

M.Tech in Electronics and Communication Engineering [Duration: 2 years/4 semesters]

The Department of Electronics Engineering offers a Master of Technology (M.Tech) Program in Electronics and Communication Engineering with four specializations:

1. Signal Processing & AI (SP&AI)
2. Radar & Communication (R&C)
3. Defence & Space Electronics (DSE)
4. VLSI & Embedded Systems (VLSI & ES)
5. Semiconductor Chip Design (SCD)

The Program has a sanctioned strength of 75 students each year comprising of GATE qualified candidates and Self sponsored/ Industry Sponsored/MoD sponsored candidates in the in the above areas of specializations.

Eligibility Criteria for Admission

The Department of Electronics Engineering offers a Master of Technology (M.Tech) Program in Electronics and Communication Engineering with four specializations:

| Sl. No. | M.Tech specialization and specialization Code | GATE Paper Codes | Eligibility Criteria |
|----------------|--|-------------------------|---|
| 1 | Signal Processing & AI (SP&AI) | CS / EC / EE / IN | Master's/Integrated degree or equivalent in Physics, Applied Physics, Electronic Science, or related areas. (OR) B.E. / B.Tech / B.Sc. (Eng.) or equivalent in Electronics & Communication/ Electronics / Electrical / Communication / Telecommunication / Electronics & Instrumentation / E & TC Engineering / Computer Science & Engineering / Information Technology / Instrumentation Engineering or related areas. |
| 2 | Radar & Communication (R&C) | EC / EE / IN | |
| 3 | Defence & Space Electronics (DSE) | EC / EE / IN | |
| 4 | VLSI & Embedded Systems (VLSI & ES) | CS / EC / EE / IN | |
| 5 | Semiconductor Chip Design (SCD) | CS / EC / EE / IN | |

Industry-sponsored short-term courses/ training courses/ certificate program/ M.Tech Program

The EE Dept. also conducts customized short-term courses/ training/ certificate courses to cater to the needs of the private industry and govt. R&D organisations like BEL, DRDO, Bharat Dynamics, etc. These are the demands made by the organisations from time to time.

Curriculum Structure

M. Tech. in Electronics and Communication Engineering
(Signal Processing and AI)

Semester I

| Sl. No | Course Type | Course Code | Course Title | Contact Hours/Week | | Credits |
|--------|-------------|-------------|--|--------------------|----------|-----------|
| | | | | L | P | |
| 1. | PSC-1 | EE602 | Advanced Digital Signal Processing | 3 | 0 | 3 |
| 2. | PSC-2 | EE620 | SOC and Embedded Systems | 3 | 0 | 3 |
| 3. | PSC-3 | EE667 | Mobile and Satellite Communication | 3 | 0 | 3 |
| 4. | PSC-4 | EE668 | Machine Learning for Signal Processing | 3 | 0 | 3 |
| 5. | PE-I | E1/EE671 | Elective 1/Convex Optimization for Signal Processing | 3 | 0 | 3 |
| 6. | PSL/PSC/PE | EESL02 | Signal Processing Laboratory I | 0 | 6 | 3 |
| 7 | PGC | PGC-601 | Research Methodology and IPR | 2 | 0 | 2 |
| | | | Total | 17 | 6 | 20 |

PSC: Program Specific Core; PSL: Program Specific Lab; PE: Professional Elective

Semester II

| Sl. No | Course Type | Course Code | Course Title | Contact Hours/Week | | Credits |
|--------|-------------|-------------|---------------------------------|--------------------|----------|-----------|
| | | | | L | P | |
| 1 | PSC-5 | EE607 | Detection and Estimation Theory | 3 | 0 | 3 |
| 2 | PSC-6 | EE669 | Deep Learning & Applications | 3 | 0 | 3 |
| 3 | PE-II | E2 | Elective 2 | 3 | 0 | 3 |
| 4 | PE-III | E3 | Elective 3 | 3 | 0 | 3 |
| 5 | PE-IV | E4 | Elective 4 | 3 | 0 | 3 |
| 6 | PSL/PSC/PE | EESL02 | Signal Processing Laboratory II | 3 | 6 | 3 |
| 7 | PGC | PGC-602 | | 2 | 0 | 2 |
| | | | Total | 17 | 6 | 20 |

* Four-week industrial practice school during summer vacation for scholarship students (optional)

