



University/Academy: Arab Academy for Science & Technology & Maritime Transport  
 Faculty/Institute: College of Management and Technology  
 Program: Business Information Systems – E-Commerce Program

Course title	Discrete Math
Course code	CR115

**Form no. (11-A)**  
**Knowledge and skills matrix for a course**

Course content	Week study	Knowledge	Intellectual skills	Professional skills	General skills
Course Overview, Propositional Logic, and Logical Operators	1	Summarize the basic concepts of discrete structures as they apply to Information technology.	Estimate sound logical arguments, including use of induction	Verifying concrete visualization of the topics.	Ability to generate, analyze, present and interpret data
Implication and Double Implication	2	Demonstrate problem solving and implementation of solutions.	Calculate and understanding of computation.	Experiment concrete visualization of the topics	Promoting a logical and analytical approach to problem solving over a wide range of aware topics and domains.
Logical Equivalence	3	Demonstrate the basic concepts of discrete structures as they apply to Information technology.	Calculate sound logical arguments, including use of induction	Evaluate concrete visualization of the topics.	Promoting a logical and analytical approach to problem solving over a wide range of aware topics and domains
Translating English Sentences and Bit Operations	4	Estimate the basic concepts of discrete structures as they apply to Information technology.	Calculate and understand the rules of computation	Evaluate concrete visualization of the topics	Ability for critical thinking, reasoning and aware reflections
Predicates and Quantifiers	5	Understand problem solving and implementation of solutions.	Explain Construct sound logical arguments, including use of induction.	Experiment concrete visualization of the topics.	Aware of the Facility with mathematics.

Course content	Week study	Knowledge	Intellectual skills	Professional skills	General skills
Sets	6	Explain the basic concepts of discrete structures as they apply to Information technology.	Demonstrate and Manipulate formulae involving sets, integers, reals and functions of such quantities.	Experiment concrete visualization of the topics.	Aware and able to generate, analyze, present and interpret data.
7th Week Exam	7				
Set Operations	8	Distinguish between different problem solving and implementation of solutions.	Demonstrate and Solve simple problems involving sets, functions, graphs and trees.	Experiment concrete visualization of the topics.	Aware of the Facility with mathematics.
Functions	9	Determine the basic concepts of discrete structures as they apply to Information technology.	Demonstrate & Manipulate formulae involving sets, integers, reals and functions of quantities.	Experiment concrete visualization of the topics.	Aware of the Facility with mathematics.
Relations and their Properties	10	Demonstrate problem solving and implementation of solutions.	Calculate, Manipulate formulae involving sets, integers, reals and functions of such quantities.	Experiment concrete visualization of the topics.	Aware of the Facility with mathematics.
n-ary Relations and their applications	11	Explain the basic concepts of discrete structures as they apply to IT.	Calculate simple problems involving sets, functions, graphs and trees.	Experiment software tools such as spreadsheets, graphing packages, etc.	Ability to generate and analyze, present and interpret data.
Representing relations	12	Explain the basic concepts of discrete structures as they apply to Information technology.	Estimate simple problems involving sets, functions, graphs and trees.	Verifying results of software tools such as spreadsheets, graphing packages, etc.	Ability to generate and analyze, present and interpret data.
Introduction to Graphs	13	Explain problem solving and implementation of solutions.	Estimate and Solve simple problems involving sets, functions, graphs and trees.	Understanding of computation.	Providing a toolkit of general principles for understanding relationships between concepts and objects.

Course content	Week study	Knowledge	Intellectual skills	Professional skills	General skills
Trees	14	Explain the basic concepts of discrete structures as they apply to Information technology.	Estimate and Solve simple problems involving sets, functions, graphs and trees.	Verifying results of software tools such as spreadsheets, graphing packages, etc.	Ability to generate, and analyze, present and interpret data.
Revision	15	Summarize the concepts of discrete structures	Estimate and solve logical arguments	Understanding, Experimenting and Verifying software tools	Generate, analyze, present and interpret data
Final Exam	16				

**Course Instructor:**

**Name:** Dr. Allam Abdel Aziz

**Sign:**

**Head of Department:**

**Name:** Dr. Walid Abdel Moez

**Sign:**