**Department of General Science & Humanities**

**VISION**

To achieve academic excellence through curricular, co-curricular activities by providing quality education in the field of

Science and humanity to fulfill needs of society and nature by creating the solutions of problems.

**MISSION**

M1: To unlock the beauty of applied sciences through effective teaching learning methods.

M2: To develop professional skills among the students to succeed in professional career.

M3: To communicate strong ethical qualities between students for contributing the society.

**Program Educational Objectives (PEOs)**

PEO1: To teach student strong educational foundation in the field of Engineering for successful career in industry and higher education.

PEO2: To provide technical skills and resources to design, analyze and create innovative solutions for engineering problems in multidisciplinary work environment.

PEO3: To teach leadership qualities, ethical attitude and competence to excel individually and work with teams.

Program Specific Outcomes (PSOs)

PSO1: Ability to understand the basic knowledge and modern technological development in the field of engineering.

PSO1: Ability to analyze and design the basic concepts and to provide solution for the real time engineering problems.

PSO1: Ability to integrate ethical and human values with leadership skills for lifelong learning.

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| **Subject- BASIC MATHEMATICS** | | **Subject Code- 311302** |
| **CO** | **Statement** | |
| **CO1** | Apply the concepts of algebra to solve engineering (discipline) related problems. | |
| **CO2** | Utilize trigonometry to solve branch specific engineering problems. | |
| **CO3** | Solve area specific engineering problems under given conditions of straight lines. | |
| **CO4** | Apply differential calculus to solve discipline specific problems. | |
| **CO5** | Use techniques and methods of statistics to crack discipline specific problems. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| **CO1** | **3** | **1** | **-** | **1** | **-** | **1** | **1** |
| **CO2** | **3** | **1** | - | **1** | **1** | **1** | **1** |
| **CO3** | **3** | **-** | **-** | **1** | **-** | **-** | **-** |
| **CO4** | **3** | **1** | **1** | **1** | **-** | **1** | **-** |
| **CO5** | **3** | **2** | **1** | **1** | **1** | **1** | **1** |

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| **Subject- COMMUNICATION SKILLS (ENGLISH)** | | **Subject Code- 311303** |
| **CO** | **Statement** | |
| **CO1** | Construct grammatically correct sentences in English. | |
| **CO2** | Compose paragraphs and dialogues on given situations | |
| **CO3** | Comprehend passages correctly. | |
| **CO4** | Use contextual words in English appropriately | |
| **CO5** | Deliver effective presentations in English using appropriate body language | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 1 | 1 |  |  |  | 2 | 1 |
| CO2 | 1 | 1 |  |  |  | 2 | 1 |
| CO3 | 1 | 1 |  |  |  | 2 | 1 |
| CO4 | 1 | 1 |  |  |  | 2 | 1 |
| CO5 | 1 | 1 |  |  |  | 2 | 1 |

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| **Subject- BASIC SCIENCE** | | **Subject Code- 311305** |
| **CO** | **Statement** | |
| **CO1** | Use basic instruments to measure the physical quantities in various engineering situations. | |
| **CO2** | Apply the basic principles of electromagnetics to solve given engineering problems. | |
| **CO3** | Apply basic principles of thermometry and fibre optics to solve engineering problems. | |
| **CO4** | Predict the structure, properties and behaviour of molecules and compounds based on the types of chemical bond. | |
| **CO5** | Apply the concepts of electrochemistry and corrosion preventive measures in industry. | |
| **CO6** | Use the appropriate engineering material and catalyst appropriately. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 3 | 1 |  | 2 | 1 | 1 | 1 |
| CO2 | 3 | 1 | 1 | 2 | 1 | 1 | 1 |
| CO3 | 3 | 1 | 1 | 2 | 1 | 1 | 1 |
| CO4 | 3 | 2 |  |  | 2 |  | 1 |
| CO5 | 3 | 2 | 1 | 1 | 2 |  | 1 |
| CO6 | 3 | 2 |  |  | 2 | 1 | 1 |

