

## DEPARTMENT OF CHEMICAL ENGINEERING

### MVGR COLLEGE OF ENGINEERING (A)

#### PROGRAM EDUCATIONAL OBJECTIVES

**PEO 1: DOMAIN KNOWLEDGE:** Graduates will have the fundamental knowledge of mathematics, science, economics and computing and in-depth knowledge in Chemical Engineering concepts through theoretical, laboratory and project-based experiences so as to design, develop and solve engineering problems.

**PEO 2: EMPLOYMENT:** Graduates will get employed in national and international; government and private organizations, and will succeed in their chosen engineering careers through their skills, knowledge, personality and aptitude for innovation.

**PEO 3: HIGHER STUDIES & LIFELONG LEARNING:** Graduates will pursue advanced degrees in engineering and other fields; and will have skills of continued, independent and life-long learning to become experts in their profession by self-instilled passion and systematic approach.

**PEO 4: PROFESSIONAL CITIZENSHIP:** Graduates will organize and present information, write and speak well, work effectively with strong organizational skills in multidisciplinary teams on team-based engineering projects and practice ethics and have a sense of social responsibility.

**PEO 5: MODERN TOOLS:** Graduates will plan, design, execute, maintain and rehabilitate Chemical Engineering systems and solve Chemical engineering problems using analytical methods or modern tools and techniques.

#### PROGRAM OUTCOMES

**PO 1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO 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.

**PO 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.

**PO 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.

**PO 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.

**PO 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.

**PO 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.

**PO 8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO 9: Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO 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.

**PO 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.

**PO 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**

**PSO1:** An ability to solve chemical engineering problems using analytical methods and modern tools and techniques.

**PSO2:** An ability to design, operate, maintain and troubleshoot chemical process equipment.