

B. V. V. Sangha
Basaveshwar Science College, Bagalkote
Department Electronics
Course Outcome 2021-22

Semester: B.Sc. I

Course Title: : ELECTRONIC DEVICES AND CIRCUITS

Course Code : 21BSC1C1ELE1L

Theory

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

CO.1. Study and analyse basic networks using network theorems in a systematic manner.

CO.2. Build simple electronic circuits used in various applications.

CO.3. Describe the behaviour of basic semiconductor devices

CO.4. Reproduce the I-V characteristics of diode/BJT devices

CO.5. Describe the frequency response of BJT amplifiers.

CO.6. Explain the behaviour, characteristics and applications of Varactor diode, Schottky diode, Tunnel diode, LED, LCD and solar cells.

CO.7. Apply standard device models to explain/calculate critical internal parameters of semiconductor devices.

CO.8. Understand and represent numbers in powers of base and converting one from the other, carry out simple arithmetic operations. Understand the basic knowledge of Digital system building blocks, effectively can construct simple digital designs with the knowledge of Boolean algebra

Course Code: 21BSC1C1ELE1P

Course Title: Electronic Devices and Circuits

Practical

CO1. An ability to design and conduct experiments

CO2. To learn different theorems for simplification of basic linear electronics circuits

CO3. Understand component symbol, working principle, and applications.

CO4. Understand basic digital electronics and learn different theorems for simplification of basic Digital electronics circuits also understand combinational logical circuits

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Semester: B.Sc. II

Course Title: 21BSC2C2ELE2L

Course Title: ANALOG AND DIGITAL ELECTRONICS

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

- CO.1. Reproduce the I-V characteristics of various MOSFET devices
- CO.2. Explain the behaviour and characteristics of power devices such as UJT, SCR, Diac, Triac etc.
- CO. 3. Calculate various device parameters' values from their V I characteristics.
- CO.4. Explain various Operational amplifier parameters
- CO.5. List various applications of Operational amplifier.
- CO.6. Explain IC 555 as a timer with applications
- CO.7. Understand K-Map and simplify Boolean expressions
- CO.8. Analyse combinatorial and sequential circuits

Course Code: 21BSC2C2ELE2P

Course Title: ANALOG AND DIGITAL ELECTRONICS

Practical

- CO.1. An ability to design and conduct experiments
- CO.2. To study MOSFET and its characteristics
- CO.3. Understand semiconductor devices symbol, working principle, and applications.
- CO.4. To study Op amp & IC555 and its applications
- CO.5. Understand digital electronics K-map and understand combinatorial logical circuits.

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Semester: B.Sc. III

Course Code: ELEDSC3.1

Course Title: Linear Integrated Circuits and 'C' Programming

CO.1.Op-amp characteristics, Opamp Voltage series feedback amplifier and Voltage shunt feedback amplifier.

CO.2.Linear applications of Op-amp, Op-amp active filters

CO.3.Study of IC 555 and its applications

CO.4.C language, characteristics and applications, Study of C tokens, input and output statements. Different types of data types and operators

CO.5.Control statements , if, if else, nested if else, for, switch, while, do while loops ,Types of arrays, Strings and string handling functions.

Practical

Code: ELEDSCP3.1

Course Title: Practical -III

CO1. Ability to design and conduct experiments

CO2. To study Op amp and its applications

CO3. To study Op amp & IC555 and its applications

CO4. Ability to write programs in C language

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Semester: B.Sc. III

Course Code: ELESECT3.2

Course Title: Weather Forecasting

Co 1: Classify and describe the atmosphere, its physical composition

Co 2: Describe cyclones and anticyclones: its characteristics

Co 3: Describe measuring the weather with different parameters

Co 4: Classify the Different types of weather system and its classification

CO 5: Describe climate and climate change

CO 6: Write down the Basics of weather forecasting and types

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Semester: B.Sc. IV

Course Code: ELEDSCT4.1 Paper

Course Title: Digital Electronics

CO.1. Number system, Weighted and Unweighted codes and their Conversions.

CO.2. Digital gates, timing diagram, D Morgan's theorem, Universal gates, DTL gates pin configuration of IC's.

CO.3. SOP and POS, Karnaugh map, Adder and Subtractor circuits.

CO.4. Combinational logic circuits, Encoder, Decoder, Comparators, Multiplexers, De-multiplexers.

CO.5. Sequential circuit, Flip-flops RS, D, JK, T (Clocked) and JK flip-flops, Counter (binary, decade and modulus counters), Register.

Practical

Course Code: ELEDSCT P4.1

Course Title: Practical –IV

CO.1. Ability to design and perform digital experiments

CO.2. Understand basic digital electronics and learn different theorems for simplification of basic Digital electronics circuits also

CO.3. Understand combinational logical circuits.

CO.4. Understand sequential logical circuits.

