VNR VIGNANA JYOTHI INSTITUTE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING

PEOs, POs and PSOs of B.Tech. Programme in "Electronics and Instrumentation Engineering"

Programme Educational Objectives (PEOs)

PEO.1. To provide students with a solid foundation in Mathematics, Sciences, Electronics and Instrumentation Engineering which prepares students for wide range of career opportunities in Industries, Research and academics.

PEO.2. To train the students with good engineering breadth to comprehend, analyze, innovate and design new products in core and multidisciplinary domain, to provide technical solutions to real life problems and to render technical services to the needs of the society.

PEO.3. To provide students with an academic environment of excellence, proactiveness, leadership positions in multidisciplinary teams and lifelong learning for successful professional career.

PEO.4. To inculcate professional and ethical attitude, creative, effective communication and presentation skills and enhanced ability to work in teams to pursue complex, open-ended investigations and research.

PEO.5. To motivate students towards becoming entrepreneurs, collaborators and innovators, leading or participating in efforts to address social, technical and business challenges.

Programme Outcomes (POs)

a. Knowledge of Basic Sciences:

The students shall be able to apply the principles of Basic Sciences and Mathematical skills in learning in Basic Engineering subjects. The knowledge gained thus enables the students to apply them in learning the core branch viz. the Electronics and Instrumentation Engineering.

b. Computational Skills:

The students shall acquire Analytical Thinking; Problem solving abilities, get exposure to the modern computational procedures and apply them in the core Instrumentation Engineering.

c. Design and Development of Solutions:

The background knowledge gained, the Analytical and computational skills acquired by the students shall enable the students to apply them in the core Instrumentation Engineering to design Electronic circuits, highly sensitive sensors networks for monitoring and control of various physical, chemical, pharmaceutical and Industrial parameters and processes.

d. Conduct of Investigations into Complex Problems:

The students shall be able to apply the knowledge and adopt research methodologies for the modernization of existing designs of Instruments, design sophisticated instrumentation systems interfaced to dedicated embedded controllers or High-end computers. They shall be able to Acquire, Analyse, Interpret and Control any complex processes or problems in Industry and R&D.

e. Usage of Modern Tools:

The students gain expertise in the utilization of modern software tools like C, JAVA, Multisim, Signal and Image processing tools for applications in communications, Biomedical (ECG, EEG, MRI) etc; Hardware gadgets like the Digital Storage Oscilloscopes, Function Generators, Spectrum Analyzers; and ultra-sensitive instruments like the UV-VIS and Infra-Red Spectro-photometers, Chromatographs, Process control stations etc. for applications in Industry and R&D.

f. Engineers and Society:

The students of engineering should be motivated to utilize their Scientific, Technological, Computational and Instrumentation skills for the better addressing the societal needs. Design new sophisticated instruments for the high-end Research and Process Industries, Pharmaceutical, Bio-medical fields. They should utilize their expertise to develop indigenous technologies, instruments, gadgets, affordable by common people. Design inexpensive healthcare systems and extend the same to the remote areas through telemedical network system making use of INSAT facility.

g. Environment and Sustainability:

Instrumentation Engineering is a multi-disciplinary branch. The students shall be motivated to utilize their knowledge for design of highly sensitive and low energy consumption, low radiation emitting, lower environment polluting instruments, operating on renewable energy sources and implement all such measures to **sustain the quality of the environment.**

h. Ethics:

The students are motivated to follow a code of ethics and moral perspectives at the individual level as well as at the professional level to protect the interests of all the stakeholders, with a concern for societal responsibilities.

i. Individual and Team work:

Communication skills, Aptitude development programs, Team activities like POGIL, Seminar Presentations etc contribute greatly for the development of individual talents/skills. Involvement in Professional, Cultural, Sports activities provided in the institute shall also develop capabilities of a student to mould oneself as an Individual member, Team leader or an Organizer.

j. Communication Skills:

The intensity of inputs (Listening, Speaking, Reading and Writing Skills) inputs and trainings imparted through all these activities, the students shall acquire excellent communication skills both orally as well as writing. They shall be able to transform their innovative ideas into excellent technical reports for presentation/publication in seminars/journals.

k. Project Management and Finance:

The students shall be able to conceptualize ideas, formulate projects, visualize their execution and realized final product. The students shall demonstrate the skills required for drafting of proposals for projects with thorough understanding of the procurement plans (materials, software, hardware), project management and financial allocations and management during the execution of the project.

l. Life-Long learning:

The students shall be motivated to keep themselves in-tune with the contemporary changes in technological processes through life-long learning and contribute their expertise for the benefit of the current stake holders and the society.

Program Specific Outcomes (PSO):

PSO.1. Specify, design, prototype and test electronic systems that perform processing as per user requirements using contemporary devices and technology.

PSO.2. Specify, design, build instrumentation systems for industrial process and biomedical application.

PSO.3. Develop hardware and software tools/ programs used in industrial and other automation systems.