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| **Subject- FUNDAMENTALS OF ICT** | | **Subject Code- 311001** |
| **CO** | **Statement** | |
| CO1 | Use computer system and its peripherals for given purpose | |
| CO2 | Prepare Business document using Word Processing Tool | |
| CO3 | Analyze Data and represent it graphically using Spreadsheet | |
| CO4 | Prepare professional Slide Show presentations | |
| CO5 | Use different types of Web Browsers and Apps | |
| CO6 | Explain concept and applications of Emerging Technologies | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 1 | - | - | - | - | - | 1 |
| CO2 | - | - | - | 3 | - | - | 1 |
| CO3 | - | 2 | 1 | 3 | - | - | 1 |
| CO4 | - | - | - | 3 | - | - | 1 |
| CO5 | 1 | - | - | 3 | - | - | 3 |
| CO6 | 1 | - | - | 3 | - | - | 3 |

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| **Subject- ENGINEERING WORKSHOP PRACTICE (COMPUTER GROUP)** | | **Subject Code- 311002** |
| **CO** | **Statement** | |
| CO1 | Carry-out elementary level maintenance of a PC. | |
| CO2 | Create partitions and format hard disk drive. | |
| CO3 | Install and configure Operating system. | |
| CO4 | Configure different types of peripheral devices. | |
| CO5 | Setup small Local Area Network. | |
| CO6 | Use diagnostic software for fault finding in Computer system. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 1 | 1 | - | 3 | - | - | - |
| CO2 | 1 | - | - | 2 | - | - | - |
| CO3 | 1 | - | - | 2 | - | - | 1 |
| CO4 | - | - | - | 2 | - | - | 1 |
| CO5 | 1 | 1 | 1 | 2 | - | - | - |
| CO6 | - | 2 | 1 | 2 | - | - | - |

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| **Subject- YOGA AND MEDITATION** | | **Subject Code- 311003** |
| **CO** | **Statement** | |
| CO1 | Practice basic Yoga and Pranayama in daily life to maintain physical and mental fitness. | |
| CO2 | Practice meditation regularly for improving concentration and better handling of stress and anxiety. | |
| CO3 | Follow healthy diet and hygienic practices for maintaining good health. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | - | - | - | - | 3 | - | - |
| CO2 | - | - | - | - | 3 | - | - |
| CO3 | - | - | - | - | 3 | - | - |

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| **Subject- ENGINEERING GRAPHICS (Electronics, Computer and allied branches)** | | **Subject Code- 311008** |
| **CO** | **Statement** | |
| CO1 | Draw geometrical figures and engineering curves. | |
| CO2 | Apply principles of orthographic projections for drawing given pictorial views. | |
| CO3 | Apply basic CAD commands for drawing different entities. | |
| CO4 | Use various drawing codes, conventions and symbols as per IS SP-46 in engineering drawing. | |
| CO5 | Draw free hand sketches of given engineering elements. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 3 | - | - | 2 | - | 2 | - |
| CO2 | 3 | - | - | 2 | - | 2 | - |
| CO3 | 3 | - | - | 2 | - | 2 | - |
| CO4 | 3 | - | - | 2 | - | 2 | 2 |
| CO5 | 3 | - | - | 2 | - | 2 | - |

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| **Subject- ENGINEERING GRAPHICS (Civil, Electrical, Mechanical and allied branches)** | | **Subject Code- 311006** |
| **CO** | **Statement** | |
| CO1 | Draw geometrical figures and engineering curves. | |
| CO2 | principles of orthographic projections for drawing given pictorial views. | |
| CO3 | Draw isometric views of given component or from orthographic projections. | |
| CO4 | Use various drawing codes, conventions and symbols as per IS SP-46 in engineering drawing. | |
| CO5 | Draw free hand sketches of given engineering elements. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 3 | - | - | 2 | - | 2 | - |
| CO2 | 3 | - | - | 2 | - | 2 | - |
| CO3 | 3 | - | - | 2 | - | 2 | - |
| CO4 | 3 | - | - | 2 | - | 2 | - |
| CO5 | 3 | - | - | 2 | - | 2 | - |

