

- **Department of Electronics**

- **Course Outcomes.**

- **F Y B Sc.**

- **Semester -1**

<b>ELE-111: Analog Electronics – I</b>	<ul style="list-style-type: none"><li>• To learn about electronics component and their application</li><li>• Learn circuit using electronic component. The student will get knowledge to analyze the circuit</li><li>• The student will learn different circuit theorem simplification of circuit will be easier using this theorem.</li><li>• Learn semiconductor material and its properties. Study some simple semiconductor device.</li></ul>
<b>ELE-112 : Digital Electronics – I</b>	<ul style="list-style-type: none"><li>• Understand basic digital electronic systems</li><li>• Learn function of basic digital circuits and use of transistors and diode to create logic gates in order to perform Boolean logic.</li><li>• Learn different theorems for simplification of basic Digital electronics circuits.</li><li>• Understand symbols, Truth tables, Boolean equations, &amp; working principle</li></ul>
<b>ELE-113 : Practical course – I</b>	<ul style="list-style-type: none"><li>• To develop practical skill, student have to perform some practical in the laboratory base on the theory which he studies.</li><li>• Student will perform various experiment using electronic component.</li><li>• The student will perform experiment on basic digital gates and some digital circuit.</li><li>• The student will perform some experiment on semiconductor device.</li></ul>

- **Semester 2**

<b>ELE-121: Analog Electronics – II</b>	<ul style="list-style-type: none"><li>• Understand Basic Circuits using Active Devices</li><li>• The student will learn new semiconductor device 'Transistor' its characteristic and circuit.</li><li>• The student will learn UJT FET and their application in circuit.</li><li>• The student will learn SCR its characteristic and application.</li></ul>
<b>ELE-122 : Digital Electronics – II</b>	<ul style="list-style-type: none"><li>• Learn combinational and sequential logic circuit and their difference</li><li>• Students can understand flip flop, shift register, counter, and semiconductor memory, for data processing.</li><li>• Student learn symbol, working principle of basic digital electronic circuit for data processing application.</li><li>• After complete this course student are able to recognize &amp; analyze the basic digital circuit.</li></ul>
<b>ELE-123 : Practical course – II</b>	<ul style="list-style-type: none"><li>• Perform practical on some basic semiconductor devices.</li><li>• Perform experiment on transistor and its characteristic in different modes.</li><li>• Student will perform experiment on UJT &amp; FET and their application.</li><li>• Learn &amp; study some advance digital circuit.</li></ul>

- **S Y B Sc.**

- **Semester -3**

<b>ELE-231: Analog Circuits and Applications</b>	<ul style="list-style-type: none"><li>• understand Basic Analog Circuits and their applications using Active Devices</li><li>• Learn basic function of single stage amplifier, multistage amplifier and power Amplifier and their working principle.</li><li>• Understand basic construction of feedback circuits and their application in Oscillators analog circuits.</li></ul>
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	<ul style="list-style-type: none"> <li>• Understand basic amplifier and oscillator circuits and their application in electrical Metallic Bond.</li> <li>• Metallurgy of Aluminum.</li> </ul>
<b>ELE-232: Instrumentation</b>	<ul style="list-style-type: none"> <li>• The ability to select a suitable measuring instrument for a given application.</li> <li>• The ability to estimate and correct deviations in measurements due to the influence of the instrument and due to the accuracy of the instrument.</li> <li>• Learn basic test instruments such as power supply, function generator, DFM and CRO and their construction and working principle.</li> <li>• Understand the construction of data convertor circuits and their applications in digital circuits.</li> </ul>
<b>ELE-233 : Practical course – I</b>	<ul style="list-style-type: none"> <li>• Perform practical on some measuring instrument.</li> <li>• Student will perform experiment on transistor and its application</li> <li>• Student will perform practical on transducers and its application.</li> <li>• Learn and study the oscillator circuits.</li> </ul>

**• Semester -4**

<b>ELE-241: Linear Integrated Circuits &amp; Applications</b>	<ul style="list-style-type: none"> <li>• Study the basic differential amplifier and their application.</li> <li>• Learn operational amplifier and its characteristics.</li> <li>• Study active and passive filters and its application.</li> <li>• Students understand different types of multivibrator and wave form generator using IC 55.</li> </ul>
<b>ELE-242: 8085 Microprocessor</b>	<ul style="list-style-type: none"> <li>• Students can understand the basic architecture of 8085 microprocessor.</li> <li>• Study the addressing modes and instructions of 8085.</li> <li>• Study complete instruction set of 8085.</li> <li>• To study various program in assembly language.</li> </ul>
<b>ELE-243 : Practical course – II</b>	<ul style="list-style-type: none"> <li>• Perform practical on various op amp circuits.</li> <li>• Perform practical on multivibrators using IC 555.</li> <li>• Student perform practical on 8085 programming in assembly language.</li> <li>• Student perform practical on active and passive filters.</li> </ul>

