CAYMET's

Siddhant College of Engineering

Savitribai Phule Pune University, Pune

Third Year Electronics & Telecommunication Engineering (2015 Course)

COURSE OBJECTIVE & OUTCOMES

SEM I

Subject Code &Name -304181 Digital Communication

Program Outcome

1. To understand the building blocks of digital communication system.
2. To prepare mathematical background for communication signal analysis.
3. To understand and analyze the signal flow in a digital communication system.
4. To analyze error performance of a digital communication system in presence of noise and other interferences.
5. To understand concept of spread spectrum communication system.

Course Outcomes

On completion of the course, student will be able to-

1. Understand working of waveform coding techniques and analyse their performance.
2. Analyze the performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency.
3. Perform the time and frequency domain analysis of the signals in a digital communication system.
4. Design of digital communication system.
5. Understand working of spread spectrum communication system and analyze its performance

Subject Code &Name -304182 Digital Signal Processing

Program Outcome

1. To introduce students with transforms for analysis of Discrete time signals and systems.
2. To understand the digital signal processing, sampling and aliasing
3. To use and understand implementation of digital filters

Course Outcomes

On completion of the course, student will be able to-

1. Analyze the discrete time signals and system using different transform domain techniques.
2. Design and implement LTI filters for filtering different real-world signals.

3. Develop different signal processing applications using DSP processor.

Subject Code &Name -<u>304183 Electromagnetics</u>

Program Outcome

1. To introduce the basic mathematical concepts related to electromagnetic vector fields.
2. To impart knowledge on the concepts of electrostatics, electric potential, energy density and their applications.
3. To impart knowledge on the concepts of magnetostatics, magnetic flux density, scalar and vector potential and its applications.
4. To impart knowledge on the concepts of Faraday ‘s law, induced emf and Maxwell ‘s equations
5. To impart knowledge on the concepts of Concepts of electromagnetic waves and Transmission lines.

Course Outcomes

On completion of the course, student will be able to-

1. Understand the basic mathematical concepts related to electromagnetic vector fields.
2. Apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.
3. Apply the principles of magnetostatics to the solutions of problems relating to magnetic field and magnetic potential, boundary conditions and magnetic energy density.
4. Understand the concepts related to Faraday ‘s law, induced emf and Maxwell ‘s equations.
5. Apply Maxwell ‘s equations to solutions of problems relating to transmission lines and uniform plane wave propagation.

Subject Code &Name -<u>304184 Microcontrollers</u>

Program Outcome

1. To understand architecture and features of typical Microcontroller.
2. To understand need of microcontrollers in real life applications.
3. To learn interfacing of real-world peripheral devices
4. To study various hardware and software tools for developing applications.

Course Outcomes

On completion of the course, student will be able to -

1. Learn importance of microcontroller in designing embedded application.
2. Learn use of hardware and software tools.

3. Develop interfacing to real world devices.

Subject Code &Name: - 304185 Mechatronics

Program Outcome

1. To understand the concept and key elements of Mechatronics system, representation into block diagram
2. To understand principles of sensors their characteristics
3. To Understand of various data presentation and data logging systems
4. To Understand concept of actuator
5. To Understand various case studies of Mechatronics systems

Course Outcomes

On completion of the course, student will be able to-

1. Identification of key elements of mechatronics system and its representation in terms of block diagram
2. Understanding basic principle of Sensors and Transducer.
3. Able to prepare case study of the system given.

Subject Code &Name -304193 Electronic System Design

Program Outcome

1. Design working, reliable and electronic system to meet specifications.
2. Inculcate circuit designing skills and ability and to use modern design tools.
3. Enhance employability based on knowledge and understandings of electronic system design.
4. To learn basics of database systems used in design / simulation software.
5. To create an interest in the field of electronic design as a prospective career option.

Course Outcomes

On completion of the course, student will be able to-

1. Apply the fundamental concepts and working principles of electronics devices to design electronics systems.
2. Shall be able to interpret datasheets and thus select appropriate components and devices
3. Select appropriate transducer and signal conditioning circuit to design prototype of Data Acquisition system.
4. Design an electronic system/sub-system and validate its performance by simulating the same.

