Semester-I

6EC301CC24 Semiconductor Physics [3 1 0 4]

Course Outcomes (COs):

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

1. Analyse the limitation of traditional technology and its possible solution with the help of Semiconductor Physics
2. Apply the concepts of Semiconductor Physics to comprehend the governing mechanism of the electronic devices
3. Develop the ideas for novel Semiconductor devices
4. Optimize the performance of the existing devices.

6EC302CC24 Semiconductor Device & modelling [3 0 2 4]

Course Outcomes (COs):

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

1. Comprehend the semiconductor physics and Quantum fundamentals
2. Evaluate the modeling of single and two junction semiconductor devices
3. Analyse the different Models of MOS structures
4. Implement the different MOSFETs for VLSI circuit.

6EC101CC22 Digital VLSI Design [3 0 2 4]

Course Outcomes (COs):

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

1. Evaluate characteristics of CMOS inverter
2. Analyse and design digital circuits using CMOS constrained by the design metrics
3. Optimize the layout of CMOS based digital circuits
4. Use commercial CAD tools for design and optimization.

6EC303CC24 Semiconductor Process Technology [3 0 2 4]

Course Outcomes (COs):

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

1. Use of fundamental principles of semiconductor device fabrication
2. Distinguish the various processes involved in semiconductor manufacturing
3. Perceive about the latest advancements and trends in the semiconductor Industry
4. Develop skills in analysing and optimizing semiconductor process technologies

6EC304CC24 Physical Design of CMOS Technology [3 0 2 4]

Course Outcomes (COs):

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

1. Study various phases of physical design for semiconductor technology
2. Use of algorithms to perform portioning, floorplanning, placement and routing
3. Apply the data structure and graph theory to physical design
4. Optimise the design by applying physical design algorithms through CAD tools.

Supplementary Course

6EC181VA22 Critical Thinking [1 0 0 0]

Course Outcomes (COs):

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

1. Take better decisions
2. Evaluate facts in an argument
3. Apply Art of Questioning
4. Derive truth, ambiguity, vagueness and fallacy in arguments

Semester-II

6EC351CC24 Semiconductor Assembly, Packaging and Testing [3 0 2 4]

Course Outcomes (COs):

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

1. Acquire fundamental knowledge of semiconductor packaging styles and materials
2. Apply test methods on semiconductor packaging.
3. Carry out failure mode analysis and assure the quality checks
4. Operate instruments and EDA tools required for semiconductor technology assembly, packaging and test.

6EC352CC24 Semiconductor Characterization [2 0 2 3]

Course Outcomes (COs):

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

1. Analyse the testing of electrical and optical properties of semiconductors
2. Compare and verify the structural and mechanical properties of semiconductors with existing materials
3. Interpret and analyse data obtained from characterization experiments
4. Gain hands on experience on characterization tool and methodologies.

6EC361CC24 Analog CMOS Design and Circuits [3 0 0 3]

Course Outcomes (COs):

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

1. Analyse the given analog circuit using a large signal, small signal and high-frequency models
2. Develop an analog signal conditioning circuit using the operational amplifier for the given specific application
3. Evaluate input signal noise and output signal noise for analog circuit
4. Design an amplifier using switching capacitors circuits for the given specifications.

6EC362CC24 MEMS Design & Technology [3 0 0 3]

Course Outcomes (COs):

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

1. Comprehend the concepts of advanced Micro/Nano fabrication technologies
2. Analyse different techniques and process for microsensor
3. Apply MEMS in area of optical, modulators, switches, displays
4. Design RF MEMS switches, relays, Varactors, phase shifter, antennas

6EC363CC24 Integrated Circuit Verification and Validation [3 0 0 3]

Course Outcomes (COs):

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

1. Comprehend to Integrated Circuit validation process.
2. Perform the functional and timing verification on Integrated circuits.
3. Carry out the code coverage analysis.
4. Generation of test set to detect the faults in Integrated Circuits.

6EC167CC22 Memory Technology [3 0 0 3]

Course Outcomes (COs):

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

1. Comprehend the architecture of RAM and non-volatile memory

2. Apply reliability modelling and failure modes to memory design
3. Develop the memory cell using advanced technology
4. Design memory array.

6EC371CC24 Photonics: Materials and Devices [3 0 0 3]

Course Outcomes (COs):

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

1. Comprehend the basic concepts of optoelectronics and optoelectronic devices
2. Analyse of photodetectors such as light emitting diodes, display devices and avalanche photodiodes
3. Apply the concepts of quantum mechanical view to study the properties of semiconductor lasers
4. Evaluate the existing electronic devices and their comparison with proposed nanodevices.

6EC372CC24 Material Physics [3 0 0 3]

Course Outcomes (COs):

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

1. Comprehend the fundamental concepts of materials science
2. Apply the properties of material for different applications
3. Explore the experimental techniques used in materials science
4. Analyse the applications of materials Physics in modern technology.

6EC152CC22 Research Methodology and IPR [2 0 0 2]

1. Formulate a research problem for a given engineering domain.
2. Analyse the available literature for given research problem.
3. Develop technical writing and presentation skills.
4. Comprehend concepts related to patents, trademark and copyright.

6EC191CC22 Minor Project [0 0 10 5]

Course Outcomes (COs):

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

1. Identify the issues related to the recent trends in the field of embedded systems.
2. Formulate the problem definition, analyse and do functional simulation of the same.
3. Design, implement, test and verify the engineering solution related to the problem definition.
4. Compile, comprehend and present the work carried out.

Semester-III

7EC191CC22 Major Project Part –I (Full time) [0 0 0 20]

Course Outcomes (COs):

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

1. Understand the issues related to the recent trends in the field of engineering and its applications
2. Formulate the problem definition, analyse and do a functional simulation of the same.
3. Design, Implement, test and verify the engineering solution related to problem definition
4. Compile, Comprehend and Present the work carried out
5. Manage Project

7EC181VA22 Practical Training [0 0 0 0]

Course Outcomes (COs):

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

1. Explore the preferred field of specialization and develop analytical / hardware / software / experimental skills
2. Manage the technical content and work
3. Prepare and present technical report

Semester-IV

7EC192CC22 Major Project Part –II (Full time) [0 0 0 20]

Course Outcomes (COs):

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

1. Understand the issues related to the recent trends in the field of engineering and its applications
2. Formulate the problem definition, analyse and do a functional simulation of the same.
3. Design, Implement, test and verify the engineering solution related to problem definition
4. Compile, Comprehend and Present the work carried out
5. Manage Project