

II B.Tech I Sem

ELECTRONIC DEVICES AND CIRCUITS

Course Outcomes:

After completion of the course student will be able to :

- Demonstrate the basic concepts of semiconductor physics and summarize the characteristics of PN junction diode in different modes of operation.
- Explain the construction and operation of different types of Diodes, working principle of rectifiers with and without filters with relevant expressions and necessary comparisons.
- Summarize the construction, principle of operation of transistors, BJT and FET with their V-I characteristics in different configurations and describe the various biasing techniques for BJT and FET.
- Demonstrate the stabilization concepts with expressions and perform the analysis of small signal low frequency transistor amplifier circuits using BJT and FET in different configurations.

MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS

Course Outcomes:

1. Describe the economic activities performed by the businessmen in the business for profit earning. Understand the significance of demand, its analysis, measurement of demand and its Forecasting
2. Evaluate the production theories and pricing policies of various enterprises
3. Design and implement different structures of market covering how price is determined under different market structures. Also can able to take decisions using business cycles. Analyze different forms of business organizations existing in the modern business and able to choose suitable form of business
4. Able to prepare financial statements
5. Evaluate investment proposals using capital budgeting tools and techniques

Object Oriented Programming

Course Outcomes:

After completion of course students will be able to

- Apply the basic terminology of C++.
- Write, compile and debug programs in C++ language. Use different data types in a computer program. Design programs involving decision structures, loops and functions.
- Explaining with classes, objects and member functions, concepts of inheritance. Define and compare/contrast constructors and destructors
- Usage of generic programming, overloading of functions and operators, overriding and exception handling in various contexts.

PROFESSIONAL ETHICS AND HUMAN VALUES

Course Outcomes:

1. The students will be able to recognize importance of human values, harmony and ethical behavior in real life situations
2. Understood the core values that shape the ethical behaviour of an engineer
3. Exposed awareness on professional ethics and human values.
4. It ensures students sustained happiness through identifying the essentials of human values and skills.
5. It helps students understand practically the importance of trust, mutually satisfying human behavior and enriching interaction with nature.

SOFTWARE ENGINEERING

Course Outcomes:

- Define and develop a software project from requirement gathering to implementation.
- Obtain knowledge about principles and practices of software engineering.
- Discuss the fundamentals of modeling a software project.
- Obtain knowledge about estimation and maintenance of software systems

SIGNALS AND SYSTEMS

Course Outcomes:

- Apply the knowledge of linear algebra topics like vector space and orthogonal basis to signals.
- Analyze the spectral characteristics of continuous-time periodic and aperiodic signals using Fourier analysis.
- Understand the process of sampling and the effects of under sampling.
- Analyze system properties based on impulse response and Fourier analysis.
- Apply convolution both in time domain and frequency domain.
- Apply the Laplace transform and Z- transform for analysis of continuous-time and discrete-time signals and systems.

SWITCHING THEORY AND LOGIC DESIGN

Course Outcomes:

- To manipulate numeric information in different forms, e.g. different bases, signed integers, various codes such as ASCII, Gray, and BCD.
- To manipulate simple Boolean expressions using the theorems and postulates of Boolean algebra and to minimize combinational functions.
- To design and analyze small combinational circuits and to use standard combinational functions/building blocks to build larger more complex circuits.
- To design and analyze small sequential circuits & devices and to use standard sequential functions/building blocks to build larger more complex circuits.

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COMPUTER ORGANIZATION

Course Outcomes:

- To conceptualize the basics of organizational and architectural issues of a digital computer and to perform computer arithmetic operations.
- To analyze performance issues in processor and can calculate the effective address of an operand by addressing modes.
- Ability to design memory organization that uses banks for different word size operations to understand the concept of cache memory techniques
- To understand the concept of Input / Output organization.

CONTROL SYSTEMS

Course Outcomes:

- This course introduces the concepts of feedback and its advantages to various control systems
- The performance metrics to design the control system in time-domain and frequency domain are introduced.
- Control systems for various applications can be designed using time-domain and frequency domain analysis.
- In addition to the conventional approach, the state space approach for the analysis of control systems is also introduced.