Semester III

| Sl. No | Course Type | Course Code | Course Title | Contact Hours /week | Credits |
|--------|--------------------------------|-------------|-------------------------------|---------------------|-----------|
| | | | | P | |
| 1 | Dissertation & Seminar-Phase I | EE651 | M. Tech. Dissertation Phase I | 40 | 20 |
| | | | Total | 40 | 20 |

Semester IV

| Sl. No | Course Type | Course Code | Course Title | Contact Hours /week | Credits |
|--------|---------------------------------|-------------|--------------------------------|---------------------|-----------|
| | | | | P | |
| 1 | Dissertation & Seminar-Phase II | EE651 | M. Tech. Dissertation Phase II | 40 | 20 |
| | | | Total | 40 | 20 |

*1 Credit for Lecture/Tutorial means 1 contact hour in a week, and 1 credit for Practice/Dissertation means 2 contact hours in a week.

M. Tech. in Electronics and Communication Engineering
(Radar and Communication)

Semester I

| Sl. No | Course Type | Course Code | Course Title | Contact Hours/Week | | Credits |
|--------|-------------|-------------|---|--------------------|----------|-----------|
| | | | | L | P | |
| 1. | PSC-1 | EE601 | RF and Microwave Circuits | 3 | 0 | 3 |
| 2. | PSC-2 | EE602 | Advanced Digital Signal Processing | 3 | 0 | 3 |
| 3. | PSC-3 | EE604 | Radar System Design | 3 | 0 | 3 |
| 4. | PSC-4 | EE620 | SoC and Embedded Systems | 3 | 0 | 3 |
| 5. | PE-I | E1/EE667 | Elective 1/Mobile and Satellite Communication | 3 | 0 | 3 |
| 6. | PSL/PSC/PE | EERL01 | R&C Laboratory I | 0 | 6 | 3 |
| 7 | PGC | PGC-601 | Research Methodology and IPR | 2 | 0 | 2 |
| | | | Total | 17 | 6 | 20 |

PSC: Program Specific Core; PSL: Program Specific Lab; PE: Professional Elective

Semester II

| Sl. No | Course Type | Course Code | Course Title | Contact Hours/Week | | Credits |
|--------|-------------|-------------|-------------------------|--------------------|----------|-----------|
| | | | | L | P | |
| 1 | PSC-5 | EE609 | Antenna Systems | 3 | 0 | 3 |
| 2 | PSC-6 | EE610 | Radar Signal Processing | 3 | 0 | 3 |
| 3 | PE-II | E2 | Elective 2 | 3 | 0 | 3 |
| 4 | PE-III | E3 | Elective 3 | 3 | 0 | 3 |
| 5 | PE-IV | E4 | Elective 4 | 3 | 0 | 3 |
| 6 | PSL/PSC/PE | EERL02 | R&C Laboratory II | 3 | 6 | 3 |
| 7 | PGC | PGC-602 | | 2 | 0 | 2 |
| | | | Total | 17 | 6 | 20 |

* Four-week industrial practice school during summer vacation for scholarship students (optional)

Semester III

| Sl. No | Course Type | Course Code | Course Title | Contact Hours /week | Credits |
|--------|--------------------------------|-------------|-------------------------------|---------------------|-----------|
| | | | | P | |
| 1 | Dissertation & Seminar-Phase I | EE651 | M. Tech. Dissertation Phase I | 40 | 20 |
| | | | Total | 40 | 20 |

Semester IV

| Sl. No | Course Type | Course Code | Course Title | Contact Hours /week | Credits |
|--------|---------------------------------|-------------|--------------------------------|---------------------|-----------|
| | | | | P | |
| 1 | Dissertation & Seminar-Phase II | EE651 | M. Tech. Dissertation Phase II | 40 | 20 |
| | | | Total | 40 | 20 |

*1 Credit for Lecture/Tutorial means 1 contact hour in a week, and 1 credit for Practice/Dissertation means 2 contact hours in a week.

M. Tech. in Electronics and Communication Engineering
(Defence and Space Electronics)

Semester I

| Sl. No | Course Type | Course Code | Course Title | Contact Hours/Week | | Credits |
|--------|-------------|-------------|---|--------------------|----------|-----------|
| | | | | L | P | |
| 1. | PSC-1 | EE601 | RF and Microwave Circuits | 3 | 0 | 3 |
| 2. | PSC-2 | EE602 | Advanced Digital Signal Processing | 3 | 0 | 3 |
| 3. | PSC-3 | EE604 | Radar System Design | 3 | 0 | 3 |
| 4. | PSC-4 | EE654 | Introduction to Space Technology | 3 | 0 | 3 |
| 5. | PE-I | E1/EE667 | Elective 1/Mobile and Satellite Communication | 3 | 0 | 3 |
| 6. | PSL/PSC/PE | EEDL01 | D&S Laboratory I | 0 | 6 | 3 |
| 7 | PGC | PGC-601 | Research Methodology and IPR | 2 | 0 | 2 |
| | | | Total | 17 | 6 | 20 |

