

Department of Electronics



PROGRAMME NAME : *B.Sc ELECTRONICS*

SL. NO.	COURSE NAME	COURSE OUTCOME
1	BASIC ELECTRONIC DEVICES	This will help the students to understand the basic electronic devices
2	BASIC ELECTRONIC DEVICES LAB	This will help the students to understand and operate with the basic electronic devices practically.
3	INTRODUCTION OF C LANGUAGE	This will help the students to understand the basic introduction of C programming language.
4	BASIC ELECTRONICS	This will help the students to understand the basic electronic devices
5	PROGRAMMING IN C	This will help the students to practice with C programming.
6	BASIC ELECTRONICS LAB	This will help the students to understand and operate with the basic electronic devices practically.
7	DIGITAL ELECTRONICS	This will help the students to understand the number systems and digital electronics (IC's, Flipflop, Register, Counters & Memories)
8	DIGITAL ELECTRONICS LAB	This will help the students to understand and operate with the digital electronic devices (ICs, flip-flops, registers, counters and memories) Practically.
9	INTRODUCTION OF PYTHON LANGUAGE	This supports the students to understand the programming basics and design with functions using Python programming language
10	INTRODUCTION TO DIGITAL ELECTRONICS	This will help the students to understand the number systems and digital electronics ICs, flip-flops, registers, counters and memories.

11	PROGRAMMING IN PYTHON	Students can able to learn and develop basic computational skills with Python language.
12	DIGITAL ELECTRONIC CIRCUITS LAB	This will help the students to understand the operations of basic digital electronic devices (ICs, flip-flops, registers, counters and memories) practically.
13	ELECTRONIC MEASUREMENTS AND CIRCUIT THEORY	Students can able to understand electronics and design the AC & DC circuits, measuring instruments and networks.
14	ELECTRONIC CIRCUIT LAB - I	Students will be able to design the circuits practically by using electrical laws and theorems
15	APPLIED MATHEMATICS	Students should be able to explain basic concepts of matrix theory, numerical techniques, probability distributions and calculus of single variable. They can able to apply basic concepts of differential calculus to solve problems related to extremum, approximations, curvature etc., They can be able to apply basic numerical techniques to solve linear and nonlinear equations.
16	ELECTRONIC DEVICES	Understand the basic concepts and operation of various electronic devices.
17	SIMULATIONS OF APPLIED MATHEMATICS	Students can carry out basic statistical mathematical analysis using excel including hypothesis testing. And they can solve linear and nonlinear equations numerically using Excel. Moreover, they can understand the basic features of R programming.
18	ELECTRONIC DEVICES LAB	Students had experience with the basic operations of various active electronic devices.
19	Core Theory-5 CONSUMER ELECTRONIC APPLIANCES	It gives the knowledge about the electronic gadgets and consumer electronic appliances.
20	ELECTRONIC TROUBLESHOOTING	Good knowledge received about the maintenance of electronic devices, measurements, and its operation.

21	2COMPUTERHARDWARE	Students can understand very well about the computer motherboard architectures and peripherals.
22	LINEAR INTEGRATED CIRCUITS	Knowledge of analog integrated ICs, circuits and devices are obtained.
23	LINEAR INTEGRATED CIRCUITS LAB	Practical skills obtained about analog integrated ICs and OPAMPs.
24	NUMERICAL METHODS	Students can able to understand numerical methods, problems and their methods for the applications of various science and engineering solutions.
25	DIGITAL CIRCUITS	Students will be equipped with binary arithmetic, logical expression, flip flops, shift registers, counters and memories.
26	MATLAB SIMULATION FOR NUMERICAL METHODS	can able to well versed with MATLAB programming skills and numerical methods and their problems.
27	DIGITAL CIRCUITS LAB	Students will be practically well versed with binary arithmetic, logical expression, flip flops, shift registers and counters.
28	MAINTENANCE AND TROUBLE SHOOTING OF AUDIO AND VIDEO EQUIPMENTS	Students will have good knowledge about the household electronic devices, operation, maintenance and troubleshooting in detail.
29	RADIO AND TELEVISION	Students will be able to understand with radio and television transmission, reception, and its wave propagation.
30	RADAR AND NAVIGATION	Students will be able to illustrate the principles of navigation. Acquire the knowledge about range equation and the nature of detection. It recognizes the navigation systems using the satellite. Analyze the characteristics of navigation systems.
31	INTERNSHIP / FIELD WORK	Formulate and identify the real-world problem, practical difficulties, identify the requirement and develop the solutions according to their field work or internship study.

		Identify technical ideas, strategies, and methodologies.
		Utilize the new tools, algorithms, techniques that contribute to obtain the solution of the work.
		Explain the acquired knowledge through preparation of report and oral presentations.
32	ADVANCED MICROPROCESSORS	Students can able to execute microprocessor and microcontroller programs and its applications using assembly language. Able to illustrate how the different peripherals (8255, 8279, 8253, 8237, 8251) are interfaced with microprocessor. Able to design, develop and interface complete microcontroller-based systems to peripheral devices using 8051 microcontrollers.
33	MEDICAL ELECTRONICS	The outcome of the students should have understood the concept of bio- potential; concepts of medical instrument its maintenance and develop the troubleshooting skills of medical instruments.
34	IOT BASED APPLICATIONS	To equip the students to understand the basics of IoT and its applications. IoT primarily refers to the connected and smarter world having physical and virtual objects with some unique identities. IoT applications span across various domains from agriculture to tech. industry.
35	COMMUNICATION SYSTEMS	Student will be well versed in communication and optical fiber communication systems. They understood about the operation of telephone exchange, parts of telephone, cellular phones transmission and satellite communications.
36	ADVANCED MICROPROCESSOR LAB	Students can familiarize with assembly-level language programs for microprocessors and microcontrollers
37	OPTICAL DISPLAY APPLICATIONS	This subject helps the students to know about optical applications especially for displays.

