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**BGS INSTITUTE OF TECHNOLOGY, B G NAGAR**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**COURSE OUTCOMES AND CO-PO-PSO MAPPING**

 **Course Coordinators: Arpitha K / Sheela S K / Amulya M P**

 **Semester & Section: III, A & B**

 **Academic Year: 2020-21**

 **Course Code: 18CS34**

 **Course Name: Discrete Mathematical Structures**

| After studying this course, students will be able to: |
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| **CO1** | State the correctness of an argument using propositional and predicate logic and truth tables. |
| **CO2** | Demonstrate the ability to solve problems using counting techniques and combinatory in the context of discrete probability. |
| **CO3** | Solve problems involving relations and functions. |
| **CO4** | Interpret problems involving relations and principles of counting. |
| **CO5** | Demonstrate the knowledge of fundamental concepts in graph theory, including properties and characterization of graphs and trees. |

| **PSO1** | Ability to apply Mathematical Methodologies, Management Principles and Ethics, Electronics and Embedded Systems and Programming Technologies to solve real time problems. |
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| **PSO2** | Ability to apply software design and development practices to develop software in emerging areas such as Internet of Things, Data Management, Social Networking and Security, Cloud and High-Performance Computing. |

| CO/PO'S | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | P07 | PO8 | PO9 | P010 | PO11 | PO12 | PSO1 | PSO2 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CO1 | **3** | **3** | **3** |  |  |  |  |  |  |  |  |  | **3** |  |
| CO2 | **3** | **3** | **3** |  |  |  |  |  |  |  |  |  | **3** |  |
| CO3 | **3** | **3** | **3** |  |  |  |  |  |  |  |  |  | **3** |  |
| C04 | **3** | **3** | **3** |  |  |  |  |  |  |  |  |  | **3** |  |
| CO5 | **3** | **3** | **2** |  |  |  |  |  |  |  |  |  | **3** |  |
| AVG | **3** | **3** | **2.8** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **3** |  |

| **COs** | **Levels** | **Justification** |
| --- | --- | --- |
| **CO1.PO1** | **3** | The validity of facts can be verified using predicate and propositional logic |
| **CO1.PO2** | **3** | The real life events can be represented and verified using Mathematical logic |
| **CO1.PO3** | **3** | Reasoning is made possible for engineering problems |
| **CO1.PSO1** | **3** | The reasoning and inferences made by them can be substantiated by the various proof techniques |
| **CO2.PO1** | **3** | The arrangement and combinations of data to be taken for different problems can be identified |
| **CO2.PO2** | **3** | It helps to analyse the complexity and choose the best method for the particular problem |
| **CO2.PO3** | **3** | Counting techniques can be used to visualize the complex engineering problems involving sets of data. |
| **CO2.PSO1** | **3** | Counting techniques can be used to reach conclusions in the problems involving huge data. |
| **CO3.PO1** | **3** | The concepts of discrete structures can be used to solve various complex engineering problems |
| **CO3.PO2** | **3** | The knowledge about the discrete computational structures will help them to reach conclusions about the complexity and methodologies for solving real life problems |
| **CO3.PO3** | **3** | Discrete structures can aid in the representation of various real life problems |
| **CO3.PSO1** | **3** | Helps to identify the relations among the different datasets. |
| **CO4.PO1** | **3** | All algorithms can be compared using a single measure to identify the amount of computations involved in them so that the optimal one can be identified. |
| **CO4.PO2** | **3** |  It provides the ability to count items in any number of collections. |
| **CO4.PO3** | **3** | It enables to review the possibility of overlap between two or more collections so that we can accurately count the number of items in one collection or the other.  |
| **CO4.PSO1** | **3** | This is instrumental in some computational problems such as the evaluation of system reliability or the calculation of the probability in diagnosis. |
| **CO5.PO1** | **3** | Knowledge of graph and different terminologies in graph shall help to clearly understand the basics of many engineering concepts. |
| **CO5.PO2** | **3** | Learning to use graphs to solve real world problems helps to analyse and judge the real world problems and deduce which type of graph to be considered for a particular problem and how to map it with regard to the problem. |
| **CO5.PO3** | **3** | Using different graph theoretical algorithms helps the students to develop efficient algorithms for different complex, real world problems. |
| **CO5.PSO1** | **2** | Learning how to represent graphs by different programming structures available in computer programming makes a student capable of converting his knowledge in graph theory to developing programs to demonstrate the different graph theoretical operations. |