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Semester: B.Sc. IV

Course Code: ELESECT4.2

Course Title: Renewable Energy sources and Energy Harvesting

CO1: Describe Fossil fuels and Alternate Sources of energy

CO.2: Describe understand Solar energy and its applications

CO 3: Identify and describe the Wind Energy harvesting: Wind, wind turbine and power interfaces

CO 4: Describe Ocean Energy, wave characteristics and wave energy

CO 5: Classify and describe Hydro Energy, Geothermal Energy

Piezoelectric Energy harvesting: Characteristics and parameters

CO 7: Describe Electromagnetic Energy Harvesting

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Course Outcome 2021-22

**Course Title: ELE- 5.1: COMMUNICATION, OPTICAL FIBER
COMMUNICATION & TRANSDUCERS**

Paper-I

Course Code: Not mentioned in syllabus copy

Students must be able to learn and understand the following concepts.

- CO1.** Propagation of electromagnetic wave through ionosphere, Amplitude, Frequency, Phase Modulation
- CO2.** Amplitude Modulation, Frequency Modulation transmitter and receivers. Difference between Amplitude Modulation and Frequency Modulation advantages and disadvantages.
- CO3.** Optical Fibre, construction working and different modes of propagation. Knowledge of sources and detectors.
- CO4.** Different types of transmission lines, Antenna, polarization, different types of antenna construction and working.
- CO5.** Different types of transducer, (resistive, capacitive and inductive) Microphone and Speakers.

Practical Lab-5.1

Course Code: Not mentioned in syllabus copy

CO.1. Ability to design and perform experiments communication

CO.2. Understand analog and optical fiber communication.

CO.5. Study on Antenna & its radiation pattern.

CO.4. Studies on Microphone and Transducers

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Semester: B.Sc. V

Course Title: ELE- 5.2.: MICROPROCESSOR AND MICROCONTROLLER

Paper-II

Course Code: Not mentioned in syllabus copy

Students must be able to learn and understand the following concepts.

- CO1.** Intel 8085 Microprocessor, pin diagram, architecture, instruction set and addressing modes, Supporting circuits.
- CO2.** Stack operations, sub routine, Interrupts, Timing diagrams, Programming preliminaries
- CO3.** Interfacing concepts, memory interfacing. Interfacing I/O devices, Programmable interval timer (8253), D to A converter with microprocessor and Op-amp, programmable peripheral Interface IC 8255.
- CO4.** Microcontroller 8051, Pin diagram, Architecture, addressing modes, Interrupts, instruction set and programming .
- CO5.** PIC microcontrollers, various PIC microcontroller series. PIC 16F877A-features, pin diagram, I/O ports, interfacing with LCD.
- CO6.** Embedded systems and general purpose computer systems. Architecture of embedded system. Classifications, applications and purpose of embedded systems.

Practical Lab-5.2

Course Code: Not mentioned in syllabus copy

- CO.1.** Ability to write program for 8085 and to execute the programs using microprocessor kit
- CO.2.** Understand the concept of interfacing and I/O interfacing techniques.
- CO.3.** Ability to write programs for 8051
- CO.4.** To execute the programs using microcontroller kit

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Semester: B.Sc. VI

Course Title: ELE- 6.1-DIGITAL COMMUNICATION, SATELLITE COMMUNICATION & TELEVISION

Paper-I Course Code: Not mentioned in syllabus copy.

Students must be able to learn and understand the following concepts.

- CO1.** Digital communication system, Pulse Amplitude Modulation, Pulse Width Modulation, Pulse Position Modulation, Pulse Code Modulation, Digital modulation techniques.
- CO2.** Satellite orbits, Satellite communication systems, Time Division Multiple Access, Frequency Division Multiple Access, Code Division Multiple Access, and Global Positioning System.
- CO3.** Monochrome TV Block diagram, Scanning, Flicker, Interlaced scanning, Composite video signal, T.V. Signal standards
- CO4.** Essentials of colour T.V. Chromaticity diagram, Delta gun colour picture tube, block diagram of colour television.
- CO5.** SCR, TRIAC, DIAC, UJT construction working and applications.

Practical Lab-6.1

Course Code: Not mentioned in syllabus copy

- CO.1.** Ability to design and perform experiments on Digital communication
- CO.2.** Understand PAM, PWM, PPM and ASK, FSK & PSK communication system
- CO.3.** Study on Frequency mixer & frequency multiplier.
- CO.4.** Studies characteristics of Power Electronic devices and their applications.

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Semester: B.Sc. VI

Course Title: ELE- 6.2: COMPUTER CONCEPTS AND C-PROGRAMMING

Paper-II

Course Code: Not mentioned in syllabus copy

Students must be able to learn and understand the following concepts.

- CO1.** Computer, input and output devices. Different types of Languages (ALL, LLL and HLL). flow chart , algorithms and operating system.
- CO2.** C language, characteristics and applications, Study of C tokens, input and output statements. Different types of data types and operators
- CO3.** Control statements , if, if else, nested if else, for, switch, while, do while loops
- CO4.** Types of arrays, Strings and string handling functions.
- CO5.** Local and global variable, Function , Pointers, , Accessing variables through its pointer.

Practical Lab-6.1

Course Code: Not mentioned in syllabus copy

CO.1. Ability to write program using C language

CO.2. Development of programming skills.

CO.3. Able to write C program for simple real life applications.

HOD,
Department of Electronics

IQAC
Coordinator

Principal