

Program Name: **B. Sc. Electronics**

**Programme specific Outcomes**

**PSO1:** Understand the basic concepts of electronics components, network theorem, digital electronics, solid state semiconductor devices, amplifier theory, Analog and Digital circuits, basic circuits, design using circuit maker software and their application

**PSO2:** Analyze different parameters of various circuits

**PSO3:** Understand the use of electronics in the field of computer science.

**PSO4:** Perform and testing of different electronics components and circuits.

**PSO5:** Use knowledge of Electronics in branches of applied Physics such as Electromagnetic radiation, Antenna design and Material science

**PSO6:** Understand the application of Electronics in domestic appliances

**PSO7:** Analyze the relationship between analogue and digital circuits.

**PSO8:** Enable them to grow either in the field of Electronics Engineering or in the field of Applied Physics.

**Course outcomes for all courses offered by the department:**

Semester	Course Code	Course name	Course Outcomes Student completing this course is able to
1	EL-1501	Fundamentals of Electronics- I	<b>1:</b> Apply knowledge about different passive and active components used in electronic industry for common application, Design circuits using passive and active components for strengthening fundamental idea about basic electronics <b>2:</b> Describe the basic construction of measuring instruments used in electronic measurements, Draw load line and find Q point for any circuit. <b>3:</b> Analyse and find the voltage at any given time at the output of any clipper circuit, Design and analyse clipper circuits. Based on the understanding of clipper circuits the student will be able to interpret the working of the circuit and gauge its advantages and hence list its applications. <b>4:</b> Design and analyse clamper circuits. Based on the understanding of clamper circuits the student will be able to interpret the working of the circuit and gauge its advantages and hence list its applications,

			<p>Design and understand the working of various multiplier circuits</p> <p><b>5:</b> Analyses multiplier circuits and know its advantages, Differentiate between different types of diodes like Zener diode, Tunnel diode, Varactor diode, Photo diode, LED, LCD etc. based on their construction and working.</p> <p><b>6:</b> Design circuits using these of diodes based on their working and advantages, Understand the construction, working and advantages of Photo Voltaic Cells.</p> <p><b>7:</b> Describe characteristics of ideal and practical amplifier, demonstrate good understanding of calculating harmonic distortion,</p> <p><b>8:</b> Define ‘ dB’ unit and apply for measuring gain of the amplifier, know the conversion of number from one number system to another.</p> <p><b>9:</b> Employ the knowledge of sign binary number in Binary arithmetic, learns different types of codes for the representation of information.</p> <p><b>10:</b> Know the error in transmission of the binary data and able to correct the data.</p>
1	EL-1502L	Electronics Lab-I	<p><b>1:</b> Identify and test electronics active and passive components.</p> <p><b>2:</b> Convert galvanometer (Ammeter) into multirange DC and AC voltmeter.</p> <p><b>3:</b> Measure the Dielectric constant of a material.</p> <p><b>4:</b> Understand Voltage doubler circuit, Voltage multiplier circuit, half and full wave rectifier and zener as a voltage regulator.</p> <p><b>5:</b> Analyse characteristics of different coloured LED.</p> <p><b>6:</b> Design and analyse series resonance circuit.</p> <p><b>7:</b> Design and analyse wien bridge circuit.</p> <p><b>8:</b> Describe characteristics of common emitter amplifier.</p> <p><b>9:</b> Study of AND, OR, NOT and universal gates.</p> <p><b>10:</b> Study the load characteristics, internal resistance and ripple factor of rectifiers.</p>
2	EL-2501	Basics of Electronics-II	<p><b>1:</b> Understand different concepts of Resonance, i.e., series and parallel, apply concepts for the design of different types of frequency selecting network.</p> <p><b>2:</b> Understand different theorems for network analysis, i.e., Thevenin’s, Norton’s, Superposition</p>

