St. PETER'S COLLEGE OF ENGINEERING AND TECHNOLOGY
AVADI, CHENNAI-600054.

DEPARTMENT OF CHEMICAL ENGINEERING

Program Outcomes (POs) for Chemical Engineering are:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program specific outcomes (PSOs)

1. The ability to develop model, design, optimize a new energy efficient process for new chemical industries.
2. Ability to apply knowledge to modify the existing process to be feasible and sustainable.
3. To expose the students to the dynamic environment to successfully face the job market with confidence and competency.

Course Outcomes (One course from each semester of study)

One course from each semester has been selected and the outcomes were furnished below.

Course Name: Fluid Mechanics **Semester: III**

At the end of the course, the student will be able to,

CO No.	**Course Outcomes**
CO1	Understand the methods of analysis and description of fluid
CO2	Apply the relation between differential analysis of fluid motion, continuity and equation of motions
CO3	Illustrate the basic concepts of dimensional homogeneity, dimensional analysis, Rayleigh method and the Pi-theorem
CO4	Apply the basic concepts of boundary layer and the characteristics of fluid while static and during flow through ducts, pipes and porous medium
CO5	Explain the performance characteristics and sizing of pumps, compressors and fans

Course Name: Chemical Process Calculation **Semester: IV**

At the end of the course, the student will be able to,

CO No.	Course Outcomes
CO1	***Classify*** various units of physical quantities and its conversion methods
CO2	***Solve*** problems on material balance for processes involving bypass, purging, recycle operations
CO3	***Apply*** various gaseous laws to solve problems related to combustion processes
CO4	***Demonstrate*** the basic concepts of energy balance in chemical reactions
CO5	***Predict*** various energy and material balance applications involved in chemical process industries

Course Name: Heat Transfer **Semester: V**

After completion of course, the student will be able to

CO No.	Course Outcomes
CO1	***Interpre*t** the one dimensional heat equations and its measurements in conduction phenomena and heat transfer in extended surfaces.
CO2	***Use*** the concepts of convections and its types and relate the heat transfer coefficient in pipe, flow past flat plate.
CO3	***Describe*** the mechanism of condensation and boiling concepts of heat transfer operations.
CO4	***Explain*** in detail about the types of evaporators and several laws associated with radiation.
CO5	***Calculate*** LMTD and NTU for single and multiple pass heat exchangers using standard charts/graphs and heat exchanger data's.

Course Name: Mass Transfer II **Semester: VI**

At the end of the course, the student will be able to,

CO No.	Course Outcomes
CO1	***Calculate*** number of theoretical stages, tray efficiency, tower diameter for tray tower absorber and HTU NTU calculations in packed tower absorber.
CO2	***Apply*** mass transfer principles to various phase equilibrium based different distillation processes and perform graphical calculations for number of stages in Binary Distillation.
CO3	***Identify*** various types of extractors and determine the number of stages required for a stage-wise liquid -liquid extraction process.
CO4	***Understand*** separation by equipments for leaching operation and to solve problems related to leaching.
CO5	***Understand*** principles and operations of Adsorption, Ion Exchange and various Membrane Separation processes.

Course Name: Transport Phenomena **Semester: VII**

At the end of the course, the student will be able to,

CO No.	Course Outcomes
CO1	***Discuss*** in detail involved about the various analogies of heat transfer, mass transfer and momentum transfer
CO2	***Explain*** the mechanism of fluid in motion under different conditions
CO3	Interpret mathematical modeling of physical situations with suitable boundary conditions
CO4	***Summerize*** the mechanisms of mass transfer, heat transfer and momentum transfer like penetration theory, surface renewal theory
CO5	***Compare*** viscometers using couette flow and empirical correlations on turbulent phenomena

Course Name: Petroleum Technology **Semester: VIII**

At the end of the course, the student will be able to,

CO No.	Course Outcomes
CO1	***Understand*** the refinery operations, treatment of crude
CO2	***Explain*** the concept of catalytic cracking used by oil and gas production technicians
CO3	***Infer*** the production methods for value added components obtainable from petroleum
CO4	***Interpret*** a basic knowledge on lubricating and petrochemical feedstock
CO5	***Apply*** and commercialize one's ideas through the background of petroleum industries in an economical way.

St. PETER'S COLLEGE OF ENGINEERING AND TECHNOLOGY, AVADI

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Program Outcomes (PO's):

The graduates will have the ability to

PO1: Apply the Mathematical knowledge and the basics of Science and Engineering to solve the problems pertaining to Electrical and Electronics Engineering.

PO2: Identify and formulate Electrical and Electronics Engineering problems from research literature and be ability to analyze the problem using first principles of Mathematics and Engineering Sciences.

PO3: Come out with solutions for the complex problems and to design system components or process that fulfill the particular needs taking into account public health and safety and the social, cultural and environmental issues.

PO4: Draw well-founded conclusions applying the knowledge acquired from research and research methods including design of experiments, analysis and interpretation of data and synthesis of information and to arrive at significant conclusion.

PO5: Form, select and apply relevant techniques, resources and Engineering and IT tools for Engineering activities like electronic prototyping, modeling and control of systems and also being conscious of the limitations.

PO6: Understand the role and responsibility of the Professional Electrical and Electronics Engineer and to assess societal, health, safety issues based on the reasoning received from the contextual knowledge.

PO7: Be aware of the impact of professional Engineering solutions in societal and environmental contexts and exhibit the knowledge and the need for Sustainable Development.

PO8: Apply the principles of Professional Ethics to adhere to the norms of the engineering practice and to discharge ethical responsibilities.

PO9: Function actively and efficiently as an individual or a member/leader of different teams and multidisciplinary projects.

PO10: Communicate efficiently the engineering facts with a wide range of engineering community and others, to understand and prepare reports and design documents; to make effective presentations and to frame and follow instructions.

PO11: Demonstrate the acquisition of the body of engineering knowledge and insight and Management Principles and to apply them as member / leader in teams and multidisciplinary environments.

PO12: Recognize the need for self and life-long learning, keeping pace with technological challenges in the broadest sense.

Program Specific Outcomes (PSO's):

To prepare the graduates having attitude and knowledge to

PSO1: Have successful technical and professional careers in their chosen fields such as circuit theory, Field theory, control theory and computational platforms.

PSO2: Engross in life long process of learning to keep themselves abreast of new developments in the field of Electronics and their applications in power engineering.

Course Outcomes (CO's):

CO1: Ability to analyse electrical circuits, transients and to apply circuit theorem.

CO2: Ability to simulate using software package.

CO3: Ability to understand and compute Electromagnetic fields and apply them for design and analysis of electrical equipment and systems

CO4: Ability to acquire the knowledge in working principles of DC / AC Machines.

CO5: Analyze the characteristics of different electronic and solid state devices.

CO6: To become familiar with the function of different components used in Transmission and Distribution levels of power system and modeling of these components.

CO7: Ability to model and analyze electrical and electronic Instruments.

CO8: Ability to understand and analyse, linear integrated circuits, their Fabrication and Application.

CO9: Ability to develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.

CO10: Ability to model and understand various power system components and carry out power flow, short circuit, stability studies and its protection.

CO11: Ability to develop the programmability of Digital Signal Processor, Microprocessor and Microcontroller based on applications.

CO12: Ability to understand basics of Real time operating system.

CO13: Ability to understand various types of over voltages and its measurement in power system.

CO14: Ability to understand the day-to-day operation and control of electric power system.

CO15: Ability to create awareness about renewable Energy Sources and technologies.