**• T Y B Sc.**

**• Semester -5**

<b>ELE-351: Semiconductor Physics</b>	<ul style="list-style-type: none"> <li>• Understand the fundamental concept of semiconductor like crystal structure, energy band gap, charge carrier statistics.</li> <li>• Understand the physics, basic characteristics and operation of semiconductor devices such as p-n junctions and Zener diodes.</li> <li>• Have knowledge of fabrication technology for semiconductor devices and integrated circuits.</li> </ul>
<b>ELE-352: Basic Communication Systems</b>	<ul style="list-style-type: none"> <li>• Understand the basic concept of communication system.</li> <li>• Understand AM, FM and demodulation.</li> <li>• Understand antenna and radio wave propagation used in communication system.</li> </ul>
<b>ELE-353: 8086 Microprocessor</b>	<ul style="list-style-type: none"> <li>• Understand basic architecture of 16 bit microprocessor.</li> <li>• Illustrate the organization of registers and memory in microprocessor</li> <li>• Differentiate Minimum and Maximum Mode bus cycle.</li> </ul>

	<ul style="list-style-type: none"> <li>• Identify the addressing mode of an instruction.</li> <li>• Develop programming skills in assembly language</li> </ul>
<b>ELE-354: The C Programming Language</b>	<ul style="list-style-type: none"> <li>• Understand basic of the programming language</li> <li>• Able to switch any other programming language</li> <li>• Able to write C program for simple real life applications using structures</li> </ul>
<b>ELE-355: Microcontroller 8051</b>	<ul style="list-style-type: none"> <li>• Ability to differentiate microprocessor and microcontroller.</li> <li>• Describe the architecture of 8051.</li> <li>• Able to write assembly language program for 8 bit microcontroller.</li> </ul>
<b>ELE-356: Advanced Digital System Design</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Design advanced digital systems.</li> <li>• Understand the Hardware Description Languages (HDL).</li> <li>• Design combinational and sequential logic circuits using VHDL.</li> </ul>
<b>ELE-357: General Lab – I</b>	<ul style="list-style-type: none"> <li>• Perform practical to find properties of semiconductor material.</li> <li>• Perform practical on modulation &amp; De-modulation.</li> <li>• Perform Simulation using VHDL</li> <li>• Perform Simulation using PSPICE.</li> </ul>
<b>ELE-358: <math>\mu</math>P, <math>\mu</math>C and C/MATLAB Lab – I Programming</b>	<p>Student should understand,</p> <ul style="list-style-type: none"> <li>• Write a program for <math>\mu</math>P to perform various job.</li> <li>• Write a program for <math>\mu</math>C to perform various job.</li> <li>• Write a program in C language.</li> </ul>
<b>ELE-359: Project Part-I</b>	<ul style="list-style-type: none"> <li>• To achieve the knowledge of actual project skill and design of the project</li> <li>• To get idea about the market requirement product and scope of the correct technology</li> </ul>

**• Semester -6**

<b>ELE-361: Electrodynamics</b>	<ul style="list-style-type: none"> <li>• Understand concepts in electrostatic law.</li> <li>• get acquainted with Conceptual understanding of the electromagnetic laws, set up a model and perform the necessary calculations.</li> <li>• Have knowledge of electromagnetic waves and their propagation.</li> </ul>
<b>ELE-362: Advanced Communication Systems</b>	<ul style="list-style-type: none"> <li>• Understand basic concept of digital communication system.</li> <li>• Understand the fiber optic communication.</li> <li>• Understand computer network and security</li> </ul>
<b>ELE-363: Microprocessor Interfacing Techniques and Advanced Microprocessors</b>	<p>Students should understand,</p> <ul style="list-style-type: none"> <li>• Understand interrupt and interrupt service routine.</li> <li>• Understand I/O interfacing and techniques.</li> <li>• Understand advance microprocessor</li> </ul>
<b>ELE-364: Numerical Simulation in Electronics</b>	<ul style="list-style-type: none"> <li>• Find root of equation by different numerical methods</li> <li>• Find out differentiation and integration of equation</li> <li>• Solve linear equation system.</li> <li>• Simulate electronic circuits numerically.</li> </ul>
<b>ELE-365: Embedded Systems</b>	<ul style="list-style-type: none"> <li>• Write interfacing programming.</li> <li>• Identify embedded systems in various applications.</li> <li>• write advanced microcontroller programming for real life application</li> </ul>

<b>ELE-366: Industrial and Power Electronics</b>	<ul style="list-style-type: none"> <li>• Understand power semiconductor devices used in industries.</li> <li>• Understand the construction and working of different power semiconductor devices.</li> <li>• Analyze various triggering circuits used for different semiconductor devices.</li> <li>• Design power electronic circuit for real time application like rectifier and convertor etc.</li> </ul>
<b>ELE-367: General Lab - II</b>	<ul style="list-style-type: none"> <li>• Perform practical to find characteristics of power device such as SCR, TRIAC, MOSFET etc.,</li> <li>• To study the digital modulation &amp; de-modulation technique.</li> </ul>
<b>ELE-368: <math>\mu</math>P, <math>\mu</math>C and C/MATLAB Lab – II</b>	<ul style="list-style-type: none"> <li>• Perform the practical on interfacing using <math>\mu</math>P.</li> <li>• Perform the practical on interfacing using <math>\mu</math>C.</li> <li>• Perform the practical on MATLAB.</li> </ul>
<b>ELE-369: Project Part-II</b>	<ul style="list-style-type: none"> <li>• To manage the project program strategy for complete one year to visit industries and libraries.</li> <li>• To learn the difficulties and troubleshooting in actual practical work.</li> </ul>

### **Program Outcomes**

#### **Job opportunities for B.Sc. (Electronics) students**

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