Course Outcome for all subjects B.E.-Sem III & IV (Chemical Engineering)

CHC301	**Applied Mathematics-III (AM-III)**
Course Code	Course Outcomes
CHC301.1	Solve initial value ODE problems.
CHC301.2	Have good understanding of real and complex analysis.
CHC301.3	Have a thorough grounding in matrix algebra.
CHC301.4	To read and understand optimization in future.

CHC302	**Engineering Chemistry-I (EC-I)**
Course Code	Course Outcomes
CHC302.1	Students will learn the basic areas in chemistry like different theories of chemical bonding, organometallic chemistry, mechanism and application of aromatic substitution, elimination reactions and the orientation of functional groups.
CHC302.2	Students will also be capable of defining the different basic terms related to electrochemistry, spectroscopic methods, different analytical techniques and the application of surfactants.
CHC302.3	Students will be aware of the significance of active methylene group during organic synthesis and the importance of catalyst. Moreover, on the basis of Huckel's rule, students will be able to differentiate between aromatic and non-aromatic compounds.
CHC302.4	Students will be able to carry out organic estimations, gravimetric analysis and handle different instruments in the laboratory.

CHC303	**Fluid Flow (FF)**
Course Code	Course Outcomes
CHC303.1	Remember the role of fluid flow in chemical industry
CHC303.2	Acquire fundamental measurement techniques for pressure drop, flow rate measurement.
CHC303.3	Acquire basic measurement techniques for the viscosity of the fluids.
CHC303.4	Achieve knowledge for the selection, calculation of various pumps, valves, agitators.

CHC304	**Computer Programming & Numerical Methods (CPNM)**
Course Code	Course Outcomes
CHC304.1	Use the different numerical methods to solve the algebraic equations
CHC304.2	Acquire knowledge of using algebraic methods to find solution of system of linear and non-linear equations
CHC304.3	Apply knowledge of numerical methods in chemical engineering applications.
CHC304.4	Predict solution of ordinary differential equations and partial differential equations using different methods and their applications in different areas of chemical engineering
CHC304.5	Estimate solution for difference equations arising in statistical problems.
CHC304.6	Execute programs in SCILAB for all numerical methods covered during course. Use fundamentals of programming to develop a program.

CHC305	**Process Calculations (PC)**
Course Code	Course Outcomes
CHC305.1	Students will learn to perform basic chemical calculations
CHC305.2	Students will understand material balance without chemical reaction

	with and without recycle.
CHC305.3	Students will to be calculate conversion, selectivity etc for various reactions with and without recycle
CHC305.4	Students will learn to perform energy balance calculations and flow sheeting

CHC306	**Chemical Engineering Economics (CEE)**
Course Code	Course Outcomes
CHC306.1	Understand fundamental concepts of markets, price and cost, and demand and supply driven economics
CHC306.2	Apply the strategies of growth and development for futuristic development of chemical industries
CHC306.3	Evaluate interest on investments, loans, capitalized costs, depreciation charges and analyze the economic feasibility of process.
CHC306.4	Remember the concept and importance of taxes and insurance and apply them while estimating the cost of various elements in industrial processes
CHC306.5	Acquire the knowledge about basic accounting procedures like balance sheet and income statement which will be helpful to them to understand the economic situation of industries
CHC306.6	Analyze the profitability and compare the alternative investments and check the feasibility of industrial projects

CHC401	**Applied Mathematics-IV (AM-IV)**
Course Code	Course Outcomes
CHC401.1	Acquire the knowledge to solve PDE using variable separable and other related analytical methods to solve real world practical models.
CHC401.2	Learn the need of numerical solutions of PDE in case of unavailable analytical solutions and apply various methods to solve PDE.

CHC401.3	Understand the concept of Fourier series and Fourier transforms to solve various boundary value problems.
CHC401.4	Apply vector integration technique to model various related fluid and mass flow problems to calculate volume and surface area.

CHC402	**Engineering Chemistry-II (EC-II)**
Course Code	Course Outcomes
CHC402.1	Students will understand the concepts of electrochemistry, chromatographic methods, different analytical techniques and the application of surfactants.
CHC402.2	Students will be aware of the significance of active methylene group during organic synthesis and the importance of catalyst. Moreover, on the basis of Huckel's rule, students will be able to differentiate between aromatic and non-aromatic compounds.
CHC402.3	Students will be able to carry out solvent extractions, optical methods and handle different instruments in the laboratory

CHC403	**Chemical Engineering Thermodynamics – I (CET-I)**
Course Code	Course Outcomes
CHC403.1	Apply first law of thermodynamics for energy analysis of various processes.
CHC403.2	Understand the working principle of heat engine, heat pump and refrigerators.
CHC403.3	Have concepts of entropy, exergy and their applications.
CHC403.4	Find the thermodynamic properties data from various thermodynamic charts, diagrams.

CHC404	**Material Science and Engineering (MSE)**
Course Code	Course Outcomes

CHC404.1	To gain basic knowledge of physics and chemistry to understand principles of materials science
CHC404.2	To gain knowledge about electrical, magnetic, optical properties of materials
CHC404.3	To understand iron carbon phase diagram ,deformation mechanisms, theories of failure
CHC404.4	To understand about causes of corrosion and it's mitigation measures
CHC404.5	To understand about polymer blends-alloys and ceramics, refractories, composites, clay
CHC404.6	To understand about materials of construction, their properties ,selection and applications in chemical industries

CHC405	**Mechanical Equipment Design (MED)**
Course Code	Course Outcomes
CHC405.1	Remember the basics concepts of design according to codes & standards for Chemical process equipment design
CHC405.2	Understand and apply knowledge for MOC selection and stress analysis and able to do mechanical design various components of process equipment along with heating or cooling arrangement
CHC405.3	Understand the key issues in the design of storage vessel
CHC405.4	Acquire fundamental techniques to select appropriate agitator
CHC405.5	Interpret appropriate use of various vessel support based on shape of vessel
CHC405.6	Achieve adequate perspectives of pipeline design and selection of appropriate pipeline according to the nature of fluids as well as general understanding of fabrication techniques and equipment testing as a designer

CHC406	**Solid Fluid Mechanical Operations (SFMO)**

Course Code	Course Outcomes
CHC406.1	The student would understand the concept of particle size measurement and distribution
CHC406.2	The student would understand the concept of hindered settling, sedimentation and particle mechanics.
CHC406.3	The student would understand the concept of solid mixing, solid storage and solid conveying.
CHC406.4	The student would understand the concept of filtration.