PSC: Program Specific Core; PSL: Program Specific Lab; PE: Professional Elective

Semester II

| Sl. No | Course Type | Course Code | Course Title | Contact Hours/Week | | Credits |
|--------|-------------|-------------|-------------------|--------------------|----------|-----------|
| | | | | L | P | |
| 1 | PSC-5 | EE609 | Antenna Systems | 3 | 0 | 3 |
| 2 | PSC-6 | EE614 | EMI/EMC Design | 3 | 0 | 3 |
| 3 | PE-II | E2 | Elective 2 | 3 | 0 | 3 |
| 4 | PE-III | E3 | Elective 3 | 3 | 0 | 3 |
| 5 | PE-IV | E4 | Elective 4 | 3 | 0 | 3 |
| 6 | PSL/PSC/PE | EEDL02 | D&S Laboratory II | 3 | 6 | 3 |
| 7 | PGC | PGC-602 | | 2 | 0 | 2 |
| | | | Total | 17 | 6 | 20 |

* Four-week industrial practice school during summer vacation for scholarship students (optional)

Semester III

| Sl. No | Course Type | Course Code | Course Title | Contact Hours /week | Credits |
|--------|--------------------------------|-------------|-------------------------------|---------------------|-----------|
| | | | | P | |
| 1 | Dissertation & Seminar-Phase I | EE651 | M. Tech. Dissertation Phase I | 40 | 20 |
| | | | Total | 40 | 20 |

Semester IV

| Sl. No | Course Type | Course Code | Course Title | Contact Hours /week | Credits |
|--------|---------------------------------|-------------|--------------------------------|---------------------|-----------|
| | | | | P | |
| 1 | Dissertation & Seminar-Phase II | EE651 | M. Tech. Dissertation Phase II | 40 | 20 |
| | | | Total | 40 | 20 |

*1 Credit for Lecture/Tutorial means 1 contact hour in a week, and 1 credit for Practice/Dissertation means 2 contact hours in a week.

M. Tech. in Electronics and Communication Engineering
(VLSI and Embedded Systems)

Semester I

| Sl. No | Course Type | Course Code | Course Title | Contact Hours/Week | | Credits |
|--------|-------------|-------------|---|--------------------|----------|-----------|
| | | | | L | P | |
| 1. | PSC-1 | EE620 | SOC & Embedded systems | 3 | 0 | 3 |
| 2. | PSC-2 | EE621 | Digital IC Design | 3 | 0 | 3 |
| 3. | PSC-3 | EE638 | Mixed Signal IC Design | 3 | 0 | 3 |
| 4. | PSC-4 | EE673 | Real Time Operating Systems | 3 | 0 | 3 |
| 5. | PE-I | E1/EE674 | Elective 1/Artificial Intelligence for Embedded Systems | 3 | 0 | 3 |
| 6. | PSL/PSC/PE | EEVL01 | VLSI & ES Lab-01 | 0 | 6 | 3 |
| 7 | PGC | PGC-601 | Research Methodology and IPR | 2 | 0 | 2 |
| | | | Total | 17 | 6 | 20 |

PSC: Program Specific Core; PSL: Program Specific Lab; PE: Professional Elective

Semester II

| Sl. No | Course Type | Course Code | Course Title | Contact Hours/Week | | Credits |
|--------|-------------|-------------|--|--------------------|----------|-----------|
| | | | | L | P | |
| 1 | PSC-5 | EE622 | RFIC Design | 3 | 0 | 3 |
| 2 | PSC-6 | EE637 | ASIC Verification using System Verilog | 3 | 0 | 3 |
| 3 | PE-II | E2 | Elective 2 | 3 | 0 | 3 |
| 4 | PE-III | E3 | Elective 3 | 3 | 0 | 3 |
| 5 | PE-IV | E4 | Elective 4 | 3 | 0 | 3 |
| 6 | PSL/PSC/PE | EEVL02 | VLSI & ES Lab-02 | 3 | 6 | 3 |
| 7 | PGC | PGC-602 | | 2 | 0 | 2 |
| | | | Total | 17 | 6 | 20 |