MANAGEMENT SCIENCE

Course Outcomes:

1. Define management and its nature scope and functions and hierarchical levels and organizational structure and managing the culture
2. Illustrate various functions of production and inventory management
3. Determine the various concepts of strategic management and project management

4. Analyze the process of matching manager qualifications with position requirements and concept of marketing mix
5. Compare the various contemporary issues of management

OPERATING SYSTEMS

Course Outcomes:

- ? Design various Scheduling algorithms.
- ? Apply the principles of concurrency.
- ? Design deadlock prevention and avoidance algorithms.
- ? Compare and contrast various memory management schemes.
- ? Design and Implement a prototype file systems.

PULSE AND DIGITAL CIRCUITS

Course Outcomes:

At the end of the course, the student will be able to:

1. Design linear and non-linear wave shaping circuits.
2. Apply the fundamental concepts of wave shaping for various switching and signal generating circuits.
3. Design different Multivibrators and time base generators.
4. Utilize the non sinusoidal signals in many experimental research areas
5. Realize logic gates using diodes and transistors.

PRINCIPLES OF COMMUNICATIONS

Course Outcomes:

At the end of the course, the student will be able to:

1. Explain the basic principle of communication system.
2. Describe the principles of amplitude modulated and angle modulated communication systems and be able to analyze their performance in the presence of noise.
3. Explain and solve communication system parameters for various types of modulation and demodulation techniques.
4. Apply the concepts to practical applications in telecommunication.
5. Analyze communication systems in both the time and frequency domains.

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Linear IC Applications

Course Outcomes:

After completion of the course students able to learn :

1. Understand the use of differential amplifiers in Op-Amp.
2. Diagnose and trouble-shoot linear and non-linear electronic circuits.
3. Analyze and design amplifiers and active filters using Op-amp.
4. Understand thoroughly the operational amplifier applications.

Digital IC Applications

Course Outcomes:

After completion of the course students able to learn:

1. Understand the structure of commercially available digital integrated circuit families.
2. Learn the IEEE Standard 1076 Hardware Description Language (VHDL).
3. Model complex digital systems at several levels of abstractions, behavioral, structural,
4. Simulation, synthesis and rapid system prototyping.
5. Analyze and design basic digital circuits with combinatorial and sequential logic circuits using VHDL

Micro Processors and Micro Controllers

Course Outcomes:

After completion of the course students able to learn :

1. Able to explain the architecture, memory organization, addressing modes, instruction set of Intel 8086 microprocessor and Intel 8051 and PIC 16C6X/7X microcontrollers.
2. Able to write assembly language programs for simple problem statements.
3. Able to design an interface between peripheral chips & processors and write programs for data transfer.

DATA BASE MANAGEMENT SYSTEMS

Course Outcomes:

- To develop an understanding of essential DBMS concepts involved in implementation of Database systems.
- Compare relational model with the structured query language (SQL)
- Design and build database system for given Real world problem
- Examine issues in data storage and query processing and can formulate appropriate solutions.

PYTHON PROGRAMMING

Course Outcomes:

- Install Python IDE and run basic Python scripts.
- Understand the operators, functions, key Concepts of Object Oriented Programming in python.
- Access Python from various online resources and import packages to the current working environment.
- Develop front end GUI using Visualization Libraries and Multithreading techniques

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VLSI DESIGN

Course Outcomes:

After completion of the course students able to learn :

- Understand the concepts of MOS, CMOS&BICMOS technologies for the layout design.
- Apply the concepts of design rules during the layout design.
- How MOSFET parameters affects the scaling of MOS circuits.
- Model & simulate digital VLSI systems using HDL and synthesize digital VLSI systems from RTL.
- Understand the current trends in semiconductor technology & how it impacts scaling & performance.

DESIGN AND ANALYSIS OF ALGORITHMS

Course Outcomes:

- Able to analyse the performance of an algorithm in terms of time and space.
- Give an intuition on how to find a solution to large problems by dividing them into smaller sub problems.
- Identifying which designing technique can be used to solve a particular problem.
- Knowing how to explore the solution space by using Branch and Bound technique.

Digital Signal Processing

Course Outcomes:

After completion of the course students able to learn :

- Design, simulate and realize different digital filters.
- Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques
- Design multi rate digital signal processing system.
- Understand the architecture of DSP processor.

