| Sem | Course<br>Code | Course Name                                | CO Number | Course Outcome Statements  |
|-----|----------------|--|-----------|--|
|     |                |  | CSC3011   | Understand the concept of Laplace transform and its application to solve the real integrals in engineering problems.         |
|     |                |  | CSC3012   | Understand the concept of inverse Laplace transform of various functions and its applications in engineering problems.       |
|     |                |  | CSC3013   | Expand the periodic function by using the Fourier series for real-life problems and complex engineering problems.            |
|     |                |  | CSC3014   | Understand complex variable theory, application of harmonic conjugate to get orthogonal trajectories and analytic functions. |
|     |                |  | CSC3015   | Apply the concept of Correlation and Regression to the engineering problems in data science, machine learning, and AI.       |
|     |                | Engineering                                | CSC3016   | Understand the concepts of probability and expectation for getting the spread of the data                                    |
| III | CSC301         | Mathematics - III                          |           | and distribution of probabilities.   |
|     |                |  | CSC3021   | Understand the notion of mathematical thinking, mathematical proofs and to apply them in problem solving.                    |
|     |                |  | CSC3022   | Ability to reason logically.   |
|     |                |  | CSC3023   | Ability to understand relations, functions, Diagraph and Lattice.  |
|     |                |  | CSC3024   | Ability to understand and apply concepts of graph theory in solving real world problems.                                     |
|     |                |  | CSC3025   | Understand use of groups and codes in Encoding-Decoding.   |
| III | CSC302         | Discrete<br>Structures and<br>Graph Theory | CSC3026   | Analyze a complex computing problem and apply principles of discrete mathematics to identify solutions.                      |
|     |                |  | CSC3031   | Explain various data structures, related terminologies and its types.  |
|     |                |  | CSC3032   | Demonstrate the working of various Linear data structures  |
|     |                |  | CSC3033   | Represent & manipulate the data using non-linear data structure  |
|     |                |  | CSC3034   | Select appropriate searching technique for a given problem.  |
| III | CSC303         | Data Structure                             | CSC3035   | Recommend the data structures to solve the problems.   |

|     |        |                              | CSC3036 | Demonstrate capabilities of self learning which leads to lifelong learning  |
|-----|--------|------------------------------|---------|---|
|     |        |                              | CSC3041 | Learn different number systems and basic structure of computer system.  |
|     |        |                              | CSC3042 | Demonstrate the arithmetic algorithms.  |
|     |        |                              | CSC3043 | Understand the basic concepts of digital components and processor organization.   |
|     |        |                              | CSC3044 | Understand the generation of control signals of computer.   |
|     |        | Digital Logic &              | CSC3045 | Demonstrate the memory organization.  |
| III | CSC304 | Computer<br>Architecture     | CSC3046 | Describe the concepts of parallel processing and different Buses.   |
|     |        |                              | CSC3051 | Describe the basic concepts of Computer Graphics.   |
|     |        |                              | CSC3052 | Demonstrate various algorithms for basic graphics primitives.   |
|     |        |                              | CSC3053 | Apply 2-D geometric transformations on graphical objects.   |
|     |        |                              | CSC3054 | Use various clipping algorithms on graphical objects  |
|     |        |                              | CSC3055 | Explore 3-D geometric transformations, curve representation techniques and projections methods.                                 |
| III | CSC305 | Computer<br>Graphics         | CSC3056 | Explain visible surface detection techniques and Animation.   |
|     |        |                              | CSL3011 | Implement linear data structures & be able to handle operations like insertion, deletion, searching and traversing on them.     |
|     |        |                              | CSL3012 | Implement Non-linear data structures & be able to handle operations like insertion, deletion, searching and traversing on them. |
|     |        |                              | CSL3013 | Select appropriate data structure and apply it in various problems  |
|     |        |                              | CSL3014 | Select appropriate searching techniques for given problems.   |
| III | CSL301 | Data Structures<br>Lab       | CSL3015 | Demonstrate capabilities of self learning which leads to lifelong learning  |
|     |        |                              | CSL3021 | Understand the basics of digital components   |
|     |        |                              | CSL3022 | Understand various types of codes and their conversion.   |
|     |        |                              | CSL3023 | Understand the principles of combinational logic design.  |
|     |        | Digital Logic &              | CSL3024 | Implement various algorithms for arithmetic operations.   |
|     |        | Computer<br>Organization and | CSL3025 | Design the basic building blocks of a computer: ALU, registers, CPU and   |
| III | CSL302 | Architecture Lab             |         | memory  |

|     |        |                                   | CSL3026 | Understand the logic of flip flops and its conversion.  |
|-----|--------|-----------------------------------|---------|---|
|     |        |                                   | CSL3031 | Implement various output primitive algorithms.  |
|     |        |                                   | CSL3032 | Use and apply various filled area primitive algorithms.   |
|     |        |                                   | CSL3033 | Apply various transformation algorithms on 2D graphical objects   |
|     |        |                                   | CSL3034 | Apply clipping algorithms on 2D graphical objects.  |
|     |        |                                   | CSL3035 | Perform curve and fractal generation methods  |
| III | CSL303 | Computer<br>Graphics Lab          | CSL3036 | Develop a Graphical application/Animation based on learned concept  |
|     |        |                                   | CSL3041 | Apply fundamental programming constructs of java to solve simple problems.  |
|     |        |                                   | CSL3042 | Identify classes, objects, members of a class<br>and relationship among them needed for a<br>specific problem and write java application<br>using OOP principles and packages |
|     |        |                                   | CSL3043 | Demonstrate the concept of array, strings and vector.   |
|     |        | Skill based Lab<br>Course: Object | CSL3044 | Implement the concept of inheritance and interfaces.  |
|     |        | Oriented<br>Programming           | CSL3045 | Implement the notion of exception handling and multithreading.  |
| III | CSL304 | with Java                         | CSL3046 | Develop GUI based application.  |