			<p>and maximum power transfer, Analyze complicated circuits.</p> <p><b>3:</b> Define h parameters for two port networks, Draw and analysis the h parameter equivalent circuits for the three transistor configurations CE, CB, CC.</p> <p><b>4:</b> Draw and analysis Re equivalent circuits for the three transistor configurations CE, CB, CC, Compare CC, CE and CB with respect to Ri, Ro, Ai, Av</p> <p><b>5:</b> Describe and interpret Basic and Universal logic gates and combinational logic circuits, Describe and Design of logic circuits using SOP and POS methods.</p> <p><b>6:</b> At the end of the course, students will be able to: Interpret and simplify Boolean equations using Boolean laws and theorems and Karnaugh map, Design and implementation of Arithmetic and logic operations through digital circuits.</p> <p><b>7:</b> Take and interpret take characteristics of CE, CB and CC configuration of transistor.</p> <p><b>8:</b> Analyze transistor amplifier using h parameters, measure the h parameters of transistor amplifier.</p> <p><b>9:</b> Know the factor causes thermal instability of Bipolar transistor.</p> <p><b>10:</b> Design amplifier using BJT with different bias circuit.</p>
2	EL-2502L	Electronics Lab-II	<p><b>1:</b> Verify the Thevenin's and maximum power transfer theorems.</p> <p><b>2:</b> Convert a given network into T network and <math>\pi</math> network.</p> <p><b>3:</b> Design and analyse RC high pass and low pass filter circuits</p> <p><b>4:</b> Find resonance frequency, bandwidth and Q factor of a parallel resonance circuit.</p> <p><b>5:</b> Analyse I-V characteristics of a photo diode</p> <p><b>6:</b> Understand load characteristics and ripple factor of a Bridge rectifier.</p> <p><b>7:</b> Determine 'h' parameters of a transistor (CE configuration).</p> <p><b>8:</b> Understand frequency response and input and output resistance of CE amplifier.</p> <p><b>9:</b> Design and understand half and full adder and half and full subtractor using Ex OR and NAND gates.</p>

			<p><b>10:</b> Understand the conversion of binary to gray code and gray to binary code.</p>
3	EL-3501	Basic Analog Electronics-III	<p><b>1:</b> Design different types of the filter circuit used in power supply, Define and explain stability factor, temperature coefficient, load regulation and line regulation of the power supply.</p> <p><b>2:</b> Analyzes and designs different types of the voltage regulators used in the power supply, apply different types of feedback the amplifier to obtain the stability of the circuit.</p> <p><b>3:</b> Analyze the circuit by knowing its parameters like <math>B_w</math>, <math>R_i</math>, <math>R_o</math>, <math>A_v</math>, <math>D_F</math> and Design the different kind of oscillator circuits.</p> <p><b>4:</b> Know the advantages of FET over BJT, Demonstrate the application of FET as VVR and FET Diode.</p> <p><b>5:</b> Design an amplifier and switching device by using of MOSFET.</p> <p><b>6:</b> Design the AGC by using DUAL GATE MOSFET.</p> <p><b>7:</b> State and interpret the difference between Low frequency and High frequency response of an amplifier circuit and the reason for decrease in gain of an amplifier circuit when low or high frequencies are applied to it.</p> <p><b>8:</b> Analyze an amplifier circuit when low or high frequencies are applied to it and calculate the value of <math>f_1</math>, <math>f_2</math> and the bandwidth of an amplifier circuit</p> <p><b>9:</b> Describe various types of cascaded amplifier circuits.</p> <p><b>10:</b> Design, analyze and test various types of cascaded amplifier circuits.</p>
3	EL-3502	Signals and Digital Electronics	<p><b>1:</b> Understand different concepts of impedance matching, i.e., L-section, T-section, image impedance and transformer</p> <p><b>2:</b> Further apply these concepts for the design of different types of impedance matching circuits.</p> <p><b>3:</b> Use a variety of analysis techniques to solve basic electrical systems, use appropriate circuit analysis techniques to analyze AC and sinusoidal systems</p> <p><b>4:</b> Apart from solving higher order differential equations, which are extensively used in mechanical and electrical engineering.</p> <p><b>5:</b> After studying Digital Electronics and Multiplexer / De-multiplexer circuits, students will have a</p>