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| **Subject- APPLIED MATHEMATICS** | | **Subject Code- 312301** |
| **CO** | **Statement** | |
| CO1 | Solve the broad-based engineering problems of integration using suitable methods. | |
| CO2 | Use definite integration to solve given engineering related problems. | |
| CO3 | Apply the concept of differential equation to find the solutions of given engineering problems. | |
| CO4 | Employ numerical methods to solve programme specific problems. | |
| CO5 | Use probability distributions to solve elementary engineering problems. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 3 | 1 | - | - | 1 | - | 1 |
| CO2 | 3 | 1 | - | - | 1 | - | 1 |
| CO3 | 3 | 2 | 1 | 1 | 1 | 1 | 1 |
| CO4 | 2 | 3 | 2 | 2 | 1 | 1 | 1 |
| CO5 | 2 | 2 | 1 | 1 | 2 | 1 | 2 |

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| **Subject- BASIC ELECTRICAL AND ELECTRONICS ENGINEERING** | | **Subject Code- 312302** |
| **CO** | **Statement** | |
| CO1 | Calculate and measure basic electrical quantities and parameters. | |
| CO2 | Use different electrical machines by making connections. | |
| CO3 | Use electrical safety devices in electrical circuit | |
| CO4 | Use relevant diode in different electronic circuits. | |
| CO5 | Use BJT and FET in various electronic circuits. | |
| CO6 | Use various types of sensors and transducers. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 3 | -- | -- | 2 | -- |  | 2 |
| CO2 | 2 | -- | -- | 2 | -- |  | 2 |
| CO3 | 2 | -- | -- | 3 | 2 |  | 3 |
| CO4 | 3 | -- | -- | 1 | -- |  | 2 |
| CO5 | 3 | -- | -- | 1 | -- |  | 2 |
| CO6 | 2 | -- | -- | 2 | 2 |  | 3 |

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| **Subject- PROGRAMMING IN C** | | **Subject Code- 312303** |
| **CO** | **Statement** | |
| CO1 | Develop C program using input - output functions and arithmetic expressions | |
| CO2 | Develop C program involving branching and looping statements | |
| CO3 | Implement Arrays and structures using C programs | |
| CO4 | Develop C program using user-defined functions | |
| CO5 | Write C program using pointer | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 3 | 2 | 2 | 1 | - | - | 1 |
| CO2 | 2 | 3 | 3 | 2 | - | - | 2 |
| CO3 | 2 | 3 | 3 | 3 | - | 2 | 2 |
| CO4 | 1 | 3 | 3 | 3 | 1 | 2 | 3 |
| CO5 | 1 | 3 | 3 | 3 | 1 | 1 | 3 |

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| **Subject- LINUX BASICS** | | **Subject Code- 312001** |
| **CO** | **Statement** | |
| CO1 | Install Linux operating system. | |
| CO2 | Execute general purpose commands of the Linux operating system. | |
| CO3 | Manage files and directories in Linux operating system. | |
| CO4 | Use vi editor in Linux operating system. | |
| CO5 | Write programs using shell script. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 3 | 2 | 2 | 3 | 1 | - | 3 |
| CO2 | 3 | - | 1 | 3 | 1 | - | 3 |
| CO3 | 3 | - | 1 | 3 | 1 | - | 3 |
| CO4 | 3 | 2 | 2 | 3 | 1 | - | 3 |
| CO5 | 3 | 2 | 2 | 3 | 1 | - | 3 |

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| **Subject- PROFESSIONAL COMMUNICATION** | | **Subject Code- 312002** |
| **CO** | **Statement** | |
| CO1 | Communicate effectively (oral / spoken and Written) in various formal and informal situations minimizing the barriers. | |
| CO2 | Develop listening skills through active listening and note taking. | |
| CO3 | Write circulars, notices and minutes of the meeting. | |
| CO4 | Draft inquiry letter, complaint letter, Job application with resume / CV, Compose effective E - mails . | |
| CO5 | Write Industrial reports. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 1 | 1 | 1 | - | 1 | 3 | 1 |
| CO2 | 1 | 1 | - | - | - | 3 | 1 |
| CO3 | 1 | - | - | - | - | 3 | 1 |
| CO4 | - | 1 | - | - | - | 3 | 1 |
| CO5 | **-** | 1 | 1 | **-** | **-** | 3 | 1 |