38	MOBILE COMMUNICATION	Students could understand the concepts and techniques of mobile radio communication fundamentals like reflection, diffraction, scattering and fading. Understand the cellular design concepts and apply them in wireless communication. Design GSM and CDMA and its components in mobile and wireless communication. Design a 3G and 4G wireless communication systems to meet desired needs within realistic constraints.
39	MINI PROJECT	Formulate a real-world problem, identify the requirement and develop the design solutions.
		Identify technical ideas, strategies and methodologies.
		Utilize the new tools, algorithms, techniques that contribute to obtain the solution of the project.
		Perform test and validate through conformance of the developed prototype and analysis the cost effectiveness.
		Explain the acquired knowledge through preparation of report and oral presentations
40	POWER ELECTRONICS	The students should have developed the circuit designing skills in power electronics. Understood about the concepts of industrial electronic system design.
41	SEMICONDUCTOR FABRICATION TECHNOLOGY	Students will be able to understand VLSI design methodologies and fabrication techniques. Concepts of MOSFETs and various MOS based devices are discussed. Realize and implement various Boolean functions using CMOS invertors.
42	ROBOTICS AND AUTOMATION	The student should understand the basic concepts and the applications of robots in automation, CNC machines and PLC controllers.

43	COMPUTER HARDWARE AND MAINTENANCE	Students will understand the components of the motherboard, can address issues related to CPU and memory. They will have good knowledge on Data storage devices and troubleshooting techniques.
44	POWER ELECTRONICS AND SYSTEM DESIGN LAB	Students are well versed with power electronic devices and the hands-on training of soldering for system design
45	ARTIFICIAL INTELLIGENCE	Solving the real-life problems
46	EMBEDDED SYSTEM AND RTOS	Students understood about the recent trends of embedded systems and RTOS (its hardware's and software's). Experienced with programming concepts and embedded programming of C and C++
47	PROJECT WORK	Students are encouraged to take the project work as a challenge so that their project will support their career.

PROGRAMME NAME : M.Sc ELECTRONICS

SL. NO.	COURSE NAME	COURSE OUTCOME
1	ELECTRONIC PROPERTIES OF MATERIALS	The knowledge of materials in electronics should be useful to students for further device development.
2	MATHEMATICAL METHODS AND NETWORK ANALYSIS	The students will be able to solve various differential equations, functions, signals, networks, Fourier series and integral transformations, etc.,
3	ANALOG AND DIGITAL SYSTEM DESIGN	Analog and digital system design is must for students to construct their own design in electronics.
4	ADVANCED MICROPROCESSORS	Students can understand the need of microprocessors and their features.
5	ANALOG ELECTRONIC DESIGN LAB	Students can able to troubleshoot the analog electronic circuit design experiments with various applications.
6	DIGITAL ELECTRONIC DESIGN LAB	Students can able to troubleshoot digital electronic circuit design experiments with bread boards as well as SPICE software.
7	ELECTROMAGNETICS, MICROWAVE AND ANTENNA	It's a foundation of electronic communication systems.
8	SIGNALS AND SYSTEMS	Students can identify and analyze the spectral characteristics of periodic signals using many theorems and systems.
9	ADVANCED POWER ELECTRONICS	Students can classify and understand the power device applications
10	MICROCONTROLLERS, EMBEDDED SYSTEM AND IOT APPLICATIONS	The students shall be able to develop embedded application.
11	POWER ELECTRONICS LAB	Hands on experience will be received to construct and design power electronic device experiments.
12	MICROCONTROLLERS AND EMBEDDED SYSTEM DESIGN LAB	Students can receive assembly level programming skills for future robotic applications.
13	SEMESTER - III VIRTUAL INSTRUMENTATION	The outcome of the students will be expertise theoretically with a virtual instrumentation by LABVIEW programming.

14	MOBILE, OPTICAL AND DATA COMMUNICATION SYSTEMS	Students can understand the growing importance of mobile, optical and data communication system.
15	DIGITAL SIGNAL AND IMAGE PROCESSING	Students can able to understand the properties of the random signals and images and how to process it.
16	RESEARCH METHODOLOGY	Students get an idea about research and research methodologies
17	ADVANCED COMMUNICATION LAB	Students acquired the knowledge of different types of communication signals, modulation, demodulation, mixing and so on.
18	DSP MATLAB AND LABVIEW INSTRUMENTATION LAB	Students will be well-versed with MATLAB and LABVIEW programming.
19	SEMESTER - IV INTRODUCTION OF PYTHON AND ANDROID APPLICATION TOOLS DEVELOPMENT	Students can able to Identify/characterize/define a problem to solve problems by design a program
20	VLSI DESIGN AND VHDL PROGRAMMING	Students have to realize importance of testability in logic circuit design.
21	RF CIRCUIT AND SATELLITE COMMUNICATION	The student will be able to understand the RF design and distinguish between the oscillators and amplifiers. Application of satellite communication will also be essential for signals and modern communication system.
22	VLSI AND ANDROID APPLICATION DEVELOPMENT LAB	Write HDL code for basic as well as advanced digital integrated circuits. Students can learn the Android Studio Application environment.
23	OBJECT ORIENTED PROGRAMMING USING PYTHON LAB	Students can learn Python scripting elements and discover how to work with scripts, variables, lists, control flow structures, sequence data and so on. They can learn Python language interfaced with Raspberry Pi kit.
24	Elective 1 (c) NANOELECTRONICS	Students must be capable of addressing problems that require interdisciplinary skills.
25	Elective 1 (d) CELLULAR PHONE SERVICING	It boosts students' self-esteem and will enhance the students career job opportunity.