**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination Scheme:**

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| --- | --- | --- | --- |
| **Components** | **MTE** | **Class assessment** | **ETE** |
| **Weightage (%)** | **20** | **30** | **50** |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

|  |  |  |
| --- | --- | --- |
| **Mapping between COs and POs** | | |
|  | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| CO1 | Develop the idea of basic concepts of abstract algebra and  geometrical idea of vector analysis with real world applications. | **PO2, PO3, PO4, PO12** |
| CO2 | Explain the fundamental concepts of Differential Calculus and  apply these topics in real life problems | **PO2, PO3, PO4, PO12** |
| CO3 | Illustrate the fundamental concepts of Integral Calculus and apply these topics in real life problems. | **PO2, PO3, PO4, PO12** |
| CO4 | Understand and apply the various solution procedures of  Ordinary Differential equations in engineering problems. | **PO2, PO3, PO4, PO12** |

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|  |  | Engineering Knowledge | Problem analysis | Design/development of solutions | Conduct investigations of complex problems | Modern tool usage | The engineer and society | Environment and sustainability | Ethics | Individual or team work | Communication | Project management and finance | Life-long Learning | Adequate strong skills in learning new programming… | The ability to understand the evolutionary changes in … | Ability to analyze the impact of computer science and … |
| Course Code | Course Title | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO 1 | PSO 2 | PSO 3 |
| MTH11501 | Engineering Mathematics- I | - | 3 | 3 | 3 | - | - | - | - | - | - | - | 3 | - | - | - |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

|  |  |  |
| --- | --- | --- |
| **Mapping between COs and POs** | | |
|  | **Course Outcomes (COs)** | **Mapped**  **Program Outcomes** |
| **CO1** | Understand the basics of vector calculus, its application in mechanics, and different harmonic motions. | **PO1, PO12** |
| **CO2** | Demonstrate the knowledge of physical optics and related application. | **PO1** |
| **CO3** | Develop the basic concepts of electromagnetic theory and e-m wave. | **PO1, PO5, PO6** |
| **CO4** | Apply fundamental concepts of thermodynamics to engineering applications, estimate thermodynamic properties of substances in gas and liquid states, and determine thermodynamic feasibility and efficiency of various energy related processes. | **PO1, PO2, PO4, PO12** |
| **CO5** | Determine the rate law, effect of temperature on the rate of a chemical reaction and determine the activation energy and assess the role of a catalyst on the rate of a chemical reaction, calculate the cell potential for a nonstandard cell. | **PO1, PO2, PO4** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Engineering Knowledge | Problem analysis | Design/development of solutions | Conduct investigations of complex problems | Modern tool usage | The engineer and society | Environment and sustainability | Ethics | Individual or team work | Communication | Project management and finance | Life-long Learning | Adequate strong skills in learning new programming… | The ability to understand the evolutionary changes in … | Ability to analyze the impact of computer science and … |
| Course Code | Course Title | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO 1 | PSO 2 | PSO 3 |
| PHY11201 | Applied Science | 3 | 2 | - | 3 | 2 | 2 | - | - | - | - | - | 1 | - | - | - |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

|  |  |  |
| --- | --- | --- |
| **Mapping between COs and POs** | | |
|  | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Define basics concepts of programming structure and implement the basics concepts of Programming. | **PO4** |
| **CO2** | Solve various problems using programming language and select the best solution. | **PO1, PO3** |
| **CO3** | Apply the modularized solution and design such programs to appraise the solution | **PO1, PO9** |
| **CO4** | Understand the basic usage of memory and construct such memory in terms of array in a program. Students will also be able to define user defined data types using structure and Union. Create and manipulate permanent storage access through File Handling. | **PO1, PO5** |
| **CO5** | Define different data structures for various collection of data | **PO1, PO11** |

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|  |  | Engineering Knowledge | Problem analysis | Design/development of solutions | Conduct investigations of complex problems | Modern tool usage | The engineer and society | Environment and sustainability | Ethics | Individual or team work | Communication | Project management and finance | Life-long Learning | Adequate strong skills in learning new programming… | The ability to understand the evolutionary changes in … | Ability to analyze the impact of computer science and … |
| **Course Code** | **Course Title** | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO 1 | PSO 2 | PSO 3 |
| CSE11001 | Introduction to Programming | 3 | - | 1 | 2 | 2 | - | - | - | 1 | - | 1 | - | - | - | - |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

