

DEPARTMENT OF ELECTRONICS, MES COLLEGE MARAMPALLY

Program outcomes, Program specific outcomes and Course outcomes

PROGRAM: BSc. ELECTRONICS

Program Outcome (PO)

- PO1: To read, understand and interpret physical information – verbal, mathematical and graphical and to impart skills required to gather information from resources and use them.☐
- PO2: To give need based education in physics of the highest quality at the undergraduate level and to offer courses to the choice of the students.☐
- PO3: To perform experiments and interpret the results of observation, including making an assessment of experimental uncertainties.☐
- PO4: To provide an intellectually stimulating environment to develop skills and enthusiasms of students to the best of their potential.☐
- PO5: To use Information Communication Technology to gather knowledge at will and to attract outstanding students from all backgrounds.☐

Program Specific Outcome (PSO)

- PS1: To provide in depth knowledge of scientific and technological aspects of Electronics☐
- PS2: To familiarize with current and recent technological developments☐
- PS3: To enrich knowledge through programmes such as project lab and seminars☐
- PS4: To train students in skills related to electronics industry and market.☐
- PS5: To create foundation for research and development in Electronics☐
- PS6: To develop analytical abilities towards real world problems.☐
- PS7: To help students build-up a progressive and successful career in Electronics☐
- PS8: To produce electronic professionals who can be directly employed or start his/her own work as Electronic circuit Designer, Electronics consultant, testing professional, Service engineer and even an entrepreneur in electronic industry.☐
- PS9: To train students to a level where they can readily compete for seats for advanced degree courses like MSc (Electronics) and other related disciplines.☐

Course: Course Outcome (CO)

SEMESTER I

Course: EN1CCT01 *English I (Common Course)*

C01: The course is intended to introduce the students to the basics of grammar, usage and effective communication.

C02: To confidently use English in both written and spoken forms.

C03: Use English for formal communication effectively.

Course: EL1CRT01 Basic Electronics

C01: This course aims to get a pre-requisite knowledge on basic electrical technology

C02: To familiarise with basic electronic devices.

Course: EL1CRT02 Methodology of Science

C01: To introduce the methodology and perspective of science in general.

C02: To get an awareness on the history and development of science.

C03: To enable the students to systematically pursue their particular discipline in science in relation to other discipline that come under the sciences.

Course: EL1CRP01 Basic Electronics Laboratory

C01: To get a basic knowledge on Electronic components and their characteristics

C02: To get a basic knowledge on Logic gates and truth tables.

Course: Solid State Physics (Complementary Course)

C01: To get the knowledge in Solid State Physics and components which are the basis of Electronic Devices.

C02: To enable the students to apply the knowledge of Solid State Physics in Electronic Devices.

Course: Mathematics I (Complimentary Course)-Calculus and Trigonometry

C01: To achieve thorough knowledge of Differential calculus and trigonometry.

C02: To get knowledge in Matrices which complements the core subject Electronics in subsequent semesters.

C03: To get the knowledge how to apply the mathematical equations in Electronic Circuits.

SEMESTER II

Course: EN2CCT03 English II (Common Course)

C01: To sensitize the learners about contemporary issues of concern; to enhance their linguistic skills in English language.

C02: To Identify major issues of contemporary significance

- CO3: To respond rationally and positively to the issues raised
- CO4: To internalise the values imparted through the excerpts
- CO5: To re-orient himself/ herself as conscious, cautious, concerned, conscientious and concerned human being and articulate these values in error free English.

Course: EL2CRT03 - Electronic Circuits

- CO1: To equip the students with circuit level application concepts of electronic devices and circuits.
- CO2: To get basic knowledge about the design concept of basic electronic circuits.

Course: EL2CRT04 Network Theory

- CO1: To equip the students to excel in the field of circuit theory and network theorems.
- CO2: To enable the students to analyze the electronic circuits.
- CO3: To enable the students to design the Electronic Circuits and filters.

