

M.Sc. Electronics

Co, Po, Mapping

Program Outcomes (POs)

After successful completion of the M.Sc. Electronics programme, students will be able to:

PO No.	Program Outcomes (POs)
PO1	Apply fundamental and advanced knowledge of electronics, semiconductor devices, communication systems, embedded systems, instrumentation, and allied technologies for solving scientific and engineering problems.
PO2	Analyze electronic circuits, systems, and processes using mathematical, computational, and analytical techniques.
PO3	Design and develop electronic systems, embedded applications, control systems, and communication models to meet industrial and societal needs.
PO4	Use modern hardware, software tools, programming platforms, simulation techniques, and laboratory instruments effectively.
PO5	Conduct experiments, interpret data, and perform research-oriented investigations in electronics and interdisciplinary domains.
PO6	Demonstrate professional ethics, teamwork, communication skills, and technical documentation abilities in academic and industrial environments.
PO7	Engage in lifelong learning, innovation, entrepreneurship, and adaptation to emerging technologies in electronics and allied fields.
PO8	Apply electronics knowledge for societal development, sustainability, industrial automation, and technological advancement.

SEMESTER – I

SELEC401: Semiconductor Devices and Technology

Course Outcome – Program Outcome Mapping

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Explore the structure of solids, charge carriers and energy levels	3	2	-	-	1	-	2	-
CO2: Understand carrier transport, generation and recombination processes	3	3	-	1	2	-	1	-
CO3: Discover semiconductor junctions in BJT, FET, MOSFET and optical devices	3	3	2	1	1	-	2	1
CO4: Know the basic steps in making integrated circuits	2	2	3	2	2	-	2	2

SELEC402: Embedded System Design

Course Outcome – Program Outcome Mapping

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Explore different components and software tools in embedded systems	3	2	2	3	1	-	2	1
CO2: Distinguish between microprocessor and microcontroller architectures	3	3	1	2	-	-	1	-
CO3: Understand different microcontroller architectures and instruction set	3	2	2	2	-	-	2	-
CO4: Design and interface different devices with microcontroller	2	2	3	3	2	1	2	2
CO5: Explore communication protocols for embedded systems	2	2	2	3	1	-	2	2

SELEC403: Measurement and Instrumentation**Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Know working principles of sensors/transducers and applications	3	2	1	2	1	-	1	2
CO2: Understand measurement principles of physical parameters	3	3	1	2	2	-	1	2
CO3: Explore electrical measurement systems	2	3	2	3	2	-	1	1
CO4: Use transducers in biomedical and industrial applications	2	2	3	2	2	1	2	3
CO5: Read datasheets and select transducers for applications	2	2	2	3	1	1	2	2

SELEE401(A): Programming in C/C++**Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Understand syntax, data types and control structures	2	2	1	3	-	-	2	-
CO2: Write C/C++ programs to solve computational problems	2	3	3	3	1	-	2	1
CO3: Apply modular programming concepts using functions and libraries	2	2	3	3	1	-	2	-
CO4: Utilize arrays, strings and structures for data manipulation	2	3	2	3	1	-	1	-
CO5: Apply object-oriented programming concepts in C++	2	2	3	3	1	1	2	-

SELEE401(B): Internet of Things**Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Understand concepts and applications of IoT	3	2	2	2	1	-	2	3
CO2: Gain knowledge of IoT technologies and communication systems	3	2	2	3	1	-	2	2
CO3: Design and implement IoT solutions using hardware platforms	2	2	3	3	2	1	3	3
CO4: Understand data acquisition and analytics in IoT systems	2							

SEMESTER – II**SELEC451: Digital System Design****Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Understand concepts of digital systems and logic circuits	3	2	1	2	-	-	1	-
CO2: Gain knowledge of number systems and applications	3	2	1	2	-	-	1	-
CO3: Design combinational logic circuits	2	3	3	3	1	-	2	1
CO4: Design sequential logic circuits and use HDL tools	2	3	3	3	2	1	2	1

SELEC452: Fiber Optics Communication**Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Understand optical fiber communication systems and parameters	3	2	1	2	1	-	1	1
CO2: Demonstrate fiber handling skills including splicing	2	1	2	3	3	1	1	1
CO3: Measure properties of optical sources and detectors	2	3	2	3	3	-	1	1
CO4: Design and test optical communication links	2	3	3	3	2	1	2	2
CO5: Write technical reports and presentations	-	-	-	1	1	3	2	1

