

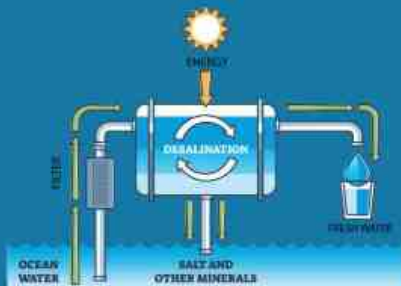
## Pharmaceutical Engineering



Pharmaceutical Engineering is a Chemical Engineering major focused on manufacturing, formulating, and controlling the quality of medicines and pharma products. The proper process design and monitoring of the manufacturing sites that produce drugs are too essential to guarantee the quality before being released to markets. It requires both fields of chemical engineering and pharmaceutical sciences.



## Water Desalination



All of us believe that the water sector has a mountain to climb in the coming years, and Chemical Engineers could be in a better place right now to drive the change required to ensure the security of our futures. Chemical Engineers in the potable water industry option, design and commission the industrial processes required to turn undrinkable water into the essential commodity we use today. The increasing demand for water in urban and industrial areas in arid and semiarid coastal zones has led to the search for alternative non-conventional water resources.

## Carl Bosch



is the chemical engineer who scaled-up the Haber-Bosch process which produces synthetic fertilisers and thus produce enough food for the Earth's growing population.



## Centrifugal Pump



A Centrifugal Pump is the most common pump type in the chemical process industries. The fluid enters via an opening called the "eye", the motor converts the Mechanical Energy provided into Rotating Kinetic Energy, Where the Impeller imparts this Kinetic Energy to the fluid, which can be estimated by Bernoulli's Equation. The expanding volute section of the pump converts the Excess Kinetic Energy into Pressure Energy. Centrifugal Pumps are used as Boiler Feed Water (BFW) Pumps, and there are other types as Turbine Pumps (Contrary to a common misconception, the impeller does not convert Mechanical Energy to Pressure Energy directly). To specify a Centrifugal Pump, you need to learn how to read a pump curve and come out with a system curve. The pump curve specifies the head-flow relationship (i.e., what head is produced by the pump at a certain flow), as well as the operating envelope and the minimum continuous stable flow (MCSF).