			<p>thorough understanding of the fundamental concepts and techniques used in digital electronics and electronic switching circuits, which are used in telephone industry.</p> <p><b>6:</b> They will be able to understand Decoder and Encoder circuits used for communication (I/O device) with digital circuits, understand how operations are synchronized in Clock and timer circuits, examine the structure of various number systems and their application in digital design, ability to understand, analyze and design various combinational and sequential circuits.</p> <p><b>7:</b> Ability to identify basic requirements for a design application and propose a cost-effective solution apart from developing skill to build, and troubleshoot digital circuits.</p> <p><b>8:</b> In the unit of Microprocessors, the students will be able to explain the overview of a microprocessor-based system and also explain the functions of each component.</p> <p><b>9:</b> They will be able to explain the concept of machine language, assembly language and high-level languages, explain the microprocessor's architecture and its operation, explain memory organization and memory map.</p> <p><b>10:</b> How memory addresses are assigned to a memory chip, list the types of memory and their functions, define tri-state logic and explain the functions of various logic devices used for interfacing with microprocessor.</p>
3	EL-3503L	Electronics Lab-III	<p><b>1:</b> Verify the Two stage RC coupled amplifier.</p> <p><b>2:</b> Study of voltage series negative feedback amplifier.</p> <p><b>3:</b> Study of current series feedback amplifier.</p> <p><b>4:</b> Study of collector amplifier with frequency response.</p> <p><b>5:</b> Analyse the common source FET amplifier.</p> <p><b>6:</b> Understand and study of clipping and clamping circuit using diode.</p> <p><b>7:</b> Understand the RC phase shift oscillator using transistor.</p> <p><b>8:</b> Study of Lissajous figures and measurements of phase difference using CRO.</p> <p><b>9:</b> Study of multiplexer and its application for designing combinational logic circuits.</p>

			<p><b>10:</b> Understand the 3-8 decoder using 74138 IC and its application for logic circuits.</p>
4	EL-4501	Operational Amplifier	<p><b>1:</b> Describe the function of each components in transformer coupled Amplifier, class- A, B, and AB push pull power amplifier.</p> <p><b>2:</b> Will able to design the Transformer coupled amplifier, class- A, B, and AB push pull power amplifier.</p> <p><b>3:</b> Will described basic principles of complimentary push pull amplifier.</p> <p><b>4:</b> Will know the characteristics of OPAMP 741, will able to design the amplifier using OPAMP 741.</p> <p><b>5:</b> Will know the parameters contributing error in output of OPAMP and will able to reduce the error voltage in output using balancing technique.</p> <p><b>6:</b> Write down the evolution of ICs as merits over the conventional discrete circuits, learn techniques of fabrications of monolithic ICs and the measures to improve the fabrication methodology.</p> <p><b>7:</b> Enable to describe the fabricate active and passive components like: Diodes, Transistors, MOSFET, Resistors and Capacitors.</p> <p><b>8:</b> Describe the fundamental principles of wave shaping circuit.</p> <p><b>9:</b> Illustrate the working of High pass and Low pass filter circuit JT.</p> <p><b>10:</b> Describe different types of Multivibrator.</p>
4	EL-4502	Digital Electronics & Micro Processors	<p><b>1:</b> Describe and study of Fourier Integral and Fourier Transform.</p> <p><b>2:</b> Study the spectrum envelops for a recurring pulse and typical Fourier transform.</p> <p><b>3:</b> Explain the relationship of Fourier and Laplace transforms and application in network analysis.</p> <p><b>4:</b> Study of filters and the propagation constant and the properties of symmetrical networks.</p> <p><b>5:</b> Will be able to understand TTL and CMOS Logic Family with switching circuit.</p> <p><b>6:</b> Study the TTL parameters and CMOS characteristics with TTL to CMOS interface.</p> <p><b>7:</b> Understand the different types of Flip-flops with various representation of flip-flop and analysis of sequential circuits.</p>

