|  |  |  |  |
| --- | --- | --- | --- |
| Date: | Examination No.: 15367 | Version:1/9/2019 | Start: 31/1/2024 |
| **Module Name - Code** | Discrete Mathematics – 5110 |
| **Module Language:** | English |
| **Responsible:** | Lecturer Salar Jamal Abdulhameed Atroshi |
| **Lecture (s):** |  |
| **College:** | College of Engineering – Salahaddin University-Erbil |
| **Duration:** | 15 week – 1 semester |
| **Course outcomes:** | At the end of this course, students will be able to:* Identify proper models for discrete phenomena.
* Recognize and construct logical arguments and proofs.
* Solve enumeration problems.
* Distinguish the properties of graph models.
 |
| **Course Content:** |  Discrete Mathematics is a mandatory requirement for a BSc in Software Engineering. This course is an introduction to the mathematical study of discrete objects. In it, you will learn how to construct proofs, as well as read and write formal mathematics. The course covers Logic Statements and Proposition Algebra, Sets Theory and their operations, Relations and their Types, Functions, Graphs and their Types, Number theory and Prime number, Trees and Formal Language and Machines.Discrete Mathematics provides the mathematical foundations for many computer science and Software Engineering courses including Data Structures and Algorithms, Computational Theory, Compilers, Operating Systems, Database Systems, Data Security, to name a few. You will find these courses much more difficult if you attempt them without the foundations of discrete Mathematics. |
| **Literature:** | 1. “Discrete Mathematics and Its Applications 7th Edition”, Kenneth H. Rosen, McGraw-Hill, 2012.
2. “Discrete Mathematics with Graph Theory 3rd Edition”, Edgar G. Goodaire and Michael M. Parmenter, 2006.
 |
| **Type of Teaching:** | 4 hours/week in lectures  |
| **Pre-requisites:** |  |
| **Frequency:** | Yearly in spring semester |
| **Requirements for credit points:** | For the award of credit points, it is necessary to pass the module exam. It contains:Three examinations during the academic semester, Assignments, Report, Seminar and Final examination.**Student's attendance is required in all classes.** |
| **Credit point:** | 5 |
| **Grade Distribution:** | The following grade system is used for the evaluation of the module exam: The module exam is based on the summation of two categories of evaluations:**First: (40%)**of the mark is based on the academic semester effort which includes -           Three examinations during the academic semester = 24%.-           Assignments = (6%).- Report and Seminar = (10%).**Second: (60%)** of the mark is based on final examination that is comprehensive for the whole of the study materials reviewed during the academic semester. |
| **Work load:** | The workload is 150 hrs. It is the result of 60 hrs. attendance and 90 hrs. self-studies (Assignments, preparation for exam and applications). |