# 3rd SEMESTER

## CHE181302 **(PROCESS CALCULATIONS)**

**Course Outcomes:**

1. Understand various unit operations and unit processes and prepare flow sheets.
2. Do dimensional analysis and calculations in chemical processes.
3. Do material balance calculations.
4. Carry out energy balance calculations.
5. Do calculations involving humidification problems and application of Psychometric Chart

## ENERGY ENGINEERING (CHE181305)

**Course Outcomes:**

1. Identify various stages of coal formation, its constituents and processing of coal.
2. Recognize important characteristics of fuels and their standard testing methods.
3. Explain the classification and processing of crude oil to different products.
4. Understand various gaseous fuels and their production technologies.
5. Illustrate the importance of combustion calculations and assess the environmental impact of various conventional and non-conventional energy resources.

## CHEMICAL PROCESS INDUSTRIES (CHE18303)

**Course Outcomes:**

1. Explain different manufacturing processes of chloro-alkali industries (soda-ash, caustic soda, and chlorine), acids (sulphuric acid, hydrochloric acid and nitric acid); analyze Portland cement and its various types.
2. Explain the processing and production of pulp and paper with various engineering problems; analyze the process and production of sugar; differentiate and select fats and oils, soaps and detergents.
3. Compare different fertilizers based on their end applications; explain their manufacturing processes and major engineering problems associated with it.
4. Analyze the process of fermentation with production of some special products; explain the production of Bio-ethanol.
5. Understand basics, classification, production processes of polymers and its various uses.

## MATERIAL SCIENCE AND CORROSION ENGINEERING (CHE181304)

**Course Outcomes:**

1. Distinguish between different classes of engineering materials based on their properties, structures etc. and select suitable materials based on the process to assess the health and safety of the society.
2. Analyze the structure of solid materials, relation between structure and properties of materials and the defects in crystal structure of solids.
3. Analyze the causes of different types of corrosion and select a suitable preventive method to reduce or combat this.
4. Enhance basic properties of different engineering materials (like Ferrous and Nonferrous etc.) by alloying .
5. Select appropriate tests to analyze different properties of materials