			<p><b>8:</b> Study the Shift Registers with types of Registers and application of shift registers.</p> <p><b>9:</b> Understand the microprocessor 8085 with its communication and bus timings.</p> <p><b>10:</b> Study of 8085 microprocessor architecture, decoding and executing an instruction.</p>
4	EL-4503L	Electronics Lab-IV	<p><b>1:</b> Study of OPAMP parameters.</p> <p><b>2:</b> Understand of OPAMP as an inverting and non-inverting amplifier.</p> <p><b>3:</b> Study of OPAMP as voltage to current and current to voltage converter.</p> <p><b>4:</b> Study of constant k-type low pass and high pass filters.</p> <p><b>5:</b> Understand the Hartely and Colpitt's oscillator using transistor.</p> <p><b>6:</b> Study of Astable multivibrator using transistor and IC555.</p> <p><b>7:</b> Understand Bistable and Monostable multivibrator using transistor and IC555.</p> <p><b>8:</b> Study of RS, JK, D flip-flop using NOR, NAND gates.</p> <p><b>9:</b> Study of shift registers and Johnson counter using IC 7495.</p> <p><b>10:</b> Study of conversion of Flip-flop as RS to D, T and J-K flip flop.</p>
5	EL-5501	OP-Amps, applications and Semiconductor Physics	<p><b>1:</b> Understand different concepts of Voltage references and Protection circuits for IC voltage and current regulators, Design positive, negative and dual voltage regulators using IC</p> <p><b>2:</b> Design different types of current regulators using IC, Describe the bonding forces in solids.</p> <p><b>3:</b> Explain the formation of energy band and classify metals, semiconductors and insulators, Investigate direct and indirect semiconductors.</p> <p><b>4:</b> Discuss variation of energy bands with alloy composition, Distinguish between electrons and holes.</p> <p><b>5:</b> Define effective mass, intrinsic material and extrinsic material, Apply Fermi- Dirac statistic to semiconductors.</p> <p><b>6:</b> Calculate the concentration of electrons and holes in a semiconductor, Explain temperature dependence of carrier concentration.</p>

			<p><b>7:</b> Analyse conductivity and electron mobility, Describe the effect of temperature and doping on mobility, Explain Hall effect, Hall coefficient, Hall voltage, Apply Hall effect to find the type, concentration and mobility of the majority carrier.</p> <p><b>8:</b> Know working of differential amplifier and its transfer characteristics, Calculate the CMRR of opamp to estimate the error voltage in the output for arbitrary input, Demonstrate the working of Emitter coupled differential amplifier, Design the circuit to improve constant current source circuits to reduce the error voltage.</p> <p><b>9:</b> Describe the working of Inverting, Non inverting and summing amplifier, Design adder and subtractor circuits using Summing amplifier.</p> <p><b>10:</b> Demonstrate the working of Emitter coupled differential amplifier, Describe the working of precision rectifier, Log amplifier and Anti log amplifier using OPAMP and know the use of Multiplier IC for a different types application like frequency doubling, squarer, divider and finding square root of a given number.</p>
5	EL-5502	Digital Electronics & Microprocessors	<p><b>1:</b> Understand the asynchronous counters, decoding gates and changing the counter modulus.</p> <p><b>2:</b> Will be able to understand the decade counters, counter design as a synthesis problem.</p> <p><b>3:</b> Understand the design of sequential circuits of model selection and state transition.</p> <p><b>4:</b> Will be able to understand Moore Model, Mealy Model and state transition diagram.</p> <p><b>5:</b> Study of Basic Interfacing concepts and peripheral with device selection and data transfer absolute.</p> <p><b>6:</b> Understand 8255A Programmable Peripheral Interface with DAC 0800 and DAC Interfacing.</p> <p><b>7:</b> Study of Data Transfer Operations and Logic, Arithmetic Operations with programming techniques.</p> <p><b>8:</b> Study the additional data transfer and 16-bit arithmetic instruction with logic operations.</p> <p><b>9:</b> Understand time delay using one register and time delay using a register pair with Hexadecimal counter.</p>



			<p><b>10:</b> Will be able to understand Modulo Ten Counter, generating pulse waveforms with advanced subroutine concepts.</p>
5	EL-5503	Electronic Instrumentation and Transducer	<p><b>1:</b> Understands the importance of the electronics voltmeter and digital voltmeter, Discuss the different circuit of electronics voltmeter.</p> <p><b>2:</b> Learn the techniques for measuring AC voltage and true rms voltage, Gets information about chopper type voltmeter and differential volt meter.</p> <p><b>3:</b> Learns the basic principle of the different types of the digital voltmeter, Learn ramp typ, dual slope type, integrating type and successive approximation type DVM.</p> <p><b>4:</b> Understands the importance of the electronics Digital Meters, Digital Measurements of Time, Digitally Phase Measurement.</p> <p><b>5:</b> Discuss the different Type of CRO, its application and through it how to measure frequency and phase, It is very useful in Laboratory in almost all type of electronics lab.</p> <p><b>6:</b> Understands the importance of the Signal Generator, Discuss the different Type of Signal Generator and there applications</p> <p><b>7:</b> Understands the importance of the Signal Analyzer, Understands the application and measurements through Wave Analyzer, Different types of wave analyzer</p> <p><b>8:</b> Understand different concepts of Transducers, including those for measurement of temperature, strain, motion, position and light.</p> <p><b>9:</b> Choose proper transducer to make sensitive measurements of physical parameters like pressure, flow, displacement, velocity, temperature etc.</p> <p><b>10:</b> Locate different types of transducers and sensors used in real life applications.</p>
5	EL-5504	Electronics Communication and Optical Fiber	<p><b>1:</b> Define and explain modulation process and types of the modulation.</p> <p><b>2:</b> Analyze the Amplitude modulation through numerical.</p> <p><b>3:</b> Summarized and differentiate the different technique like DSBSC, SSB and VSB used in AM.</p>