* Four-week industrial practice school during summer vacation for scholarship students (optional)

Semester III

| Sl. No | Course Type | Course Code | Course Title | Contact Hours /week | Credits |
|--------|--------------------------------|-------------|-------------------------------|---------------------|-----------|
| | | | | P | |
| 1 | Dissertation & Seminar-Phase I | EE651 | M. Tech. Dissertation Phase I | 40 | 20 |
| | | | Total | 40 | 20 |

Semester IV

| Sl. No | Course Type | Course Code | Course Title | Contact Hours /week | Credits |
|--------|---------------------------------|-------------|--------------------------------|---------------------|-----------|
| | | | | P | |
| 1 | Dissertation & Seminar-Phase II | EE651 | M. Tech. Dissertation Phase II | 40 | 20 |
| | | | Total | 40 | 20 |

*1 Credit for Lecture/Tutorial means 1 contact hour in a week, and 1 credit for practice/dissertation means 2 contact hours in a week.

M. Tech. in Electronics and Communication Engineering (Semiconductor Chip Design)

Semester I

| Sl. No | Course Type | Course Code | Course Title | Contact Hours/Week | | Credits |
|--------------|-------------|-------------|--|--------------------|----------|-----------|
| | | | | L | P | |
| 1. | PSC-1 | EE621 | Digital IC Design | 3 | 0 | 3 |
| 2. | PSC-2 | EE638 | Mixed signal IC Design | 3 | 0 | 3 |
| 3. | PSC-3 | EE620 | SOC & Embedded systems | 3 | 0 | 3 |
| 4. | PSC-4 | EE650 | Semiconductor devices for high speed and high power applications | 3 | 0 | 3 |
| 5. | PE-I | E1/EE655 | Elective 1/IC Design: RTL to GDS implementation | 3 | 0 | 3 |
| 6. | PSL/PSC/PE | EECL01 | IC design Lab-I Device Design, FPGA & Front-End Design | 0 | 6 | 3 |
| 7 | PGC | PGC-601 | Research Methodology and IPR | 2 | 0 | 2 |
| Total | | | | 17 | 6 | 20 |

PSC: Program Specific Core; PSL: Program Specific Lab; PE: Professional Elective

Semester II

| Sl. No | Course Type | Course Code | Course Title | Contact Hours/Week | | Credits |
|--------------|-------------|-------------|-----------------------------|--------------------|----------|-----------|
| | | | | L | P | |
| 1 | PSC-5 | EE648 | VLSI Fabrication Technology | 3 | 0 | 3 |
| 2 | PSC-6 | EE656 | IC Testing & Verification | 3 | 0 | 3 |
| 3 | PE-II | *E2 | Elective 2 | 3 | 0 | 3 |
| 4 | PE-III | *E3 | Elective 3 | 3 | 0 | 3 |
| 5 | PE-IV | E4 | Elective 4 | 3 | 0 | 3 |
| 6 | PSL/PSC/PE | *Lab | Laboratory | 3 | 6 | 3 |
| 7 | PGC | PGC-602 | | 2 | 0 | 2 |
| Total | | | | 17 | 6 | 20 |

*Based on the elective course selection for E2, E3 & Lab from the **List of Electives-B**, the specialization stream will be from Analog & RF IC Design, Digital IC Design, and Microsystems Technologies verticals.

Semester III

| Sl. No | Course Type | Course Code | Course Title | Contact Hours /week | Credits |
|--------------|--------------------------------|-------------|-------------------------------|---------------------|-----------|
| | | | | P | |
| 1 | Dissertation & Seminar-Phase I | EE651 | M. Tech. Dissertation Phase I | 40 | 20 |
| Total | | | | 40 | 20 |

Semester IV

| Sl. No | Course Type | Course Code | Course Title | Contact Hours /week | Credits |
|--------------|---------------------------------|-------------|--------------------------------|---------------------|-----------|
| | | | | P | |
| 1 | Dissertation & Seminar-Phase II | EE651 | M. Tech. Dissertation Phase II | 40 | 20 |
| Total | | | | 40 | 20 |

*1 Credit for Lecture/Tutorial means 1 contact hour in a week, and 1 credit for practice/dissertation means 2 contact hours in a week.