WEB DESIGN

Course Outcomes:

- Analyze a web page and identify its elements and attributes.
- Create web pages using Cascading Styles sheets.
- Develop client side manipulations in web pages using Java Script.
- Build dynamic web pages.
- Explain the JDBC architecture and required components.

SOFTWARE PROJECT MANAGEMENT

(OPEN ELECTIVE-I)

Course Outcomes:

- ? To match organizational needs to the most effective software development model.
- ? To understand the basic concepts and issues of software project management
- ? To effectively Planning the software projects.
- ? To implement the project plans through managing people, communications and change.
- ? To select and employ mechanisms for tracking the software projects
- ? To conduct activities necessary to successfully complete and close the Software projects.
- ? To develop the skills for tracking and controlling software deliverables.
- ? To create project plans that address real-world management challenges.

ROBOTICS (OPEN ELECTIVE-I)

Course Outcomes:

CO1: Identify various robot configuration and components.

CO2: Select appropriate actuators and sensors for a robot based on specific application.

CO3: Carry out kinematic and dynamic analysis for simple serial kinematic chains.

CO4: Perform trajectory planning for a manipulator by avoiding obstacles.

BIO-MEDICAL ENGINEERING (OPEN ELECTIVE-I)

Course Outcomes:

After completion of the course students able to learn :

- Man instrument system and types of electrodes and transducers to extract biopotential signals
- Anatomy of heart, lungs, eye and ears. Devices to do tests on heart, lungs, eye and ears.
- Diagnose & Monitor the health of patient in intensive care unit.

- Monitors, recorders and electrical accident prevention methods

UNIX PROGRAMMING (OPEN ELECTIVE-I)

Course Outcomes:

- ? Documentation will demonstrate good organization and readability.
- ? File processing projects will require data organization, problem solving and research.
- ? Scripts and programs will demonstrate simple effective user interfaces.
- ? Scripts and programs will demonstrate effective use of structured programming.
- ? Scripts and programs will be accompanied by printed output demonstrating completion of a test plan.
- ? Testing will demonstrate both black and glass box testing strategies.
- ? Project work will involve group participation.

STATISTICS with R PROGRAMMING (OPEN ELECTIVE-II)

Course Outcomes:

At the end of this course, students will be able to:

- List motivation for learning a programming language
- Access online resources for R and import new function packages into the R workspace
- Import, review, manipulate and summarize data-sets in R
- Explore data-sets to create testable hypotheses and identify appropriate statistical tests

CLOUD COMPUTING (OPEN ELECTIVE-II)

Course Objectives: After taking the course, students will be able:

- To learn the basics of Cloud computing
- To know the key concepts of Virtualization
- To gain knowledge on cloud computing service models
- To develop cloud implementation, programming and mobile cloud computing
- To learn key components of Amazon web services

To maintain the Cloud backup and solutions

- Perform appropriate statistical tests using R Create and edit visualizations STATISTICS with R PROGRAMMING (OPEN ELECTIVE-II)

REMOTE SENSING (OPEN ELECTIVE-II)

Course Outcomes:

At the end of the course the student will be able to

1. Explain basic concepts of remote sensing.
2. Explain sensors and platforms of remote sensing satellite
3. Analyze the image through image processing, image enhancement and image classification
4. Explain basic concepts of geographic information system
5. Analyze the spatial data through overlay function, overlay using a decision table and network analysis

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COMPUTER NETWORKS

Course Outcomes:

At the end of the course, the students will be able to:

- ? Understand OSI and TCP/IP models
- ? Analyze MAC layer protocols and LAN technologies

- ? Design applications using internet protocols
- ? Understand routing and congestion control algorithms
- ? Understand how internet works

INTERNET OF THINGS

Course Outcomes:

- CO1 Demonstrate knowledge and understanding of the security and ethical issues of the Internet of Things
- CO2 Conceptually identify vulnerabilities, including recent attacks, involving the Internet of Things
- CO3 Develop critical thinking skills
- CO4 Compare and contrast the threat environment based on industry and/or device type

DATA WARE HOUSING & DATA MINING

Course Outcomes:

After completion of the course students able to learn :

- Understand the functionality of the various data mining and data warehousing components.
- Describe different Preprocessing techniques to build data warehouse
- Develop skill in selecting the appropriate data mining algorithm for solving practical problems.
- Compare different approaches of data ware housing and data mining with various technologies.

