ELECTRONICS GENERAL

Program Specific outcome:

At the end of the program the students will have in-depth knowledge on:

- How semiconductor devices work and their applications
- Different network theorems and their usage in design of circuits
- Assembly language programming using 8085 microprocessor.

1. Students will be able to plan, design and create their own electronic devices using the knowledge of electronic components and circuit design
2. They will become eligible to apply for the post of technicians and junior engineers.
3. This program helps in creating analytical and inquisitive minds who can go for higher studies and research

Course outcome: B Sc (1+1+1)

Part I

Electronic Circuits and Basic Electronics I & II

After successful completion of the course student will be able to
1. Understand the current voltage characteristics of semiconductor devices,
2. Analyze dc circuits and relate ac models of semiconductor devices with their physical Operation,
3. Design and analyze of electronic circuits,
4. Evaluate frequency response to understand behavior of Electronics circuits
5. Apply concepts of electric network topology,
nodes, branches, loops to solve circuit problems including the use of computer simulation.
6. Understand the basic concepts of graph and analyze the basic electrical circuits using graph theory.
7. Apply time and frequency concepts of analysis.
8. Understand various functions of network and also the stability of network.
9. Learn the various parameters and their interrelationship, able to solve numericals with series, cascade, parallel connection using two port parameters.
10. Synthesize the network using passive elements

Part II

Digital Electronics and Instrumentation and practical on Electricity and analog electronics & Digital Electronics

After successful completion of the course student will be able to
1. Develop a digital logic and apply it to solve real life problems.
2. Analyze, design and implement combinational logic circuits.

3. Analyze, design and implement sequential logic circuits
4. Analyze working of various analog devices
5. Implement basic circuits using analog devices

Electronic Communication

After successful completion of the course student will be able to
1. Use of different modulation and demodulation techniques used in analog communication
2. Identify and solve basic communication problems
3. Analyze transmitter and receiver circuits
4. Compare and contrast design issues, advantages, disadvantages and limitations of analog communication systems

Part III

Introduction to 8085 Microprocessor and Computer Programming with Lab

On completion of the course, students are able to:
1.To understand the basic architecture of 8-bit microprocessors.
2. Able to write programs on 8085microprocessor based systems.
3. Identify the addressing modes of an instruction.
4. Develop programming skills in assembly language.
5. Understand basic of the programming of high level language
6. Able to switch any other programming language
7. Able to write C program for simple real life applications using structures

Course Outcome: B Sc (CBCS)

Semester I

Core Course-1 Theory: Network Analysis and Analog Electronics

1. apply the knowledge of basic circuital law and simplify the network using reduction techniques
2. Analyze the circuit using Kirchhoff's law and Network simplification theorems
3. Infer and evaluate transient response, Steady state response, network functions
4. Obtain the maximum power transfer to the load , and Analyze the series resonant and parallel resonant circuit
5. Understand electronic systems with a continuously variable signal
6. Understand proportional relationship between a signal and a voltage or current that represents the signal.
7. To learn function of basic component's using linear circuits.
8. Understand component symbol, working principle, classification and specification.
9. To learn different theorems for simplification of basic linear electronics circuits.

Core Course-1 Practical: Network Analysis and Analog Electronics Lab

At the end of the course, a student will be able to:

1. Know about basic electronic components and measuring instruments
2. Set up testing strategies and select proper instruments to evaluate performance characteristics of electronic circuit.
3. Choose testing and experimental procedures on different types of electronic circuit and analyze their operation on different operating conditions.
4. Evaluate possible causes of discrepancy in practical experimental observations in comparison to theory.
5. Practice different types of wiring and instruments connections keeping in mind technical, Economical, safety issues.

6. Apply the knowledge of basic circuital law and simplify the network using reduction techniques
7. Analyze the circuit using Kirchhoff's law and Network simplification theorems infer and evaluate transient response, Steady state response, network functions
8. Obtain the maximum power transfer to the load , and Analyze the series resonant and parallel resonant circuit

Semester II

Core Course-4 Theory: Linear and digital integrated circuits

On completion of the course, students are able to:

1. To understand Basic differential amplifier and their applications in linear Integrated circuits.
2. To learn basic function of operational amplifier, Ideal and practical characteristics and their mathematical application.
3. To understand basic construction of active filters, comparators and their application in electronics.
4. Students understand different types of multivibrator and wave form generator using IC 555

Core Course-4 Practical: Linear and digital integrated circuits lab

At the end of the course, the student should be able to:

1. Design oscillators and amplifiers using operational amplifiers.
2. Design filters using Opamp and perform experiment on frequency response.
3. Design DC power supply using ICs.
4. Analyse the performance of oscillators and multivibrators using simulators.
5. Convert different type of codes and number systems which are used in digital communication and computer systems.
6. Employ the codes and number systems converting circuits and Compare different types of logic families which are the basic unit of different types of logic gates in the domain of economy, performance and efficiency.

7. Analyze different types of digital electronic circuit using various mapping and logical tools and know the techniques to prepare the most simplified circuit using various mapping and mathematical methods.
8. Design different types of with and without memory element digital electronic circuits for particular operation, within the realm of economic, performance, efficiency, user friendly and environmental constraints.
9. Apply the fundamental knowledge of analog and digital electronics to get different types analog to digitalized signal and vice-versa converters in real world with different changing circumstances.
10. Assess the nomenclature and technology in the area of memory devices and apply the memory devices in different types of digital circuits for real world application.