BE

(Electronics & Telecommunications Engineering)

SEM-I

VLSI Design & Technology

Course Objectives:
☐ To explore HDL and related design approach.
☐ To nurture students with CMOS circuit designs.
☐ To realize importance of testability in logic circuit design.
☐ To overview ASIC issues and understand PLD architectures with advanced features.

Course Outcomes: On completion of the course, student will be able to
1. Write effective HDL coding for digital design.
2. Apply knowledge of real time issues in digital design.
3. Model digital circuit with HDL, simulate, synthesis and prototype in PLDs.
4. Design CMOS circuits for specified applications.
5. Analyze various issues and constraints in design of an ASIC
6. Apply knowledge of testability in design and build self test circuit.

Computer Networks & Security

Course Objectives:
☐ To understand state-of-the-art in network protocols, architectures, and applications
☐ To provide students with a theoretical and practical base in computer networks issues
☐ To outline the basic network configurations
☐ To understand the transmission methods underlying LAN and WAN technologies.
☐ To understand security issues involved in LAN and Internet.

Course Outcomes: On completion of the course, student will be able to
1. Understand fundamental underlying principles of computer networking
2. Describe and analyze the hardware, software, components of a network and their interrelations.
3. Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies
4. Have a basic knowledge of installing and configuring networking applications.
5. Specify and identify deficiencies in existing protocols, and then go onto select new and better protocols.
6. Have a basic knowledge of the use of cryptography and network security.

Radiation and Microwave Techniques

Course Objectives:
☐ To introduce fundamental theory of radiation and microwaves.
☐ To understand design principles of various radiating elements.

□ To understand theory of passive and active components of microwave systems.
□ To learn microwave measurement techniques.

Course Outcomes: On completion of the course, student will be able to
1. Differentiate various performance parameters of radiating elements.
2. Analyze various radiating elements and arrays.
3. Apply the knowledge of waveguide fundamentals in design of transmission lines.
4. Design and set up a system consisting of various passive microwave components.
5. Analyze tube based and solid state active devices along with their applications.
6. Measure various performance parameters of microwave components.

Embedded Systems and RTOS(Elective-I)

Course Objectives:
□ To understand and able to design an application specific systems.
□ To develop implementation skill for application specific systems.
□ To understand design and implementation of real time system using RTOS.
□ To understand open source platform for embedded system

Course Outcomes: On completion of the course, student will be able to
1. Understand design of embedded system
2. Use RTOS in embedded application
3. Use modern architecture for embedded system
4. Use Linux for embedded system development
5. Use open platform for embedded system development.

Electronic Product Design (Elective-II)

Course Objectives:
□ To understand the stages of product (hardware/ software) design and development.
□ To learn the different considerations of analog, digital and mixed circuit design.
□ To be acquainted with methods of PCB design and different tools used for PCB Design.
□ To understand the importance of testing in product design cycle.`
□ To understand the processes and importance of documentation.

Course Outcomes: After successfully completing the course students will be able to
1. Understand various stages of hardware, software and PCB design.
2. Importance of product test &test specifications.
3. Special design considerations and importance of documentation.

SEM-II

Mobile Communication

Course Objectives
□ To understand switching techniques for voice and data traffic.
□ To nurture students with knowledge of traffic engineering to design networks.
□ To realize importance of cellular concepts and its propagation mechanism.
□ To understand architecture of GSM system.

☐ To overview 4G LTE and 5G technologies
Course Outcomes On completion of the course, student will be able to
1. Apply the concepts of switching technique and traffic engineering to design multistage networks.
2. Explore the architecture of GSM.
3. Differentiate thoroughly the generations of mobile technologies.

Broadband Communication Systems
Course Objectives:
☐ To comprehend the three primary components of a fiber optic communication system.
☐ To understand the system design issues and the role of WDM components in advanced light wave systems.
☐ To understand the basics of orbital mechanics and the look angles from ground stations to the satellite.
☐ To apply subject understanding in Link Design.

Course Outcomes: After successfully completing the course students will be able to:
1. Perform Link power budget and Rise Time Budget by proper selection of components and check its viability.
2. Perform Satellite Link design for Up Link and Down Link.

Audio Video Engineering
Course Objectives:
☐ After learning AVE course, students will get benefit to learn and understand the working of real life video system and the different elements of video system plus the encoding/decoding techniques.
☐ The learners will be groomed up to understand different channel allocations, difference between various systems present in this world, their transmission and reception techniques.
☐ Students will get insight on functioning of individual blocks, different standards of compression techniques and they will be acquainted with different types of analog, digital TV and HDTV systems.
☐ The students will get overview of fundamentals of Audio systems and basics of Acoustics.

Course Outcomes: On successful completion of the course, students able to:
1. Apply the fundamentals of Analog Television and Colour Television standards.
2. Explain the fundamentals of Digital Television, DTV standards and parameters.
3. Study and understand various HDTV standards and Digital TV broadcasting systems and acquainted with different types of analog, digital TV and HDTV systems.
4. Understand acoustic fundamentals and various acoustic systems.

Wireless Sensor Networks (Elective-IV)
Course Objectives:
☐ To learn basic concepts of Wireless sensor networks
☐ To be familiar with architecture and protocols used in Wireless sensor networks
☐ To provide knowledge of deployment and security issued of Wireless sensor networks

Course Outcomes: On completion of the course, student will be able to
1. Explain various concepts and terminologies used in WSN
2. Describe importance and use of radio communication and link management in WSN
3. Explain various wireless standards and protocols associated with WSN

4. Recognize importance of localization and routing techniques used in WSN
5. Understand techniques of data aggregation and importance of security in WSN
6. Examine the issues involved in design and deployment of WSN