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| **ISHIK UNIVERSITY FACULTY OF SCIENCE Department of INFORMATION TECHNOLOGY,2017-2018 Spring Course Information for IT 235 DISCRETE MATHEMATICS** |

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| --- | --- |
| **Course Name:** | DISCRETE MATHEMATICS |
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| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course type** | **Regular Semester** | **Theoretical** | **Practical** | **Credits** | **ECTS** |
| IT 235 | 2 | 3 | 3 | - | 3 |  |

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| **Name of Lecturer(s)-Academic Title:** | Ghada Alsakkal - MSc |
| **Teaching Assistant:** | - |
| **Course Language:** | English |
| **Course Type:** | Non-area Elective |
| **Office Hours** | 02:00- 03:00 p.m (Sunday to Thursday)  |
| **Contact:** | Email:ghada.alsakkal@ishik.edu.iq Tel:0750 768 3963  |
| **Teacher's academic profile:** | Bachelor/Sciences of Mathematics 1987. Master/Applied Mathematics 1999  |
| **Course Objectives:** | 1.The logic is the analysis of reasoning and it concerns with the picture of though not with its subject. 2.Many scientists tried to find out a logical structure used as a foundation to science writing or mathematics in particular on other hand. |
| **Course Description (Course overview):** | Discrete mathematics is an important are in applied mathematics. It is the study of mathematical structures that are fundamentally discrete rather than continuous. It includes linear programming, coding theory and theory of computing. |
| **COURSE CONTENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Hour** |               **Date**               | **Topic** |
| **1** | 3 | 8-12/10/2017 | Mathematical logic |
| **2** | 3 | 15-19/10/2017 | Statements and connectives |
|  |  |  |  |
| **3** | 3 | 22-26/10/2017 | Quantifiers |
| **4** | 3 | 29/10-2/11/2017 | Set Theory ( basic notations) |
|  |  |  |  |
| **5** | 3 | 5-9/11/2017 | Mathematical Induction |
| **6** | 3 | 12-16/11/2017 | Relations |
|  |  |  |  |
| **7** | 3 | 19-23/11/2017 | Midterm Exam |
| **8** | 3 | 26-30/11/2017 | Pictorial representations of relations |
|  |  |  |  |
| **9** | 3 | 3-7/12/2017 | Properties of relations |
| **10** | 3 | 10-14/12/2017 | Equivalence relations and Partitions |
|  |  |  |  |
| **11** | 3 | 17-21/12/2017 | Graph Theory |
| **12** | 3 | 24-28/12/2017 | Connected and disconnected graph |
|  |  |  |  |
| **13** | 3 | 31/12/2017-4/1/2018 | Path and trail, Eulerian graph |
| **14** | 3 | 7-11/1/2018 | Trees |
|  |  |  |  |
| **15** | 3 | 14-18/1/2018 | Final Exam |
| **16** | 3 | 21-25/1/2018 | Final Exam |
|  |  |  |  |

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| **COURSE/STUDENT LEARNING OUTCOMES**

|  |  |
| --- | --- |
|  |  |
| **1** | Logic and proofs |
| **2** | Set theory |
| **3** | Relations and Functions |
| **4** | Mathematical Induction |
| **5** | Graph Theory |

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| **COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES**(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced )

|  |  |  |
| --- | --- | --- |
|  | **Program Learning Outcomes** | **Cont.** |
| **1** | An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution | A |
| **2** | An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs | I |
| **3** | An ability to function effectively on teams to accomplish a common goal | I |
| **4** | An understanding of professional, ethical, legal, security, social, and economic issues and responsibilities | I |
| **5** | An ability to analyze the local and global impact of computing on individuals, organizations, and society | P |
| **6** | An ability to use current techniques, skills, and tools necessary for computing practice | P |
| **7** | An ability to use and apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, web systems and technologies | I |
| **8** | An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems | I |
| **9** | An ability to effectively integrate IT-based solutions into the user environment | I |
| **10** | An ability apply problem solving skills, core IT concepts, best practices and standards to information technologies | A |
| **11** | An ability to identify and evaluate organizational requirements and current and emerging technologies | P |
| **12** | An ability to select, design, integrate and administer IT-based solutions into the organizational environment | I |

 |
| **Prerequisites (Course Reading List and References):** | Calculus and Foundation of Mathematics |
| **Student's obligation (Special Requirements):** | Attendance , listening carefully to the lecturer , Quiz, home work , Midterm and final exams. |
| **Course Book/Textbook:** | 1. "Logic and Set Theory" by Prof. Dr. Yaseen A. Al Hiti 2. "Notes on Discrete Mathematics" by M. A. Lerma 3. "Discrete Mathematic" by Schaum series |
| **Other Course Materials/References:** | Any related lecture notes |
| **Teaching Methods (Forms of Teaching):** | Lectures, Excersises, Excurtion, Assignments, Recitation |
| **COURSE EVALUATION CRITERIA**

|  |  |  |
| --- | --- | --- |
| **Method** | **Quantity** | **Percentage (%)** |
| Attendance | 2 | 1 |
| Participation | 3 | 1 |
| Quiz | 2 | 10 |
| Homework | 5 | 1 |
| Midterm Exam(s) | 1 | 30 |
| Final Exam | 1 | 40 |
| **Total** | **100** |
| **Examinations:**Essay Questions, True-False, Fill in the Blanks, Short Answers, Matching |  |  |

 |
| **Extra Notes:** |
| **ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD**

|  |  |  |  |
| --- | --- | --- | --- |
| **Activities** | **Quantity** | **Duration (Hour)** | **Total Work Load** |
| Course Duration (Including the exam week: 16x Total course hours) | 14 | 3 | 42 |
| Hours for off-the-classroom study (Pre-study, practice) | 10 | 2 | 20 |
| Assignments Mid-terms | 1 | 1 | 1 |
| Final examination | 2 | 1 | 2 |
| Other |  |  | 0 |
| **Total Workload** | **65** |
| **ECTS Credit (Total workload/25)** | **2.6** |

 |

**Peer review**

|  |  |  |
| --- | --- | --- |
| Signature: | Signature: | Signature: |
| Name: | Name: | Name: |
| Lecturer                                                                       | Head of Department                                                         | Dean |

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