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| **Subject- SOCIAL AND LIFE SKILLS** | | **Subject Code- 312003** |
| **CO** | **Statement** | |
| CO1 | Enhance the ability to be fully self-aware and take challenges by overcoming all fears and insecurities and grow fully. | |
| CO2 | Increase self-knowledge and awareness of emotional skills and emotional intelligence at the place of study/work. | |
| CO3 | Provide the opportunity to realizing self-potential through practical experience while working individually or in group. | |
| CO4 | Develop interpersonal skills and adopt good leadership behaviour for self-empowerment and empowerment of others. | |
| CO5 | Set appropriate life goals with managing stress and time effectively. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | - | - | - | - | 03 | 03 | 03 |
| CO2 | - | - | - | - | 02 | 02 | 03 |
| CO3 | 01 | 01 | 01 | - | 03 | 03 | 03 |
| CO4 | - | 01 | 01 | 01 | 03 | 03 | 03 |
| CO5 | **-** | 02 | **-** | 01 | 03 | 03 | 03 |

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| **Subject- WEB PAGE DESIGNING** | | **Subject Code- 312004** |
| **CO** | **Statement** | |
| CO1 | Use HTML formatting tags to present content on web page. | |
| CO2 | Develop web page using list and hyperlinks. | |
| CO3 | Develop web pages using images, colors and backgrounds. | |
| CO4 | Design HTML forms using table and frames. | |
| CO5 | Apply presentation schemes on content using CSS. | |
| CO6 | Publish websites on internet or intranet. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 1 | - | - | 1 | - | - | 1 |
| CO2 | 1 | - | 1 | 1 | 1 | - | 2 |
| CO3 | 1 | - | 2 | 1 | 1 | - | 2 |
| CO4 | 1 | 1 | 2 | 1 | 1 | - | 3 |
| CO5 | 2 | 2 | 2 | 1 | 3 | 3 | 3 |
| CO6 | 3 | 2 | 2 | 2 | 3 | 3 | 3 |

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| **Subject- ENGINEERING MECHANICS** | | **Subject Code- 312312** |
| **CO** | **Statement** | |
| CO1 | Select the suitable machine under given loading condition. | |
| CO2 | Analyze the given force system to calculate resultant force. | |
| CO3 | Determine unknown force(s) of given load combinations in the given situation. | |
| CO4 | Apply the laws of friction in the given situation. | |
| CO5 | Determine the centroid/centre of gravity of the given lamina. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 1 | 1 | 1 | 2 | 1 | - | 1 |
| CO2 | 2 | 2 | 1 | 2 | 1 | - | 1 |
| CO3 | 2 | 2 | 1 | 2 | 1 | - | 1 |
| CO4 | 2 | 2 | 2 | 2 | 1 | - | 1 |
| CO5 | 2 | 2 | 1 | 2 | 1 | - | 1 |

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| **Subject- BUILDING MATERIAL AND CONSTRUCTION** | | **Subject Code- 312338** |
| **CO** | **Statement** | |
| CO1 | Identify relevant type of construction materials for the given type of building. | |
| CO2 | Use the relevant type of special purpose construction materials in the given situation. | |
| CO3 | Undertake the given type of building construction activity for the given component of building structure. | |
| CO4 | Design the relevant means of communication for the given building structure. | |
| CO5 | Use the relevant type of material for finishing purpose in the given situation. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 2 | 1 | - | 1 | 1 | 1 | 1 |
| CO2 | 2 | 1 | - | 1 | 2 | 1 | 1 |
| CO3 | 3 | 2 | 1 | 2 | 2 | 1 | 2 |
| CO4 | 3 | 2 | 1 | 2 | 2 | 1 | 2 |
| CO5 | 3 | 2 | 1 | 2 | 1 | 1 | 2 |