Course: EL2CRT05 Digital Electronics

- CO1: To get a basic knowledge about logic gates and truth table.
- CO2: To equip the students with the concept of Boolean algebra, sequential and combinational digital circuits.
- CO3: To get basic idea about the Digital Integrated Circuits.

Course: Mathematics II (Complimentary Course)– Linear Algebra and Differential Equations

- CO1: To equip the students with thorough knowledge on Vector Spaces and Linear Algebra.
- CO2: To get thorough knowledge about the concepts of Differential Equations
- CO3: To enable the students to apply the Differential Equations to the Electronic Circuits.

Course: EL2CRP02 Digital Electronics lab

- CO1: To equip the student with expert in handling digital ICs, logic gates, and digital circuit designing
- CO2: To get basic knowledge in designing the Digital Electronic Circuits such as shift registers, counters etc.

SEMESTER III

Course: EL3CRT06 Analog Communication

- CO1: To get a thorough knowledge analog communication system.

CO2: To familiarize the analog modulation techniques used for communication.

Course: EL3CRT07 Analog ICs and Applications

CO1: To get thorough knowledge about analog ICs.

CO2: To equip the students to excel in the design of circuits using analog IC 741.

CO3: To understand the applications of analog ICs in the field of Electronics.

Course: EL3CRT08 Electromagnetic Theory

CO1: To get a basic knowledge about Electromagnetic Theory and wave propagation.

CO2: To get the awareness of the working of different types of antennas.

Course: EL3CRT08 8085 Microprocessor

CO1: To get a strong background in the field of Microprocessor 8085

CO2: To expertise in assembly level programming

Course: EL3CRP03 Analog Electronics Laboratory

CO1: To acquire practical knowledge about the working of basic integrated circuits which are having prime applications in the field of Electronics.

CO2: To equip the student with expert in design of rectifiers, regulators and oscillators using discrete electronic components as well as analog ICs.

Course: Probability and Statistics

CO1: To equip the students with the knowledge of different statistical analysis method.

CO2: To equip the student with computer based numerical methods.

SEMESTER IV

Course: EL4CRT10 - Programming in C

CO1: This course introduces the student with high level computer programming concepts

CO2: To enables the student to acquire sufficient skills for programming in C language.

Course: EL4CRT11 - Microwave Electronics

CO1: To equip the student with the theory of wave guides, transmission lines, microwave components, microwave tubes and devices

Course: EL4CRT12 Digital Communication

CO1: To equip the student to understand basics of Digital communication

- C02: To get a strong background of different digital modulation techniques and concept of information, Communication Channel,
- C03: To get the concepts of digital bandpass modulation techniques and pass band Digital Transmission

Course: EL4CRT13 Instrumentation Electronics

- C01: This course aims to impart an in-depth knowledge in the field of transducers, Signal Conditioners and electronic instruments.
- C02: To achieve a strong idea of generalized measurement systems, Signal Conditioning and Data conversion, Electronic Measurements and Display Instruments

Course: EL4CRP04 - Programming in C Lab

- C01: To introduce computer programming using C language.
- C02: To trains students to develop program and to acquire sufficient programming skills.

Course: EL4CRT05 - Microprocessor Lab

- C01: To equip the student with a practical knowledge of 8085 programming, its interfacing and applications.