|  |  |  |
| --- | --- | --- |
| **Mapping between COs and POs** | | |
|  | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | **Apply** knowledge about different passive components used in electronic industry for common application. | **PO3, PO8** |
| **CO2** | **Illustrate** with the working of different active components to **demonstrate** basic electronic circuits. | **PO2, PO9,**  **PO10, PO11** |
| **CO3** | **Design** circuits using passive and active components for strengthening fundamental idea about basic electronics. | **PO1, PO4, PO5, PO6, PO7** |
| **CO4** | **Describe** the basic construction of measuring instruments used in  electronic measurements | **PO12** |
| **CO5** | **Apply** the Network theorems to calculate the voltage, current and power for a given circuit. | **PO1** |
| **CO6** | **Explain** Active Power, Reactive Power, Power factor, Quality  factor, average and effective values of Sinusoids, complex representation of impedances and draw the Phasor diagram | **PO2** |
| **CO7** | **Understand** the three-phase power measurement. | **PO3** |
| **CO8** | **Explain** PN Junction Diode in Forward Biased, Reverse Biased  Condition, Breakdown in PN Junction Diodes and Different Configurations of a Transistor and its Characteristics. | **PO4** |
| **CO9** | **Demonstrate** digital logic circuit and switching circuits using MOSFET. | **PO1** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Engineering Knowledge | Problem analysis | Design/development of solutions | Conduct investigations of complex problems | Modern tool usage | The engineer and society | Environment and sustainability | Ethics | Individual or team work | Communication | Project management and finance | Life-long Learning | Adequate strong skills in learning new programming… | The ability to understand the evolutionary changes in … | Ability to analyze the impact of computer science and … |
| **Course Code** | **Course Title** | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO 1 | PSO 2 | PSO 3 |
| GEE11001 | Electrical and Electronics Technology | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | - | - | - |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

|  |  |  |
| --- | --- | --- |
| **Mapping between COs and POs** | | |
|  | **Course Outcomes (COs)** | **Mapped Program**  **Outcomes** |
| **CO1** | Understand the basics of communication processes and to know the  practical implications and its challenges at the workplace | **PO10** |
| **CO2** | Spell out the practical uses of English grammar and to use grammar  correctly and unambiguously | **PO10** |
| **CO3** | Demonstrate different formats of business communication like reports, letters, and other technical writings | **PO6, PO8** |
| **CO4** | Develop competence in speaking, reading, listening and writing in English | **PO7, PO8,**  **PO9, PO12** |

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|  |  | Engineering Knowledge | Problem analysis | Design/development of solutions | Conduct investigations of complex problems | Modern tool usage | The engineer and society | Environment and sustainability | Ethics | Individual or team work | Communication | Project management and finance | Life-long Learning | Adequate strong skills in learning new programming… | The ability to understand the evolutionary changes in … | Ability to analyze the impact of computer science and … |
| **Course Code** | **Course Title** | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO 1 | PSO 2 | PSO 3 |
| ENG11053 | English Communication | - | - | - | - | - | 2 | 2 | 3 | 2 | 3 | - | 2 | - | - | - |

1=weakly mapped; 2= moderately mapped; 3=strongly mapped

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

|  |  |  |
| --- | --- | --- |
| **Mapping between COs and POs** | | |
|  | **Course Outcomes (COs)** | **Mapped Program Outcome** |
| **CO1** | **Explain** the structure and functions cell organelles and their interrelationship. | **PO9, PO12, PSO1, PSO2** |
| **CO2** | **Analyze** the genetic switches and evolutionary dynamics of living system. | **PO2, PO5, PO6** |
| **CO3** | **Determine** the mode of transport of molecules in biological system numerically. | **PO2, PO3, PO5, PO8, PSO1, PSO2** |
| **CO4** | **Contrast** between the different networks of human body and other physiological systems and can summarize consequences of physiological disorders. | **PO1, PO2, PO3, PO5, PO6,PO12, PSO1, PSO2** |
| **CO5** | **Choose** different techniques of medical biotechnology on human body to analyze the malfunction of different human system during diseased conditions. | **PO1, PO2, PO3, PO5, PO6, PO8, PO12,PSO1, PSO2** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Engineering Knowledge | Problem analysis | Design/development of solutions | Conduct investigations of complex problems | Modern tool usage | The engineer and society | Environment and sustainability | Ethics | Individual or team work | Communication | Project management and finance | Life-long Learning | Adequate strong skills in learning new programming… | The ability to understand the evolutionary changes in … | Ability to analyze the impact of computer science and … |
| **Course Code** | **Course Title** | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO 1 | PSO 2 | PSO 3 |
| BIT11003 | Life Sciences | 2 | 2 | 1 | - | 3 | 2 | - | 1 | 1 | - | - | 2 | 3 | 3 | - |