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| **Subject- SURVEYING** | | **Subject Code- 312339** |
| **CO** | **Statement** | |
| CO1 | Suggest relevant type of survey required for the given situation. | |
| CO2 | Undertake cross staff and compass survey for the given field | |
| CO3 | Undertake survey using Theodolite for preparing a plan of the given terrain. | |
| CO4 | Determine Reduced Level to prepare Contour maps for the given type of terrain | |
| CO5 | Prepare the plan using Plane Table Surveying to locate relevant details. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 3 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 1 | 2 | 1 | 1 | 3 |
| CO3 | 3 | 3 | 2 | 3 | 1 | 2 | 3 |
| CO4 | 3 | 3 | 2 | 3 | 1 | 2 | 3 |
| CO5 | 3 | 2 | 2 | 3 | 1 | 2 | 3 |

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| **Subject- ENGINEERING DRAWING** | | **Subject Code- 312311** |
| **CO** | **Statement** | |
| CO1 | Apply principles of sectional orthographic projections for drawing given pictorial views. | |
| CO2 | Draw projection of lines and planes. | |
| CO3 | Draw projections of given solids for various orientations. | |
| CO4 | Interpret curves of intersection for given solids. | |
| CO5 | Draw development of lateral surfaces of various solids. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 3 | 3 | - | 2 | - | 2 | 2 |
| CO2 | 3 | 3 | - | 2 | - | 2 | 2 |
| CO3 | 3 | 3 | - | 2 | - | 2 | 2 |
| CO4 | 3 | 3 | 2 | 2 | - | 2 | 2 |
| CO5 | 3 | 3 | 2 | 2 | - | 2 | 2 |

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| **Subject- MANUFACTURING TECHNOLOGY** | | **Subject Code-  312313** |
| **CO** | **Statement** | |
| CO1 | Produce a part using a lathe and drilling machine as per given drawing. | |
| CO2 | Produce a part using a milling machine as per given drawing. | |
| CO3 | Produce a part using casting processes as per given drawing. | |
| CO4 | Produce a part using forming processes as per given drawing. | |
| CO5 | Produce a part using joining processes as per given drawing.. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 3 | 2 | 2 | 2 | - | 2 | 2 |
| CO2 | 3 | 2 | 2 | 2 | - | 2 | 2 |
| CO3 | 3 | 2 | 2 | 2 | - | 2 | 2 |
| CO4 | 3 | 2 | 2 | 2 | - | 2 | 2 |
| CO5 | 3 | 2 | 2 | 2 | - | 2 | 2 |

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| **Subject- ELEMENTS OF ELECTRONICS** | | **Subject Code-  312309** |
| **CO** | **Statement** | |
| CO1 | Identify various electronic components | |
| CO2 | Use semiconductor diodes in different applications. | |
| CO3 | Use semiconductor transistors in different applications. | |
| CO4 | Use different types of Oscillators as per requirement | |
| CO5 | Test operation of regulated power supply. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 2 | - | 1 | 1 | 1 | - | 2 |
| CO2 | 2 | - | 1 | 1 | 2 | - | 2 |
| CO3 | 2 | 1 | 1 | 1 | 2 | 1 | 2 |
| CO4 | 2 | 1 | 1 | 1 | 2 | 1 | 2 |
| CO5 | 2 | 1 | 1 | 1 | 2 | 1 | 2 |

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| **Subject- FUNDAMENTAL OF ELECTRICAL ENGINEERING** | | **Subject Code- 312310** |
| **CO** | **Statement** | |
| CO1 | Determine various parameters used in electric circuit. | |
| CO2 | Use basic laws of electrical engineering in D.C. Circuits. | |
| CO3 | Use capacitor and battery in electrical circuits. | |
| CO4 | Use principles of magnetism in Magnetic Circuits. | |
| CO5 | Apply Laws of electromagnetism in electrical circuit and systems. | |

**CO-PO Mapping**

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| CO1 | 3 | 1 | - | 1 | - | - | 2 |
| CO2 | 3 | 1 | 1 | 1 | 1 | - | 2 |
| CO3 | 3 | 1 | 1 | 2 | 2 | - | 2 |
| CO4 | 3 | 1 | 1 | 2 | 2 | - | 2 |
| CO5 | 3 | 1 | 1 | 2 | 2 | - | 2 |