List of Electives-A

| Sl. No. | Course Code | Course Title | Contact hours/week | | Credits |
|---------|-------------|--|--------------------|-----|---------|
| | | | L | T/P | |
| 1 | EE603 | Wireless and Mobile Communication | 3 | 0 | 3 |
| 2 | EE605 | Navigation System Concepts | 3 | 0 | 3 |
| 3 | EE606 | Statistical Signal Processing | 3 | 0 | 3 |
| 4 | EE608 | Modern Wireless Communications | 3 | 0 | 3 |
| 5 | EE611 | Array Signal Processing | 3 | 0 | 3 |
| 6 | EE612 | High Power Microwave Systems | 3 | 0 | 3 |
| 7 | EE613 | Electronic Warfare | 3 | 0 | 3 |
| 8 | EE615 | GNSS Receiver Design and Applications | 3 | 0 | 3 |
| 9 | EE616 | Multi Sensor Integrated Navigation | 3 | 0 | 3 |
| 10 | EE617 | Inertial Navigation Systems | 3 | 0 | 3 |
| 11 | EE618 | Indoor Navigation | 3 | 0 | 3 |
| 12 | EE619 | Software Defined Radio | 3 | 0 | 3 |
| 13 | EE623 | Semiconductor Devices | 3 | 0 | 3 |
| 14 | EE624 | Digital System Design using FPGA | 3 | 0 | 3 |
| 15 | EE625 | High-Performance DSP using FPGA | 3 | 0 | 3 |
| 16 | EE626 | Compressed Sensing & Sparse Signal Processing | 3 | 0 | 3 |
| 17 | EE627 | Signal Theory, Linear Algebra & Transform Techniques | 3 | 0 | 3 |
| 18 | EE628 | Advanced Electronics Systems | 3 | 0 | 3 |
| 19 | EE629 | Sonar Signal Processing | 3 | 0 | 3 |
| 20 | EE630 | Sonar System Engineering | 3 | 0 | 3 |
| 21 | EE631 | Satellite Communication | 3 | 0 | 3 |
| 22 | EE632 | Advanced Communication Systems | 3 | 0 | 3 |
| 23 | EE633 | Underwater Communications | 3 | 0 | 3 |
| 24 | EE634 | Monolithic Microwave Integrated Circuit | 3 | 0 | 3 |
| 25 | EE635 | Inertial Sensors and Systems | 3 | 0 | 3 |
| 26 | EE636 | Navigation & Avionic Systems | 3 | 0 | 3 |
| 27 | EE639 | Computer-Aided Design for VLSI Circuits | 3 | 0 | 3 |
| 28 | EE640 | FPGA Architecture and Applications | 3 | 0 | 3 |
| 29 | EE641 | VLSI Signal Processing | 3 | 0 | 3 |
| 30 | EE642 | SoC Design and Verification | 3 | 0 | 3 |
| 31 | EE643 | Digital Interface Design | 3 | 0 | 3 |
| 32 | EE644 | MIMO Communications | 3 | 0 | 3 |
| 33 | EE645 | Adaptive Signal Processing | 3 | 0 | 3 |
| 34 | EE646 | Advanced Simulation Techniques | 3 | 0 | 3 |
| 36 | EE647 | RF Photonics | 3 | 0 | 3 |
| 37 | EE648 | VLSI Fabrication Technology | 3 | 0 | 3 |
| 38 | EE649 | Introduction to Electronics Systems | 3 | 0 | 3 |
| 39 | EE653 | Quantum Transport in Nanoscale FETs | 3 | 0 | 3 |
| 40 | EE660 | MEMS Sensors and Actuators | 3 | 0 | 3 |
| 41 | EE661 | Microfabrication Techniques and Processes | 3 | 0 | 3 |
| 42 | EE666 | Optical Space Communication | 3 | 0 | 3 |
| 43 | EE670 | Time Frequency Analysis | 3 | 0 | 3 |
| 44 | EE672 | Time Series Analysis and Forecasting | 3 | 0 | 3 |

List of Electives-B

| Course | Analog & RF IC Design Vertical | Digital IC Design Vertical | Microsystems Technologies Vertical |
|--------|--|---|---|
| *E2 | EE653: Quantum Transport in nanoscale FETs | EE637: ASIC Verification using System Verilog | EE659: MEMS and Microsystems Design |
| *E3 | EE657: Low Power & High-Speed Analog Design, | EE665: Low power digital IC design | EE662: RF MEMS |
| E4 | EE622: RFIC Design | EE658: Hardware Accelerators | EE663: MEMS Packaging/ EE664: MEMS Packaging and Reliability |
| *Lab | EECL02: IC design Lab-II: Mixed signal-RF IC & Back-End Design Lab | EECL03: IC design Lab-III: Advanced SoC-CAO & Back-End Design Lab | EECL04: MEMS Design Lab |

A. Program Outcomes (POs)

PO1: An ability to independently carry out research /investigation, and development work to solve practical problems.