			<p><b>4:</b> Describe and define the terminology like deviation of frequency, modulation index etc. used in FM.</p> <p><b>5:</b> Analyze the circuit for generation of FM wave. Student can also able to explain the working of the different types of the FM detector.</p> <p><b>6:</b> Will be able to develop good understanding of Noise, types of noise and signal to noise ratio.</p> <p><b>7:</b> Will be able to state the concept of fixed satellite service. Will also be able to understand satellite communication system and types of antenna used for satellite communication.</p> <p><b>8:</b> Will be able to understand the propagation of light in the optical fibers</p> <p><b>9:</b> Understand the factors causing the Attenuation of the signal propagating in the fiber and calculate the maximum bit rate</p> <p><b>10:</b> Will be able to compare the different sources and detectors used in the fiber optic communication system</p>
5	EL-5401	C programming	<p><b>1:</b> To create their own logic and implement using C Programming.</p> <p><b>2:</b> To understand how to use programming in day to day application.</p>
5	EL-5505L	Electronics Lab-V	<p><b>1:</b> Study of OPAMP as summing amplifier.</p> <p><b>2:</b> Understand of OPAMP as a current amplifier.</p> <p><b>3:</b> Study of OPAMP as a integrator and differentiator.</p> <p><b>4:</b> Study of active filter using OPAMP as first order high-pass and low-pass filter.</p> <p><b>5:</b> Understand of complimentary pair push-pull power amplifier.</p> <p><b>6:</b> Study of Wein Bridge and RC Phase Shift Oscillator using OPAMP</p> <p><b>7:</b> Understand of voltage and current regulator using IC 7805, IC 7905 and IC LM317.</p> <p><b>8:</b> Study and simulation of circuits using Multisim software and preparation of the report.</p> <p><b>9:</b> Study and understanding of microprocessor programming in detail.</p> <p><b>10:</b> Analyse and minor project based on analog and digital electronics as it is to be designed and demonstrate the idea which will be encourage.</p>

6	EL-6401	Project	<p><b>1:</b> Will be trained in identifying Projects by doing literature survey and looking for ideas in internet.</p> <p><b>2:</b> Will be trained in having “Hands on experience” with designing, testing and building electronic projects using various circuits, instruments or Microcontrollers(Arduino).</p> <p><b>3:</b> Will be able to document his project by writing synopsis and project report</p> <p><b>4:</b> Will be able to present his work in the form of PPT and in the process develops presentation skills.</p>
6	EL-6501	OP-Amps applications and Power Electronics	<p><b>1:</b> Understand of Differentiator, Integrator and electronic analog computation.</p> <p><b>2:</b> Will be able to understand about comparator and its application with Schmitt trigger.</p> <p><b>3:</b> Will be able to understand the square wave generator and triangle wave generator.</p> <p><b>4:</b> Understand of Phase Locked Loop with its basic principles and phase detector and comparators.</p> <p><b>5:</b> Will be able to define voltage-controlled oscillator and low pass filter with monolithic phase locked loop.</p> <p><b>6:</b> Understand the PLL applications with frequency multiplication/division with frequency translation.</p> <p><b>7:</b> Will be able to understand the AM detection, FM demodulation and FSK demodulator.</p> <p><b>8:</b> Will be able to understand the switching regulators with minimum load and critical inductance and determination of filter inductance.</p> <p><b>9:</b> Understanding and describing the determination of filter capacitor with input and output power and its losses and efficiency.</p> <p><b>10:</b> Understanding the basics of Thyristor with SCR and its working and applications, TRIAC and its construction and applications.</p>
6	EL-6502	Introduction to Microcontroller	<p><b>1:</b> Understand of D/A Conversion and A/D Conversion with its application.</p> <p><b>2:</b> Will be able to understand variable resistor network and D/A converter testing with available D/A converters.</p> <p><b>3:</b> Will be able to describe the D/A Accuracy and Resolution with A/D simultaneous conversion and the ADC 0804 with Dual-Slope A/D Converter.</p>

