat recovery system and lighting energy management, hybrid lighting, daylighting of buildings, effect of climate on lighting.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	1	Choose relevant mathematical and computer-based methodologies for problem modelling and analysis.
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.	1	Apply engineering design procedures to generate cost-effective solutions while adhering to the principles and contexts of sustainable design and development regarding the lighting systems.
B3	Plan and manage construction processes; address construction defects, instability, and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.	1	Define codes of practice effectively and professionally to design lighting system for buildings.
B4	Deal with biddings, contracts and financial issues including project insurance and guarantees.	1	Apply biddings, contracts, and financial issues on ci lighting system for buildings.



4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving
4. Brain storming
5. Self-learning and research.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Principles of lighting	8	2	2	-	4
2	lighting design for buildings which includes artificial lighting, point, line and area light sources.	8	2	2	-	4
3	Types and properties of luminaries.	8	2	2	-	4
4	Polar curves.	8	2	2	-	4
5	Design methods and calculations	8	2	2	-	4
6	Glare index	8	2	2	-	4
7	Lighting design standard	8	2	2	-	4
8	Lighting design standard (continus) Mid-term written Exam	8	2	2	-	4
9	luminaire heat recovery system	8	2	2	-	4
10	Lighting energy management	8	2	2	-	4
11	Lighting energy management (continus)	8	2	2	-	4
12	Hybrid lighting	8	2	2	-	4
13	Daylighting of buildings	8	2	2	-	4
14	Effect of climate on lighting	8	2	2	-	4
15	Final Exam					



6. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments + Project	Any week	5+5=10	10%
4	Final Written Exam	15 th	60	60%

7. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	الكود المصري لاسس تصميم وشروط تنفيذ اعمال انارة الطرق والاتفاق كود (2/308) - المركز القومي لبحوث الاسكان والبناء - وزاره الاسكان والمرافق والتنمية العمرانية 2012
	Other References	Christopher J. B. McLain (2022), "Lighting Design: A Perception-Based Approach". "Illuminating Engineering Society (IES) Lighting Handbook, 10th Edition" (2022) الكود المصري للمنشآت الكهربائية 2018
	Electronic Sources (Links must be added)	
	Learning Platforms (Links must be added)	Institute Electronic MOODLE: http://3.217.6.68
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	-
	Skill Labs/ Simulators	-

Name and Signature
Course Coordinator
Dr. Rabab Reda

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Soil Dynamics CIE425I

1. Basic Information

Course Title	Soil Dynamics				
Course Code	CIE425I				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course (Terms Regulation)	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Institute	The Higher Institute of Engineering and Technology in New Damietta.				
University	Ministry of higher education & Scientific Research				
Name of Course Coordinator	Dr. Hany Hashish				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

This course aims to study how soil behaves under dynamic (time-varying) loads, such as those caused by earthquakes, vibrations from machinery, or blast loads. It's a critical field in geotechnical engineering, especially for designing foundations and earth-retaining structures that can withstand these dynamic forces.



3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	1	Explain the basic principles of soil mechanics.
		2	Use scientific concepts and theories that are relevant to soil works.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	. Summarize, appropriate and sustainable technologies for soil mechanics.
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of soil mechanics and retaining structures.

4. Teaching and Learning Methods



1. Face-to-Face Lecture.
2. Problem solving
3. Brain storming
4. Self-learning and research.

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student's Load
1	Introduction to Soil Dynamics:	8	2	2	-	4
2	Fundamentals of vibrations	8	2	2	-	4
3		8	2	2	-	4
4	Soil dynamic properties	8	2	2	-	4
5		8	2	2	-	4
6	Soil liquefaction	8	2	2	-	4
7		8	2	2	-	4
8	Propagation of waves	8	2	2	-	4
9	Midterm Exam in 8 th week	8	2	2	-	4
10	Analysis of seismic response	8	2	2	-	4
11		8	2	2	-	4
12	Soil –structure dynamic interaction	8	2	2	-	4
13		8	2	2	-	4
14	Revision	8	2	2	-	4
15	Final Exam					

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written..... (Midterm)	8 th	20	20%
3	Assignments / Research	Any week	5 / 5	5% / 5%
4	Final Written Exam	15 th	60	60%



6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Mitchell, J. K., Soga, K., & O'Sullivan, C. (2025). Fundamentals of soil behavior. John Wiley & Sons.
	Other References	Berrah, Y. (2022). Advanced soil mechanics.
	Electronic Sources (Links must be added)	
	Learning Platform	Institute Electronic MOODLE: <u>http://3.217.6.68</u>
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Data show, Sounding system
	Supplies	Lecture Classroom
	Electronic Programs	

