



Course Outcomes

S. Y. B. Tech. Chemical Engineering (2022 Pattern) Sem-I

Subject 1 : Applied Mathematics –III (SMH222201)

At the end of this course, students will be able to

- CO1 Identify nature of vector field, understand basic concept of L.D.E., Numerical techniques, Laplace transform.
- CO2 Solve Laplace transform, Numerical Methods, Directional Derivative, Line Integral and solve L.D.E. using different Methods.
- CO3 Apply concept of Laplace transform & Differential equations, Numerical techniques in Fluid Mechanics, Continuity equations, Stream lines, Equations of motion, Bernoulli's equations, Heat Transfer.
- CO4 Apply & Solve mass spring system, P.D.E. & Evaluate Surface, Volume Integral
- CO5 Apply Concept of Differential equations, Numerical techniques, Vector Calculus to various applications including real life problem.

Subject 2 : Chemistry- I (CHE222002)

At the end of this course, students will be able to

- CO1 Analyze the type of forces and synthesize the materials based on their properties
- CO2 Estimate the kinetics of reaction and analyze the factors controlling the rate of reactions.
- CO3 Analyze the given chemical substance by different Instrumentation techniques.
- CO4 Estimate the quantity of solute and synthesize the solution based on the properties.
- CO5 Evaluate the mechanism of reactions and apply proper factor for increasing the yield of the desired product.

Subject 3 : Fluid Mechanics (CHE222003)

At the end of this course, students will be able to

- CO1 Explain different fluid properties, types of fluids and flows.
- CO2 Understand fluid statics and its applications related to pressure measuring devices in chemical industry.
- CO3 Apply basic equations of fluid flow to determine fluid flow rate by different devices.
- CO4 Apply theorems to form mathematical equations and determine energy losses for flow of fluid through different system.
- CO5 Understand concepts of boundary layer and fluidization and applications of different valves and pumps for transportation of fluid through pipelines

Subject 3 : Engineering Materials (CHE222004)

At the end of this course, students will be able to

- CO1 State the basic concepts of material science.
- CO2 Select materials based on their properties for various applications.
- CO3 Describe metals and their alloys and selection process and analyze them according to their properties.
- CO4 Describe and analyze nano materials and their properties.



CO5 Identify electron microscope and their types.

Subject 4 : Process Calculations (CHE222005)

At the end of this course, students will be able to

- CO1 Determine the composition of the materials
- CO2 Apply the various laws governing solid, liquid and gas phases
- CO3 Calculate the amount of materials required to carry out the suitable unit operation and process
- CO4 Evaluate the energy requirement for various unit operations and processes in chemical industries.
- CO5 Understand the basics of Humidification and combustion Process.

Subject 5 : Organizational Behavior (CHE222006)

At the end of this course, students will be able to

- CO1 To understand various methods and terms used different organizational behavior model
- CO2 To understand Individual Behavior like attitude, perception, motivation, personality, misbehavior and emotions.
- CO3 To understand group behavior, leadership and power
- CO4 To understand dynamics of organizational behavior and managing change

S. Y. B. Tech. Chemical Engineering (2022) Sem-II

Subject 6 : Chemistry II (CHE222011)

At the end of this course, students will be able to

- CO1 Apply the concept of naturally occurring polymer and synthesize the new polymers.
- CO2 Apply the theory of synthesis of complex and evaluate their properties
- CO3 Analyze the given chemical substance by different Instrumentation techniques.
- CO4 Understand catalyst and its mechanism and apply it in the synthesis of compounds.
- CO5 Understand concept of isomerism and analyze different isomers and their properties.

Subject 7 : Heat Transfer (CHE222012)

At the end of this course, students will be able to

- CO1 Demonstrate knowledge of the fundamental concepts of conduction, radiation, and convection heat transfer
- CO2 Calculate problem on conduction, convection and radiation.
- CO3 Identify the type of heat transfer model that needs to be applied.
- CO4 Identify, formulate and solve engineering problems based on heat exchanger.
- CO5 Select evaporator for industrial applications

Subject 8 : Mechanical Operations (CHE222013)

At the end of this course, students will be able to

- CO1 Classify the type of screening and size reduction Equipment for different particle sizes
- CO2 To understand different types solid-liquid, solid-gas separation options
- CO3 Explain fluidization applications in Industries and able select a suitable type of conveyor for transportation of different types of solids.



CO4 Calculate the mixing index and select a suitable type of mixing operation for various types of solids and liquids.

CO5 Use concepts Filtration operations select suitable type of filtration equipment

Subject 09: Thermodynamics (CHE222014)

At the end of this course, students will be able to

CO1 Understand basic concepts of thermodynamics, as well as their applications and limitations in Chemical Engineering

CO2 Formulate the relationship between different thermodynamic parameters for different processes and apply the thermodynamic laws to the given process in order to solve the problem

CO3 Compare ideal gas/solution models to reflect behavior of real mixtures based on the concepts of chemical potential, fugacity, and excess free energy

CO4 Evaluate the various methods and assumptions for performing phase equilibrium calculations

CO5 Determine the equilibrium products and their concentration in equilibrium when dealing with systems involving chemical reactions

Subject 10 : Soft Skills (CHE222015)

At the end of this course, students will be able to

CO1 Memorize various elements of effective communicative skills.

CO2 Apply critical thinking skills in problem solving.

CO3 Improve social and work-life skills as well as personal and emotional well-being.

CO4 Interpret people at the emotional level through emotional intelligence

CO5 Identify the situation and take necessary decisions as a leader.

Subject 11 : Process Simulation using DWSIM (CHE222016)

At the end of this course, students will be able to

CO1 Understand basic concepts of process simulation

CO2 Simulate unit operation problems by DWSIM software.

CO3 Solve different reactors and heat exchanger problems by DWSIM software.