DIGITAL IMAGE PROCESSING

Course Outcomes:

After completion of the course students able to learn :

- Understands mathematical models of various types of images and
- Apply time and frequency Domain filtering techniques for image enhancement
- Apply various techniques for color image smoothing, sharpening and segmentation
- Apply various coding techniques for compression and morphology.

ADVANCED COMPUTER ARCHITECTURE

(ELECTIVE-I)

Course Outcomes:

- Describe the design of digital computer and instruction set.
- Analyze the design issues, performance issues in pipelining and memory design.
- Implementation of the Instruction-Level parallelism.
- Understands Basic compiler level techniques and Multi Processors and Thread level Parallelism

SATELLITE COMMUNICATION

(OPEN ELECTIVE-I) Course Outcomes: After completion of the course students able to learn :

- Understand the concepts, applications and subsystems of Satellite communications.
- Derive the expression for G/T ratio and to solve analytical problems on satellite link design to evaluate the system performance.
- Apply the concepts of various types of multiple access techniques and architecture of earth station design to improve the quality of reception of Satellite signals

- Understand the concepts of GPS and its architecture.

ARTIFICIAL INTELLIGENCE

(ELECTIVE-I) Course Outcomes: ? Identify problems that are amenable to solution by AI methods, and which AI methods may be suited to solving a given problem.

? Formalize a given problem in the language/framework of different AI methods (e.g., as a search problem, as a constraint satisfaction problem, as a planning problem, as a Markov decision process, etc).

? Implement basic AI algorithms (e.g., standard search algorithms or dynamic programming).

? Design and carry out an empirical evaluation of different algorithms on a problem formalization, and state the conclusions that the evaluation supports

SYSTEM PROGRAMMING

(ELECTIVE-I)

Course Outcomes:

After completion of the course students able to learn :

1. To understand the basics of system programs like editors, compiler, assembler, linker, loader, interpreter and debugger.
2. Describe the various concepts of assemblers and macroprocessors.
3. To apply the various phases of compiler and compare its working with assembler.
4. To analyze how linker and loader create an executable program from an object module created by assembler and compiler.
5. To know various editors and debugging techniques

UML & DESIGN PATTERNS

(Elective-II)Course Outcomes: Students successfully completing this course will be able to:

- ? Identify the purpose and methods of use of common object-oriented design patterns
- ? Select and apply these patterns in their own designs for simple programs
- ? Represent the data dependencies of a simple program using UML
- ? Represent user and programmatic interactions using UML
- ? Create design documentation outlining the testable and complete design of a simple program
- ? Produce and present documents for the purpose of capturing software requirements and specification.
- ? Produce plans to limit risks specific to software designed for use in a particular social context.

FUZZY LOGIC AND NEURAL NETWORKS

(ELECTIVE-II)Course Outcomes: Upon completion of the course, the student will be able to

- Comprehend the concepts of feed forward neural networks
- Analyze the various feedback networks.
- Apply the concept of fuzziness involved in various systems and fuzzy set theory.
- Comprehend the fuzzy logic control and adaptive fuzzy logic and to design the fuzzy control using genetic algorithm.
- Analyze the application of fuzzy logic control to real time systems.

STRUCTURED DIGITAL DESIGN

(ELECTIVE-II)Course Outcomes: After completion of the course students able to learn :

- Design and analyze combinational & sequential circuits
- Design circuits like adder, sub tractor ,code converter etc.
- Design counters and sequence generators.
- Simulate and implement combinational and sequential circuits using VHDL system.

MOBILE COMPUTING

(ELECTIVE-II)Course Outcomes: • Explains and develop new mobile application.