PO2: An ability to write and present a substantial technical report/document.

PO3: Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate post-graduate program.

B. Program Specific Outcomes (PSOs)

(a) M. Tech. in ECE with Signal Processing and Artificial Intelligence

PSO-1: Advanced Signal Processing Expertise

Apply advanced mathematical and algorithmic techniques to analyze, model, and process signals (audio, speech, image, video, biomedical, etc.) for solving real-world engineering problems.

PSO-2: Integration of AI in ECE Systems

Design and implement intelligent electronic and communication systems by integrating machine learning, deep learning, and data-driven techniques with classical signal processing frameworks.

PSO-3: Research and Innovation in SP & AI Applications

Demonstrate the ability to conduct independent research, develop innovative solutions, and apply modern tools for emerging applications in areas such as communication systems, IoT, robotics, healthcare, and multimedia.

(b) M. Tech. in ECE with Radar and Communication

PSO-1: Proficiency in Radar and Communication Systems

Demonstrate in-depth knowledge and technical expertise in the design, analysis, and implementation of advanced radar and communication systems for defense, aerospace, and civilian applications.

PSO-2: Radar Signal Processing and System Integration Skills

Apply advanced signal processing techniques and system integration skills for the development, testing, and optimization of radar signal processing, detection, estimation, and wireless communication systems.

PSO-3: Innovation and Research in Electromagnetics and RF Systems

Conduct research and develop innovative solutions in the fields of RF/microwave/Millimeter wave engineering, antenna design, propagation, and embedded systems for modern radar and high-speed communication technologies.

(c) M. Tech. in ECE with Defence and Space Electronics

PSO-1: Specialized Knowledge in Defence and Space Systems

Apply advanced principles of electronics and communication engineering to design, develop, and analyze systems used in defence and space applications, including Antenna systems, electronic warfare, satellite communication, navigation systems, and EMI/EMC.

PSO-2: Proficiency in Embedded, RF, and Secure Communication Technologies

Demonstrate the ability to develop embedded systems, RF/microwave circuits, and secure communication protocols for mission-critical defence and aerospace environments.

PSO-3: Innovation, Research, and System Integration for Strategic Applications

Undertake research and system-level integration to develop reliable, rugged, and high-performance electronic systems meeting the stringent requirements of defence and space sectors, in line with national strategic priorities.

(d) M. Tech. in ECE with VLSI and Embedded Systems

PSO-1: Expertise in VLSI Design and Verification

Apply advanced concepts of digital and analog VLSI design, CMOS technology, and hardware description languages (HDLs) to design, simulate, and verify complex integrated circuits for real-world applications.

PSO-2: Embedded System Design and Development

Design, program, and integrate embedded systems using microcontrollers, FPGAs, real-time operating systems (RTOS), and IoT platforms for industrial, consumer, and automotive solutions.

PSO-3: Research and Innovation in System-on-Chip (SoC) and Low-Power Design

Conduct research and develop innovative, high-performance, and energy-efficient SoC architectures and embedded solutions for emerging technologies in AI, communication, and automation.

(e) M. Tech. in ECE with Semiconductor Chip Design

PSO-1: Proficiency in Semiconductor Device and Chip Design

Apply advanced knowledge of semiconductor physics, device modeling, and fabrication processes to design and develop integrated circuits (ICs) and system-on-chip (SoC) solutions using industry-standard tools.

PSO-2: Expertise in Design, Verification, and EDA Tools

Demonstrate competence in front-end and back-end chip design, including RTL coding, synthesis, timing analysis, place-and-route, and verification using Electronic Design Automation (EDA) tools like Cadence, Synopsys, and Mentor Graphics.

PSO-3: Innovation and Research in Advanced Chip Technologies

Engage in research and development of high-performance, low-power, and scalable semiconductor solutions for applications in AI accelerators, high-speed communication, automotive electronics, and edge computing.

Laboratory at EE:

1. Advanced Atomistic to Chip Computation Lab (a2c2) with High Performance Computing (HPC)
2. Radio Frequency Identification Lab
3. Antenna Systems and Simulation Lab
4. RF & Microwave Lab
5. Fabrication Lab
6. SoC and Embedded Systems Lab
7. Radar Systems Lab
8. RF Photonics Lab
9. Signal Processing Lab
10. EMI/EMC Lab
11. NEMP Lab