

DEPARTMENT OF ELECTRONICS

Programme B.Sc. Electronics

Statements of Programme Specific Outcomes

By the end of this programme, the students will be able to:

1. Understand the basic concepts of electronics components used in electronics such as resistance capacitor, solid state semiconductor devices such as transistors, FET, MOSFET, TRIAC etc. constructions and applications, passive networks and theorems, digital electronics, amplifier theory, Analog and Digital circuits, basic circuits, design using circuit maker software and their application
2. Analyze the semiconductor devices with different models.
3. Understanding the use of basic principals of electronics in industrial automation as well as computer.
4. Understanding of the basic computer organizations and computing.
5. Writing the programs various applications using a small computer.
6. Understanding the fundamentals of the communications systems and applications.
7. Understanding the use of Power Electronics in industries.
8. Design and fabrication of the PCB for small applications.
9. Understanding of sensors actuators used on various measurement and control applications.
10. Understand the use of Programmable Logical Computers (PLC) in industrial applications.
11. Developing a program for small industrial control systems.
12. Repair small household electrical and electronics appliances.

Statement of Course Outcomes

Programme: B. Sc. I SEM I DSC – A10 Paper I : Network Analysis and Analog Electronics

Course Outcomes: By the end of this course, the students will be able to:

1. Identification of passive and active electronic components.
2. Analyzing the different passive networking and understanding the network theorems.
3. Understanding of Two port networks theory for semiconducting devices.
4. Construction and working of Basic electronic Components such as Diode, Photodiode, Zener Diode, LED etc.
5. Working of the rectifiers and filters in power supplies.

Programme: B. Sc. I SEM I DSC – B9 Paper II: DIGITAL INTEGRATED CIRCUITS

Course Outcomes: By the end of this course, the students will be able to:

1. Understanding the concept of digital electronics
2. Use of various number system in Digital Electronics
3. Analyzing the digital circuits and Boolean algebra
4. Combinational logic analyses and design of the circuit
5. Construction and working of arithmetic circuits
6. Construction and working of Data processing circuits such as Multiplexer Demultiplexer Encoder and Decoder and applications.

Programme: B. Sc. I DSC – A10 SEM II Paper III: NETWORK ANALYSIS AND ANALOG ELECTRONICS

Course Outcomes: By the end of this course, the students will be able to:

1. Describe Working, characteristics and applications of BJT.
2. Analyze the semiconductor device for the various applications such as amplifier or switch
3. Understanding of the different parameters of the amplifier design
4. Design aspects and Classifications of the amplifiers.
5. Need and design aspect of the cascade amplifier
6. Working and Design of the oscillator for particular frequency
7. Construction working and Use and application of the Unipolar junction transistor

Programme: B. Sc. I SEM II DSC – B10 Paper IV: DIGITAL INTEGRATED CIRCUITS

Course Outcomes: By the end of this course, the students will be able to:

1. Understanding working of the combinational logic
2. Understanding of the sequential circuits and working of the same
3. Working and designing of the different type of counters
4. Working data conversion techniques ADC and DAC with different technologies
5. Understanding of the Opamp as the basic building block in analog electronics
6. Construction and designing of the different Opamp applications
7. IC-555 construction, working and applications

Programme: B. Sc.II SEM III DSC 9C Paper V : Communication Electronics

Course Outcomes: By the end of this course, the students will be able to:

1. Understanding the need of electronic communication
2. Basic building blocks of the communication system
3. Rules and regulation laid by TRAI
4. Working of the different modulation techniques
5. Satellite communication system
6. Working of the geolocation services like GPS

Programme: B. Sc.II SEM III DSC 9D: Introduction to Microprocessor 8085

Course Outcomes: By the end of this course, the students will be able to:

1. Understand the basic computer organization and working
2. Working of the different blocks of the 8085 microprocessors
3. Instructions and programming of the 8085 microprocessors
4. Concept of embedded systems and introduction to microcontroller 8051
5. Use and Working of the different registers inside 8051 microcontrollers