- Describes any new technical issue related to this new paradigm and come up with a solution(s).
- Develop new ad hoc network applications and/or algorithms/protocols.
- Understand & develop any existing or new protocol related to mobile environment

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EMBEDDED SYSTEMS

Course Outcomes:

After completion of the course students able to learn :

- Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function.
- Design the Embedded hardware by considering the hardware components required for an embedded system
- Analyse the various embedded firmware design approaches on embedded environment to suit for desired application
- Understand how to integrate hardware and firmware of an embedded system and apply this knowledge to real time operating system.

BIG DATA ANALYTICS

Course Outcomes:

- Preparing for data summarization, query, and analysis.
- Applying data modeling techniques to large data sets
- Creating applications for Big Data analytics
- Building a complete business data analytic solution

MACHINE LEARNING

Course Outcomes:

- CO1 Recognize the characteristics of machine learning that make it useful to real-world Problems
- CO2 Characterize machine learning algorithms as supervised, semi-supervised, and Unsupervised
- CO3 Be able to use support vector machine, regularized regression algorithms
- CO4 Understand the concept behind neural networks for learning non-linear functions

EMI/EMC (ELECTIVE III)

Course Outcomes: After completion of the course students able to learn :

- Understand the concept of EMI / EMC related to product design & development and various EM radiation measurement techniques and the present leading edge industry standards in different countries.
- analyze the different EM coupling principles and its impact on performance of electronic system
- Know how to bring down the electromagnetic interference highlighting the concepts of both susceptibility and immunity.
- Analyze various EM compatibility issues with regard to the design of PCBs and ways to improve the overall system performance.

AUTOMATA THEORY & COMPILER DESIGN

(ELECTIVE III) Course Outcomes: • Understand the basic concepts of Languages, operations of Languages, NFA, DFA and its conversions.

- Identify the similarities and differences among various parsing techniques and will be able to solve problems related to Shift reduce parsing, compute FIRST and FOLLOW sets, LR(0), LR(1) and LALR sets of items and parse table for a given grammar
- Demonstrate the ability to write syntax directed translations of simple statements and understand the working of procedure calls and use various storage allocation schemes for the better utilization of run time memory.
- Apply various schemes for optimized code and will be able to write 3 addresses code and identify the basic blocks, draw flow graphs and represent directed Acyclic graphs for the identified basic

blocks and also be able to write the target optimized code (assembly code) for the given three address code.

ADVANCED MICROCONTROLLERS

(ELECTIVE III) Course Outcomes: After completion of the course students able to learn :

- Understand the evolution and architectures of ARM processors.
- Analyze and understand the instruction set and development tools of ARM
- Understand the architectural features of ARM LPC2148 microcontrollers.
- Understand the hardware and interfacing peripheral devices to ARM LPC2148

CELLULAR MOBILE COMMUNICATIONS

(ELECTIVE IV) Course Outcomes: After completion of the course students able to learn :

- Understand the concepts of cellular systems.
- Understand the frequency management, channel assignment strategies and antennas in cellular systems.
- Evaluation of cell coverage of signal & traffic
- Analysis the concepts of handoff and architectures of various cellular systems.

HUMAN COMPUTER INTERACTION (ELECTIVE IV)

Course Outcomes:

After completion of the course students able to learn :

1. Explain the capabilities of both humans and computers from the viewpoint of human information processing.
2. Describe typical human–computer interaction (HCI) models, styles, and various historic HCI paradigms.
3. Apply an interactive design process and universal design principles to designing HCI systems.
4. Describe and use HCI design principles, standards and guidelines.

5. Analyze and identify user models, user support, socio-organizational issues, and stakeholder requirements of HCI systems.

NETWORK SECURITY AND CRYPTOGRAPHY

(ELECTIVE IV)Course Outcomes: After completion of the course students able to learn :

- ? To be familiarity with information security awareness and a clear understanding of its importance.
- ? To master fundamentals of secret and public cryptography
- ? To master protocols for security services
- ? To be familiar with network security threats and countermeasures
- ? To be familiar with network security designs using available secure solutions (such as PGP, SSL, IPSec, etc

WIRELESS SENSOR NETWORKS

(ELECTIVE-IV)Course Outcomes: After completion of the course students able to learn :

- To understand the overview of wireless sensor networks and architecture
- To understand networking technology
- 3.To analysis MAC protocols for wireless sensor network
- 4.Evaluation of the issues in designing transport layer