



**NADIMPALLI SATYANARAYANA RAJU  
INSTITUTE OF TECHNOLOGY  
(AUTONOMOUS)**



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## **Program Educational Objectives**

**Programme Educational Objectives (PEOs)** are the broad statements that describe the professional and career accomplishments that the program is preparing the graduates to achieve. While formulating the PEOs, the expectations from the engineering graduates at national and international level are well understood in line with those suggested by World Economic Forum, NASSCOM Future Skills, 21<sup>st</sup> Century skills and Sustainable Development Goals. The local and regional expectations are understood by taking survey from stakeholders.

### **Civil Engineering**

1. Demonstrate the real-world Engineering problem solving skills by applying the fundamental and conceptual engineering knowledge as a practicing civil engineer or as a member/lead in a multidisciplinary project setting that utilize 21<sup>st</sup> century skills
2. Provide research-based engineering solutions addressing the triple bottom line of environment and sustainability maintaining the professional standards, ethics, and integrity
3. Foster self-directed learning through their professional experience and research, technology advancements in their relevant field of interest and desiring graduates pursue advanced higher education

### **Computer Science and Engineering**

1. Exhibit new age talents that use critical thinking and problem-solving skills in the rapidly changing tech landscape demands dynamism in addition to the application of fundamental and conceptual knowledge meeting client business requirements
2. Sustain their satisfactory professional career in their own start-ups or as a team member/team lead in an IT or allied industry
3. Engage in self-directed learning and advanced studies based on the demand driven need of the industries for their professional and career accomplishment

### **Computer Science and Engineering (Artificial Intelligence and Machine Learning)**

1. Exhibit new age talents that use critical thinking and problem-solving skills in the rapidly changing tech landscape demands dynamism in addition to the application of fundamental and conceptual knowledge suggesting intelligent solutions that deploy algorithms to think and act humanly, think and act rationally
2. Sustain their satisfactory professional career in their own start-ups or as a team member/team lead in an IT or allied industry
3. Engage in self-directed learning and advanced studies based on the demand driven need of the industries for their professional and career accomplishments

### **Computer Science and Engineering (Data Science)**

1. Continue to demonstrate the application of the knowledge of data science to solve real-time engineering challenges in the tech landscape that use programming abilities, statistical analysis of data, build and assess data-based models, statistical analysis and data management in addition to the application of fundamental and conceptual knowledge of computer science and engineering
2. Sustain their satisfactory professional career in their own start-ups or as a team member/team lead in an IT or allied industry
3. Engage in self-directed learning and advanced studies based on the demand driven need of the industries and their interest for their professional and career accomplishments

### **Electronics and Communication Engineering**

1. Continue to demonstrate the application of domain knowledge in solving real time problems and provide research based sustainable solutions in different specializations of Electronics and Communication Engineering or allied branch of engineering and technology and lead a satisfactory job employment with 21st century skills
2. Continue to involve themselves in life-long learning by enriching his/her competency in the chosen field of interest through professional experience, advanced studies, learning new age skills that demands dynamism for a continued better prospect to accomplish their professional and career goals

3. Continue to demonstrate the skill sets that are very much essential to work successfully for a rewarding career in an interdisciplinary environment

### **Electrical and Electronics Engineering**

1. Demonstrate the real-world engineering problem solving skills by applying the fundamental and conceptual engineering knowledge as a practicing Electrical and Electronics engineer or as a member/lead in a multidisciplinary project setting that utilize 21st century skills
2. Provide research-based engineering solutions addressing the triple bottom line of environment and sustainability maintaining the professional standards, ethics and integrity
3. Foster self-directed learning through their professional experience, technology advancements in their relevant field of interest and desiring graduates pursue advanced higher education leading to research

### **Mechanical Engineering**

1. Continue to excel in professional mechanical related careers or chosen career path that apply 21st century skills following ethical standards and practices contributing towards sustainable development by providing feasible and viable technical solutions catering the real-time engineering problems
2. Engage in experiential learning through their professional practices and adapt to changing skills sets in the pursuit of lifelong learning
3. Continue to demonstrate the skill sets that are very much essential to work successfully for a rewarding career in a multidisciplinary setting