5. Shall be able to use an EDA tool for circuit schematic and simulation.
6. Create, manage the database and query handling using suitable tools.

SEM II

Subject Code &Name: - 304186 Power Electronics

Program Outcome

1. To introduce students to different power devices to study their construction, characteristics and turning on circuits.
2. To give an exposure to students of working & analysis of controlled rectifiers for different loads, inverters, DC choppers, AC voltage controllers and resonant converters.
3. To study the different motor drives, various power electronics applications like UPS, SMPS, etc. and some protection circuits.

Course Outcomes

On completion of the course, student will be able to-

1. Design & implement a triggering / gate drive circuit for a power device
2. Understand, perform & analyze different controlled converters.
3. Evaluate battery backup time & design a battery charger.
4. Design & implement over voltage / over current protection circuit.

Subject Code &Name: - 304187 Information Theory, Coding Techniques and Communication Networks

Program Outcome

1. To understand information theoretic behavior of a communication system.
2. To understand various source coding techniques for data compression
3. To understand various channel coding techniques and their capability.
4. To Build and understanding of fundamental concepts of data communication and networking.

Course Outcomes

On completion of the course, student will be able to-

1. Perform information theoretic analysis of communication system.
2. Design a data compression scheme using suitable source coding technique.
3. Design a channel coding scheme for a communication system.
4. Understand and apply fundamental principles of data communication and networking.
5. Apply flow and error control techniques in communication networks.

Subject Code &Name - 304188 Business Management

Program Outcome

1. To get awareness about various domains in Business Management.

2. To understand concept of Quality Management, Financial Management and Project Management.
3. To learn Human Resource Management, marketing management are the major tasks in Business
4. To promote Entrepreneurship.

Course Outcomes

On completion of the course, student will be able to-

1. Get overview of Management Science aspects useful in business.
2. Get motivation for Entrepreneurship
3. Get Quality Aspects for Systematically Running the Business
4. To Develop Project Management aspect and Entrepreneurship Skills.

Subject Code &Name -<u>304189 Advanced Processors</u>

Program Outcome

1. To understand need and application of ARM Microprocessors in embedded system.
2. To study the architecture of ARM series microprocessor
3. To understand architecture and features of typical ARM7& DSP Processors.
4. To learn interfacing of real-world input and output devices
5. To learn embedded communication systems.

Course Outcomes

On completion of the course, student will be able to-

1. Describe the ARM microprocessor architectures and its feature.
2. Interface the advanced peripherals to ARM based microcontroller
3. Design embedded system with available resources.
4. Use of DSP Processors and resources for signal processing applications.

Subject Code &Name -<u>304190 System Programming and Operating System</u>

Program Outcome

1. To understand system software concepts, like the use and implementation of assembler, macros, linker, loaders and compiler.
2. To get acquainted with software tools for program development.
3. To explore memory allocation methods, input output devices and file system w. r. t. various operating system.
4. To study and implement various processes scheduling techniques and dead lock avoidance schemes in operating system.

Course Outcomes

On completion of the course, student will be able to-

1. Demonstrate the knowledge of Systems Programming and Operating Systems
2. Formulate the Problem and develop the solution for same. Compare and analyse the different implementation approach of system programming operating system abstractions.
3. Interpret various OS functions used in Linux / Ubuntu

Subject Code & Name -<u>304196 Employability Skills and Mini Project</u>

Program Outcome

1. To understand the -Product Development Process" including budgeting through Mini Project.
2. To plan for various activities of the project and distribute the work amongst team members.
3. To inculcate electronic hardware implementation skills by-
    - Learning PCB art work design using an appropriate EDA tool.
    - Imbibing good soldering and effective trouble-shooting practices.
    - Following correct grounding and shielding practices.
4. To develop student 's abilities to transmit technical information clearly and test the same by delivery of Seminar based on the Mini Project.
5. To understand the importance of document design by compiling Technical Report on the Mini Project work carried out.

Course Outcomes

On completion of the course, student will be able to-

1. Understand, plan and execute a Mini Project with team.
2. Implement electronic hardware by learning PCB artwork design, soldering techniques, testing and troubleshooting etc.
3. Prepare a technical report based on the Mini project.
4. Deliver technical seminar based on the Mini Project work carried out.

*** * * * ***