			<p><b>4:</b> Understand of microcontroller and microprocessor with 8-bit and 16-bit microcontroller.</p> <p><b>5:</b> Will be able to define the CISC and RISC processor and commercial microcontroller devices.</p> <p><b>6:</b> Understand of basic MCS-8051 architecture, registers and pin description in detail.</p> <p><b>7:</b> Will be able to understand the 8051 connection with parallel I/O ports and memory organization.</p> <p><b>8:</b> Will be able to define 8051 addressing mode with MCS-51 instruction set and simple programs using stack pointer.</p> <p><b>9:</b> Understanding and describing the interrupts in MCS-51 with timers, counters and serial communication.</p> <p><b>10:</b> Understanding the application of MCS-51 as square wave generation, pulse generation, pulse width measurements and frequency counter.</p>
6	EL-6503	Electronic Communication and Cell phone technology	<p><b>1:</b> Describe the principle and block diagram of super heterodyne radio receiver.</p> <p><b>2:</b> Explain the circuit of radio receiver.</p> <p><b>3:</b> Define and explain the different parameters of the receiver.</p> <p><b>4:</b> Describe the working of the TV camera.</p> <p><b>5:</b> Explain the different block of the TV receiver.</p> <p><b>6:</b> discuss the fundamental principles of wave shaping circuit.</p> <p><b>7:</b> Illustrate the working of Highpass and Low pass filter circuitJT.</p> <p><b>8:</b> Explained different types of Multivibrator.</p> <p><b>9:</b> The working function of advanced phone system (1G) and further 2G, 2.5G. 3G and</p> <p><b>10:</b> The various communication techniques in different generation as a part of up gradation.</p>
6	EL-6504	Electrodynamics and DSP	<p><b>1:</b> Solve problems in electrostatic using Laplace equation</p> <p><b>2:</b> Describe hysteresis phenomena in ferromagnetic substances</p> <p><b>3:</b> Understand the concept of dipole radiation and its application to design and optimize the antenna properties.</p> <p><b>4:</b> Describe the concept of electromagnetic waves radiation for electric and magnetic dipole moment.</p>

			<p><b>5:</b> Understand the relativity concepts of electrodynamics, and discussion of Lienard Wiechert potential.</p> <p><b>6:</b> Understand and analyse the electrical quadruple and amount of total power radiation transmitted for different cases like arbitrary source and point charges.</p> <p><b>7:</b> To analyze the fundamentals of antenna theory and define various antenna parameters, describe the different types of antennas and their radiation mechanism</p> <p><b>8:</b> Identify the atmospheric and terrestrial effects on radio wave propagation, Describe the ground wave, space wave and sky wave propagation of radio waves</p> <p><b>9:</b> Explain the phenomenon of Digital Signal Processing, its advantages and disadvantages. Describe different types of signals, systems and classify them, explain various type of singularities and their applications and also explain simple manipulations of systems.</p> <p><b>10:</b> State and describe Z transform, Inverse Z transform, ROC and various properties of Z transform, perform Z transform on various signals and explain applications of Z transform.</p>
6	EL-6505L	Electronics Practicals	<p><b>1:</b> Study of OPAMP as comparator.</p> <p><b>2:</b> Understand of OPAMP as a log and antilog amplifier.</p> <p><b>3:</b> Study of OPAMP as a voltage regulator.</p> <p><b>4:</b> Study of D/A converter using OPAMP with R-2R ladder and Weighted resistor network.</p> <p><b>5:</b> Understand of Voltage to frequency and frequency to voltage converter using OPAMP.</p> <p><b>6:</b> Study of DC and AC characteristics of thyristors.</p> <p><b>7:</b> Understand of voltage sweep generator using UJT and measurement of acceptance angle of an optical fiber.</p> <p><b>8:</b> Will be able to understand and demonstrate the LVDT transducer and strain gauge transducer.</p> <p><b>9:</b> Study and understanding of DAC 0808 and ADC 0801 IC.</p>

			<b>10:</b> Analyse and project on chip design of digital circuit using Hardware Description Language (Verilog Code) and make a report on it.
--	--	--	--