SELEC453: Network Analysis**Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Analyse networks using laws and theorems	3	3	1	1	1	-	1	-
CO2: Identify continuous and discrete-time systems	3	3	1	1	-	-	1	-
CO3: Apply Laplace, Fourier and Z-transform techniques	3	3	2	2	1	-	2	-
CO4: Distinguish and use CT and DT filters	2	3	2	2	1	-	1	1
CO5: Perform Fourier analysis of signals and systems	3	3	2	2	2	-	2	-

SELEE451(A): Introduction to JAVA**Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Understand JAVA programming fundamentals	2	2	1	3	-	-	2	-
CO2: Develop JAVA applications using OOP concepts	2	3	3	3	1	-	2	-
CO3: Implement exception handling and GUI concepts	2	2	3	3	1	-	2	1
CO4: Design application-oriented JAVA programs	2	3	3	3	2	1	2	1

SELEE451(B): Digital Image Processing**Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Understand image processing fundamentals	3	2	1	2	1	-	1	-
CO2: Apply image enhancement and restoration techniques	2	3	2	3	2	-	2	1
CO3: Analyze image transforms and filtering methods	3	3	2	2	2	-	2	-
CO4: Design image processing applications	2	3	3	3	2	1	2	2

SEMESTER – III

SELEC501: Electrodynamics

Course Outcome – Program Outcome Mapping

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Understand concepts of electrostatics and magnetostatics	3	3	1	1	-	-	1	-
CO2: Analyse Maxwell's equations in different forms	3	3	2	2	1	-	2	-
CO3: Examine wave propagation and microwave applications	3	3	2	2	1	-	2	1
CO4: Analyse electromagnetic wave propagation in guided media	3	3	2	2	2	-	2	1

SELEC502: Communication Electronics

Course Outcome – Program Outcome Mapping

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Understand communication systems and wave propagation	3	2	1	1	-	-	1	1
CO2: Illustrate digital transmission techniques	3	3	2	2	1	-	2	1
CO3: Evaluate modulation and demodulation circuits	2	3	3	3	2	-	2	2

SELEC503: Industrial Process Control

Course Outcome – Program Outcome Mapping

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Identify elements of process control systems	3	2	1	2	-	-	1	1
CO2: Explore operational modes of process controllers	3	3	2	2	1	-	2	1
CO3: Select control parameters for optimal performance	2	3	3	2	2	-	2	2
CO4: Develop PLC programs for process control	2	2	3	3	2	1	2	3

SELEE501(A): Analog Circuit Design

Course Outcome – Program Outcome Mapping

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Design and analyze analog electronic systems	3	3	3	2	1	-	2	1
CO2: Understand power supply design	2	2	3	2	1	-	1	1
CO3: Learn different filters	3	3	2	2	1	-	2	-
CO4: Design and understand amplifiers	3	3	3	2	2	-	2	1

SELEE501(B): Introduction to Web Technologies**Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Design static web pages using HTML	1	1	3	3	-	-	2	1
CO2: Understand concepts behind web designing	1	2	2	3	-	-	2	1
CO3: Learn static and dynamic websites	1	2	3	3	1	1	2	2

SEMESTER – IV**SELEC551: Power Electronics****Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Design and analyze power converter circuits	3	3	3	2	2	-	2	2
CO2: Compare semiconductor devices and switching circuits	3	3	2	2	1	-	2	1
CO3: Select suitable power converters for industrial applications	2	3	3	2	1	1	2	3

SELEC552: Mechatronics and Robotics**Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Design and optimize mechatronic products	2	3	3	3	2	1	2	2
CO2: Select and integrate mechatronic components	2	2	3	3	2	1	2	2
CO3: Understand translational motions in robotics	2	3	2	2	1	-	1	1

SELEE551(A): Programming in Python**Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Create applications with graphics in Python	2	2	3	3	1	-	2	1
CO2: Write programs using Python IDLE	2	2	2	3	1	-	2	-
CO3: Design and program Python GUI	2	2	3	3	1	1	2	1
CO4: Develop 2D and 3D graphics applications	2	3	3	3	2	-	2	1

SELEE551(B): Signal and System**Course Outcome – Program Outcome Mapping**

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Understand signal and system fundamentals	3	3	1	1	-	-	1	-
CO2: Analyze continuous and discrete systems	3	3	2	2	1	-	2	-
CO3: Apply transform techniques for signal analysis	3	3	2	2	1	-	2	-
CO4: Design and analyze systems using signal processing concepts	2	3	3	2	2	-		