



## CURRICULUM ESSENTIALS



## ELECTRONICS AND INSTRUMENTATION ENGINEERING

# VISION

To develop responsible citizens who would 'think global and act local' and become the change agents of society to meet the challenges of future.

# DEPARTMENT MISSION

The Mission of the Department is to develop the next generation of Engineers in the Instrumentation sector by teaching them problem solving, leadership and teamwork skills, and the value of a commitment quality, ethical behavior, and respect for others. To create and disseminate knowledge through research and to transfer our intellectual to enhance society in meaningful and sustainable ways.

# Program Educational Objectives (PEO)

1. To provide students with a strong foundation in Mathematical, Scientific and Engineering fundamentals.
2. To acquaint students with necessary knowledge to formulate, solve and analyse engineering problems related to industry and research.
3. To impart the state of the art technology to the students in the field of Electronics and Instrumentation Engineering.
4. To foster the innovation, invention and entrepreneurship by enabling the students to transform their ideas to proof-of-concepts for high-tech applications.
5. To provide opportunity for the students to work as part of teams on multi-disciplinary projects.
6. To inculcate in the students professional and ethical attitude, communication skills and the life-long learning skills needed for the successful professional career.
7. Work in core Instrumentation and allied industries and software companies and / or become successful entrepreneurs.
8. Pursue their higher studies at the institutes of repute in India and abroad and work in educational institutions, research organizations and engineering consultancy companies.
9. Have the highest integrity, social responsibility, teamwork skills and leadership capabilities in their profession or career.

# Program Outcome (PO)

## **P01. ENGINEERING KNOWLEDGE:**

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

## **P02. 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.

## **P03. 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.

## **P04. 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.

## **P05. MODERN TOOL USAGE:**

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

## **P06. 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.

# Program Outcome (PO)

## **P07. 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.

## **P08. ETHICS:**

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

## **P09. INDIVIDUAL AND TEAM WORK:**

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

## **P010. 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.

## **P011. 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.

## **P012. 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)

**PS01:** To acquaint students with necessary knowledge to industry and research.

**PS02:** To incorporate the innovation, entrepreneurship skill to the students.

**PS03:** To grow adaptability towards students towards variable needs of modern industries.

**PS04:** To set highest integrity, leadership and teamwork skills at professional career.