BIO MEDICAL INSTRUMENTATION

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Understand the significance of instrumentation in human physiology.
- CO 2 : Acquire confidence in delivering effective therapeutic and diagnostic tools for doctors.
- CO 3 : Develop skill in designing suitable bio-potential electrodes.
- CO 4 : Develop concepts in cardiac and neuromuscular instrumentation.
- CO 5 : Analyze different organ systems by measuring the biopotentials.

VLSI DESIGN

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Familiarize with the basics of MOSFET and different IC fabrication technologies.
- CO 2 : Analyze and design various CMOS combinational and sequential circuits.
- CO 3 : Develop layouts for NMOS, CMOS logic circuits.
- CO 4 : Design different technologies and programmable logic devices.
- CO 5 : Understand the need for testing and design for testability

VIRTUAL INSTRUMENTATION

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Implement complex programs using LabVIEW.
- CO 2 : Create Virtual Instrument using Lab VIEW software for Control system, Signal Processing and Image processing applications.
- CO 3 : Acquire confidence on hardware and software interfacing methodology.

DIGITAL IMAGE PROCESSING (Professional Elective-III)

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Understand the basic concepts of two-dimensional signal acquisition, sampling, and quantization.
- CO 2 : Understand the spatial filtering techniques, including linear and nonlinear methods.
- CO 3 : Gain the concepts of 2D Fourier transform, including the 2D DFT and FFT, and their use in frequency domain filtering.

- CO 4 : Acquire the knowledge of the fundamental image enhancement algorithms such as histogram modification, contrast manipulation, and edge detection.
- CO 5 : Demonstrate programming skills in digital image processing related problems.

INSTRUMENTATION PROCESS IN INDUSTRIES (Professional Elective-III)

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Apply fundamental knowledge of chemistry & instrumentation to modeling and analysis of different Industrial engineering.
- CO 2 : Understand disasters caused by an incorrect analysis/design in different Industrial engineering system.
- CO 3 : Students will demonstrate a working knowledge of the basic principles of measuring techniques. And demonstrate technical knowledge and skills in the calibration and use of equipment used in different industrial process measurement and control.
- CO 4 : Students will demonstrate a working knowledge of safety practices and skills in trouble-shooting problems used in the measurement and control in industrial processes.

ROBOTICS AND AUTOMATION (Professional Elective-III)

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Know the various parts of robots and fields of robotics.
- CO 2 : Understand various kinematics and inverse kinematics of robots.
- CO 3 : Understand the Euler, Lagrangian formulation of Robot dynamics.
- CO 4 : Understand the trajectory planning for robot.
- CO 5 : Understand the control of robots for some specific applications.

OPTOELECTRONICS AND LASER INSTRUMENTATION (Professional Elective-IV)

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Improve Knowledge of Fiber optics and lasers to design application specific optical fiber.
- CO 2 : Improve skills in using Lasers in the measurements.
- CO 3 : Acquire knowledge of applications of Lasers in medicine.

EMBEDDED SYSTEMS DESIGN (Professional Elective-IV)

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Understand an embedded system and to know its applications.
- CO 2 : Learn the processing elements used in embedded systems.

- CO 3 : Understand different embedded application and domain specific systems.
- CO 4 : Learn hardware software development to design embedded systems.
- CO 5 : Familiarize with embedded system examples.

MEMS AND APPLICATIONS (Professional Elective-IV)

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Know the fabrication process in industry in the context of MEMS.
- CO 2 : Identify suitable transducers in MEMS applications.
- CO 3 : Create Structures in micromachining.

AUTOMATION OF INDUSTRIAL PROCESS (Professional Elective-V)

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Improve Knowledge in Functional elements of Control System.
- CO 2 : Improve skills in selecting a suitable Controller for a given application.
- CO 3 : Improve Knowledge in Distributed Control System.

POWER PLANT INSTRUMENTATION (Professional Elective-V)

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Monitor & Control Parameters in power plants.
- CO 2 : Acquire confidence in identifying measuring systems in power plants.
- CO 3 : Understand role of instrumentation in power plants.
- CO 4 : Innovate ideas to improve plant efficiency, reduce leakages and losses and use technologies for designing and developing pollutant free industrial environment.

SCADA & DISTRIBUTED CONTROL SYSTEMS (Professional Elective-V)

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Understand HMI.
- CO 2 : Understand DCS architecture.
- CO 3 : Understand role of HMI & DCS in industry.

ELECTRONIC COMPUTER AIDED DESIGN LAB

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Design digital circuits of combinational and sequential ICs.
- CO 2 : Develop programming skills in HDL using Xilinx software.
- CO 3 : Acquire to simulate and synthesize the digital circuits in Xilinx software.

ANALYTICAL AND VIRTUAL INSTRUMENTATION LAB

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Apply basic analytical methods and sampling procedures on several chemicals gases or liquids.
- CO 2 : Develop programming skills in Virtual instrumentation using LabVIEW.
- CO 3 : Acquire, Analyze and Display the results of several physical parameters.

MANAGEMENT SCIENCE

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Make business decisions for effective business administration.
- CO 2 : Identify Business strategies for effective and efficient utilization of resources.
- CO 3 : To explore new business opportunities in the dynamic business environment.
- CO 4 : To perform SWOT analysis of the internal and external environment.
- CO 5 : To implement contemporary best practices in an organization.

DIGITAL CONTROL SYSTEMS

Course Outcomes: At the end of the course, the student should be able to

- CO 1 : Identify the difference between the conventional Control systems and Digital Control systems.
- CO 2 : To study the properties of z-plane.
- CO 3 : Study the methods of identifying the stability of a digital system.