Programme: B. Sc.II SEM IV DSC 10C: Paper VII : Digital Modulation and Mobile telephone System

Course Outcomes: By the end of this course, the students will be able to:

1. Working and building blocks Digital modulation techniques like PAM, PWM and PPM
2. Digital modulation ASK FSK and PSK
3. Structure Mobile telephony networking
4. Essential elements for the mobile telephony networking
5. Concept of 2G, 3G and 4G Mobile Generations

Programme: B. Sc.II SEM IV Paper VIII DSC 10D: 8051 Microcontroller and Embedded System

Course Outcomes: By the end of this course, the students will be able to:

1. Working instruction set of the 8051 microcontrollers
2. Use of the facilities in 8051
3. Interfacing simple devices and developing the program for the same
4. Writing program using Embedded C
5. Developing program for small applications

Programme: B. Sc.III SEM V Paper IX DSE-E17: Electronics Instrumentation-I and Mechatronics

Course Outcomes: By the end of this course, the students will be able to:

1. Op-amp as building block in analog electronics
2. Different important parameters in design in the Op-amp and different IC of Op-amp
3. Designing and working of the different applications of the Op-amp
4. Designing of the active filters and precision rectifier
5. Working of the phase lock loops and power supplies

Programme: B. Sc.III SEM V Paper X DSE-E18: Antenna and Wave Propagation

Course Outcomes: By the end of this course, the students will be able to:

1. Understanding the need of electronic communication
2. Basic building blocks of the communication system
3. Rules and regulation laid by TRAI
4. Working of the different modulation techniques
5. Satellite communication system
6. Working of the TV receiver color and black and white
7. Working of different working technologies

Programme: B. Sc.III SEM V Paper XI DSE- E19 : 8051 Microcontroller Interfacing and Applications

Course Outcomes: By the end of this course, the students will be able to:

1. Working instruction set of the 8051 microcontrollers
2. Use of the facilities in 8051
3. Interfacing simple devices and developing the program for the same
4. Writing program using Embedded C
5. Developing program for small applications

Programme: B. Sc.III SEM V Paper XII DSE -E20 : Power Electronics Devices and Applications

Course Outcomes: By the end of this course, the students will be able to:

1. Importance of power electronics in industrial sector
2. Construction and working of semiconducting devices used in power electronics
3. Design and working of controlled and uncontrolled rectifier
4. Design and working of Single-phase AC controllers

Programme: B. Sc.III SEM V Paper XIII DSE- F17: Electronics Instrumentation-II and Robotics

Course Outcomes: By the end of this course, the students will be able to:

1. Understanding of basic control theory
2. Working different control mechanisms in industrial process control
3. Hardware elements working in a control system
4. Developing a ladder programs for basic applications

Programme: B. Sc.III SEM V Paper XIV DSE- F18: Optoelectronics and IoT

Course Outcomes: By the end of this course, the students will be able to:

1. Working of telephone communication system and exchange
2. Working of the ISDN and satellite communication
3. Digital modulation techniques like ASK FSK PSK
4. Working of wireless communications and different protocols like Bluetooth, zigbee, RFID etc.

Programme: B. Sc.III SEM V Paper XV DSE-F19: Advanced Microcontroller: PIC

Course Outcomes: By the end of this course, the students will be able to:

1. Working of registers of PIC microcontrollers
2. Instructions of the 18F series microcontroller
3. Working of the internal registers
4. Building a program for small applications

**Programme: B. Sc.III SEM V Paper XVI DSEF20: Industrial Automation and PLC
Programming**

Course Outcomes: By the end of this course, the students will be able to:

1. Understand the basic principle of the different sensors and transducers
2. Working of different transducers for measurement of physical quantities
3. Design aspect of the signal conditioning circuits for sensors
4. Understating the working Measuring PLC programming