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| --- | --- | --- |
| **Mapping between COs and Pos** | | |
|  | **Course Outcomes (COs)** | **Mapped Program**  **Outcomes** |
| **CO1** | Examine design thinking concepts and principles | **PO1, PO11** |
| **CO2** | Practice the methods, processes, and tools of design thinking | **PO1, PO2** |
| **CO3** | Apply the Design Thinking approach and model to real world scenarios. | **PO1, PO2, PO4** |
| **CO4** | Analyze the role of primary and secondary research in the  discovery stage of design thinking | **PO1, PO5** |

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|  |  | Engineering Knowledge | Problem analysis | Design/development of solutions | Conduct investigations of complex problems | Modern tool usage | The engineer and society | Environment and sustainability | Ethics | Individual or team work | Communication | Project management and finance | Life-long Learning | Adequate strong skills in learning new programming… | The ability to understand the evolutionary changes in … | Ability to analyze the impact of computer science and … |
| **Course Code** | **Course Title** | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO 1 | PSO 2 | PSO 3 |
| DGS11001 | Design Thinking | 3 | 2 | - | 1 | 2 | - | - | - | - | - | 2 | - | - | - | - |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

|  |  |  |
| --- | --- | --- |
| **Mapping between COs and POs** | | |
|  | **Course Outcomes (COs)** | **Mapped Program**  **Outcomes** |
| **CO1** | Understand about the elastic and other general properties of matter and their measurements. | **PO1,** |
| **CO2** | Illustrate the knowledge of physical optics and experimental techniques to verify them. | **PO1** |
| **CO3** | Develop the basic concepts related to electrical circuits. | **PO1, PO5** |
| **CO4** | Outline the fundamental knowledge of basic quantum mechanics and few experiments related to it. | **PO1** |
| **CO5** | Illustrate the basic information about semiconductor material and devices. | **PO1, PO5, PO2** |
| **CO6** | Develop the qualitative idea of thermo-electric currents and technique to measure it. | **PO1** |
| **CO7** | Understand and practice different techniques of quantitative chemical analysis generate experimental skills and apply these skills to various analyses | **PO1, PO2, PO3** |
| **CO8** | Analyze the quality of water by determining its hardness & alkalinity. | **PO3, PO9** |
| **CO9** | Utilize the fundamental laboratory techniques for analyses | **PO2, PO3** |

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|  |  | Engineering Knowledge | Problem analysis | Design/development of solutions | Conduct investigations of complex problems | Modern tool usage | The engineer and society | Environment and sustainability | Ethics | Individual or team work | Communication | Project management and finance | Life-long Learning | Adequate strong skills in learning new programming… | The ability to understand the evolutionary changes in … | Ability to analyze the impact of computer science and … |
| **Course Code** | **Course Title** | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO 1 | PSO 2 | PSO 3 |
| PHY1 2202 | Applied Science Lab | 3 | 2 | 2 | - | 2 | - | - | - | 2 | - | - | - | - | - | - |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

|  |  |  |
| --- | --- | --- |
| **Mapping between COs and POs** | | |
|  | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | List and memorize various Unix commands. Also, students be able to construct various basic programs and appraise them. | **PO3** |
| **CO2** | Design and execute iterative statement in a program. Also, students be able to differentiate among different iterative structure. | **PO1, PO4** |
| **CO3** | Construct such programs that used to define user defined functions and to design library functions. | **PO1, PO7** |
| **CO4** | Apply array concept in 1-Dimensional and 2-Dimensional construct. Hence be able to design string functions to cater to various character array related problem. | **PO1, PO2, PSO1** |
| **CO5** | Apply the concept of Stack, Queue, and Linked List and appraise them in different cases. | **PO1, PO5, PO11** |

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|  |  | Engineering Knowledge | Problem analysis | Design/development of solutions | Conduct investigations of complex problems | Modern tool usage | The engineer and society | Environment and sustainability | Ethics | Individual or team work | Communication | Project management and finance | Life-long Learning | Adequate strong skills in learning new programming… | The ability to understand the evolutionary changes in … | Ability to analyze the impact of computer science and … |
| **Course Code** | **Course Title** | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO 1 | PSO 2 | PSO 3 |
| CSE12002 | Programming Lab | 3 | 1 | 1 | 2 | 2 | - | 1 | - | - | - | 1 | - | 1 | - | - |