Name and Signature
Course Coordinator
Dr. / Hany Hashish

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr



Introduction to Earthquake Engineering CIE425J

1. Basic Information

Course Title	Introduction to Earthquake Engineering				
Course Code	CIE425J				
Department/s participating in delivery of the course	Civil Engineering Department				
Number of hours of the course	Lectures	Tutorial	Practical	contact hours	Student load
	2	2	-	4	4
Course Type	Elective 4				
Academic level at which the course is taught	Level 4				
Academic Program	Civil Engineering Program.				
Faculty/Institute	The Higher Institute of Engineering and Technology in New Damietta.				
Name of Course Coordinator	Dr. Rafik Wadia				
Course Specification Approval Date	26/7/2025				
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	29/7/2025				

2. Course Overview (Brief summary of scientific content)

Introduction to Earthquake Engineering: Properties of earth motion – Tectonic Plates – Seismic waves – Faults – Magnitude scale Intensity scale – Measuring earthquake – Earthquake risk – seismic maps – International codes provisions for seismic design of structures included Egyptian code of practice for Soil Mechanics and Foundation Design.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS 2018)

Program Outcomes (NARS 2018)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	1	Show the appropriate and sustainable technologies for the design of reinforced concrete and metallic structures.
B1	Select appropriate and sustainable technologies for construction of buildings, infrastructures and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of: structural analysis and mechanics, properties and strength of materials, surveying, soil mechanics, hydrology and fluid mechanics.	1	Select the different engineering principles related to the design of reinforced concrete and metallic structures to geotechnical and foundations.
		2	. Summarize, appropriate and sustainable technologies for construction and design of reinforced concrete and metallic structures to geotechnical and foundations
B2	Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.	1	Achieve an optimum design of reinforced concrete and metallic structures to geo-technical and foundations

4. Teaching and Learning Methods

1. Face-to-Face Lecture.
2. Discussion
3. Problem solving

Course Schedule

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Lectures	Tutorial	Practical	Student load
1	Introduction to Earthquake Engineering	8	2	2	-	4
2	Properties of earth motion – Tectonic Plates	8	2	2	-	4
3	Properties of earth motion – Tectonic Plates (cont)	8	2	2	-	4
4	Seismic waves – Faults – Magnitude scale Intensity scale Tectonic Plates – Seismic waves – Faults – Magnitude scale Intensity scale	8	2	2	-	4
5	Seismic waves – Faults – Magnitude scale Intensity scale Tectonic Plates – Seismic waves – Faults – Magnitude scale Intensity scale (cont)	8	2	2	-	4
6	Measuring earthquake	8	2	2	-	4
7	Measuring earthquake (cont)	8	2	2	-	4
8	Earthquake risks Mid-term written Exam	8	2	2	-	4
9	Earthquake risks (cont)	8	2	2	-	4
10	seismic maps	8	2	2	-	4
11	seismic maps (cont)	8	2	2	-	4
12	Seismic analysis in ECP	8	2	2	-	4
13	Design principles for earthquake structures according to the Egyptian code	8	2	2	-	4

14	International codes provisions for seismic design of structures included Egyptian code of practice for Soil Mechanics and Foundation Design.	8	2	2	-	4
15	Final Exam					

5. *Methods of students' assessment*

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 (Semester work)	4 th	10	10%
2	Exam 2 written (midterm)	8 th	20	20%
3	Assignments	Any week	10	10%
4	Final Written Exam	15 th	60	60%

6. *Learning Resources and Supportive Facilities*

Learning resources (books, scientific references, etc.)	The main (essential) reference for the course:	Egyptian Code for Design and Construction of Reinforced Concrete Structures 2032001.
	Other References	- Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2018. - BK Raghu Prasad, "Structural Dynamics in Earthquake and Blast Resistant Design", 2022. - Azer A. Kasimzade, Erdal Şafak, Carlos .E Ventura, "Seismic Isolation, Structural Health Monitoring", 2018.
	Learning Platforms (Links must be added)	Institute Electronic model: http://3.217.6.68
	Devices/Instruments	Data show, Sounding system

Supportive facilities & equipment for teaching and learning	Supplies	Lecture Classroom

Name and Signature
Course Coordinator
Dr. Rafik Wadia

Name and Signature
Program Coordinator
Assoc. Prof. Mohamed Gabr