## Program Outcomes

1. Apply the knowledge of basic sciences and fundamental engineering concepts in solving engineering problems (Engineering Knowledge)
2. Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences (Problem Analysis)
3. 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 (Design/Development of Solutions)
4. Perform investigations, design and conduct experiments, analyze and interpret the results to provide valid conclusions (Investigation of Complex Problems)
5. Select/develop and apply appropriate techniques and IT tools for the design & analysis of the systems (Modern Tool Usage)
6. Give reasoning and assess societal, health, legal and cultural issues with competency in professional engineering practices (The Engineer and Society)
7. Demonstrate professional skills and contextual reasoning to assess environmental/societal issues for sustainable development (The Environment and Sustainability)
8. Demonstrate Knowledge of professional and ethical practices (Ethics)
9. Function effectively as an individual, and as a member or leader in diverse teams, and in multi- disciplinary situations (Individual and Team Work)
10. Communicate effectively among engineering community, being able to comprehend and write effectively reports, presentation and give / receive clear instructions (Communication)
11. Demonstrate and apply engineering & management principles in their own / team projects in multidisciplinary environment (Project Finance and Management)
12. Recognize the need for, and have the ability to engage in independent and lifelong learning (Life Long Learning)

## **Program Specific Outcomes**

### **Civil Engineering**

1. Demonstrate adequate core competency in planning, analyzing, and designing structural elements/structures, basic transportation and environmental systems, hydraulic structures, and similar others, as well as providing sustainable computer aided solutions that meet Indian codes of practice (BIS) adopting ethical practices
2. Demonstrate adequate knowledge in the allied specialization of Civil Engineering that adds value addition for professional practices

### **Computer Science and Engineering**

1. Able to apply the theoretical knowledge of Computer Science and Engineering and the foundational principles of software development to provide sustainable solutions for the real world technical challenges in the tech landscape by maintaining professional standards, ethical values and integrity.
2. Able to adopt to technological changes by initiating self-paced learning to meet the industry demands.

### **Computer Science and Engineering (Artificial Intelligence and Machine Learning)**

1. Able to apply the theoretical knowledge of Computer Science and Engineering and the foundational principles of software development to provide sustainable solutions for the real world technical challenges in the tech landscape by maintaining professional standards, ethical values and integrity.
2. Able to adopt to technological changes by initiating self-paced learning to meet the industry demands.

### **Computer Science and Engineering (Data Science)**

1. Able to apply the theoretical knowledge of Computer Science and Engineering and the foundational principles of software development to provide sustainable solutions for the

real world technical challenges in the tech landscape by maintaining professional standards, ethical values and integrity.

2. Able to adopt to technological changes by initiating self-paced learning to meet the industry demands.

### **Electronics and Communication Engineering**

1. To demonstrate the ability to design and develop complex systems in the areas of next generation Communication Systems, IoT based Embedded Systems, Advanced Signal and Image Processing, latest Semiconductor technologies, RF and Power Systems
2. To demonstrate the ability to solve complex Electronics and Communication Engineering problems using latest hardware and software tools along with analytical skills to contribute to useful, frugal and eco-friendly solutions.

### **Electrical and Electronics Engineering**

1. Analyze, design and simulate diverse problems associated in the field of electrical, electronics and computer based systems by providing sustainable solutions adopting ethical practices
2. Apply appropriate methods and modern components to aid design, analysis and synthesis of solutions

### **Mechanical Engineering**

1. Demonstrate adequate core competency in designing and fabricating mechanical systems, thermal and hydraulic machines, materials and similar others, and thereby providing sustainable computer aided solutions maintaining professional standards and value system
2. Demonstrate adequate knowledge in the allied specialization of Mechanical Engineering that adds value addition for professional practices