## CHAPTER 5

## DETAIL OUTLINE OF UNDERGRADUATE COURSES OFFERED BY THE DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

## LEVEL-1 SPRING TERM

## CSE-101: Discrete Mathematics



Representing Relations, Equivalence Relations; Graphs and Trees: Introduction to Graphs and Trees, graph models, representing graphs and graph isomorphism, Euler and Hamilton Path, Application of trees.
SKILL MAPPING

| No. | Course Learning Outcome | PROGRAM OUTCOMES (PO) |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 0 | 1 | 1 2 |
| CO1 | Define an argument using logical notation and determine if the argument is or is not valid. | H |  |  |  |  |  |  |  |  |  |  |  |
| CO 2 | Construct simple mathematical proofs and possess the ability to verify them. |  | H |  |  |  |  |  |  |  |  |  |  |
| CO 3 | Demonstrate the understanding of sets, relations and functions and modeling problems using graphs and trees. |  |  | H |  |  |  |  |  |  |  |  |  |
| CO4 | Develop the communication skill by presenting different topics on graphs and trees. |  |  |  |  |  |  |  |  |  | L |  |  |

(H - High, M- Medium, L-low)
JUSTIFICATION FOR CO-PO MAPPING:

| Mapping | Level | Justifications |
| :--- | :---: | :--- |
| CO1-PO1 | High | Be skillful in expressing mathematical properties formally via the formal <br> language by applying the knowledge fundamentals to the solution of <br> complex engineering problems. |
| CO2-PO2 | High | Develop the ability to evaluate a proof on the basic structure of each proof <br> technique described. |
| CO3-PO3 | High | Be able to specify and manipulate basic mathematical objects such as sets, <br> functions, and relations and will also be able to verify simple mathematical <br> properties that these objects possess. |
| CO4-PO10 | Low | Develop the communication skill through class participation and <br> presentation. |

## TEACHING LEARNING STRATEGY

| Teaching and Learning Activities | Engagement (hours) |
| :--- | :---: |
| Face-to-Face Learning | 42 |
| Lecture | - |
| Practical / Tutorial / Studio | - |
| Student-Centred Learning | 42 |
| Self-Directed Learning | 21 |
| Non-face-to-face learning | 21 |
| Revision |  |
| Assessment Preparations | 2 |
| Formal Assessment | 3 |
| Continuous Assessment | 131 |
| Final Examination |  |
| TEACHI CHING METHODOLOGY |  |

Lectures, class performance, Quiz, Viva, Lab tests, Report

## COURSE SCHEDULE

| Week | Lecture | Topics | Assessment Methods |
| :--- | :--- | :--- | :--- |
| 1 | Lec 1 <br> Lec 2 <br> Lec 3 | The Foundations: Logic, Propositional <br> Equivalence |  |
| 2 | Lec 4 | The Foundations: Predicates and Quantifiers, |  |