Course: EL5CRT14 - Microcontrollers and Applications

- C01: To equip the student with the architecture and programming of microcontrollers
- C02: To learn the Addressing modes and Instruction set and interfacing techniques

Course: EL5CRT15 Environmental Awareness, E-Waste Management and Human Rights

- C01: Environmental Education encourages students to research, investigate how and why things happen, and make their own decisions about complex environmental issues by developing and enhancing critical and creative thinking skills. It helps to foster a new generation of informed consumers, workers, as well as policy or decision makers.
- C02: Environmental Education helps students to understand how their decisions and actions affect the environment, builds knowledge and skills necessary to address complex environmental issues, as well as ways we can take action to keep our environment healthy and sustainable for the future. It encourages character building, and develop positive attitudes and values.
- C03: To develop the sense of awareness among the students about the environment and its various problems and to help the students in realizing the inter-relationship between man and environment and helps to protect the nature and natural resources.
- C04: To help the students in acquiring the basic knowledge about environment and the social norms that provide unity with environmental characteristics and create positive attitude about the environment.
- C05: To impart awareness on, Human rights and E-waste management

Course: EL5CRT16 - Computer Hardware

CO1: To get an in-depth knowledge of computer hardware

CO2: To create a confidence in using and assembling PC

Course: EL5CRP06 - Microcontroller Lab

CO1: To practice the assembly language programming and execution of data transfer, arithmetic and logical programs.

CO2: To familiarize the interfacing techniques such as Key Board interfacing, Seven Segment interfacing, LCD Display interfacing, A/D and D/A interfacing, Stepper motor interfacing

Course: EL5CRP07 - Communication Lab

CO1: To practice the design and developments of different frequency selective circuits

CO2: To practice the design and developments of different analog and digital modulation circuits

Course: EL5OPT01- Computer Assembling (Open Course)

CO1: To get an in-depth knowledge of computer hardware such as memory, processors, BIOS and hence to create a confidence in using and assembling PC

CO2: OS Concepts- DOS & Windows OS – Features, LINUX OS- Features,

Course: EL5OPT01- Mechatronics (Open Course)

CO1: To study the field of Mechatronics and its applications

CO2: To study the field of Mechatronics in manufacturing, Products, and design and and Comparison between Traditional and Mechatronics approach

Course: EL5OPT01- Electronic Communication (Open Course)

CO1: To enable the student to become an expert in various communication techniques, modulation, concept of digital modulation and data communication

SEMESTER VI

Course: EL6CRT17 - Optoelectronics

CO1: To get an in-depth knowledge Light source Semi-conductor Laser and LEDs Principle of p-n junction photodiode Fiber Optics

CO2: Propagation of light in a fiber Semiconductor Science and optical modulators

Optical Fiber Communications

Course: EL6CRT18 - Computer Networks

CO1: This course aims to give an in-depth knowledge in the field of computer networks and the protocols involved in data communication

Course: EL6CRT19 Digital Signal Processing

CO1: To study the fundamentals of DFT, Digital filter design and DSP hardware

Course: EL6CBT01- Digital Image Processing (Choice Based Course)

CO1: Students get the idea of Introduction to digital image processing and fundamentals Image Enhancement in the Spatial Domain

CO2: To get the basic knowledge of Image Enhancement in the Frequency Domain, Image Restoration, Colour Image Processing and Image Compression

Course: EL6CBT01- Power Electronics (Choice Based Course)

CO1: To have fundamental knowledge in power devices, circuits and its applications.

CO2: To have fundamental knowledge OF Controlled rectifiers and Commutation of SCR, Inverters and AC Voltage Controllers and Applications of Power Electronics

Course: EL6CBT01- Mobile Communications (Choice Based Course)

CO1: To have fundamental knowledge Third Generation Mobile Service – Wireless local loop – Wireless enterprise networks – Bluetooth technology Mobility Management Wireless Application Protocol

Course:EL6SMP01 - Presentation Skill Practice

CO1: To excel the presentation skills every student shall present a topic during this semester using ICT based techniques.

Course:EL6PRP01 - Project Lab

CO1: Students get the idea of practical verification of the design, PCB design, fabrication, design analysis and testing shall be done.

CO2: Students able to achieve the practical knowledge of software projects, a proper front end (GUI), if applicable, shall be designed.

CO3: A practice of detailed algorithm level implementation, test data selection, validation, analysis of outputs are achieved after the completion of their project.