Arab Academy for Science and Technology & Maritime Transport
College of Computing and Information Technology
Department of Computer Science

University / Academy: Arab Academy for Science and Technology & Maritime Transport
Faculty / Institute: College of Computing and Information Technology
Program: Computer Science

Course title	Optimization techniques
Course code	CS403

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

Course content	Week study	Knowledge	Intellectual skills	Professional skills	General skills
Introduction and Class Organization	1	K16. Know and understand the principles and techniques of a number of application areas informed by the research directions of the subject, such as artificial intelligence, natural language processing, data mining, databases and computer graphics. K19. Select advanced topics to provide a deeper understanding of some aspects of the subject, such as hardware systems	I10. Define traditional and nontraditional problems, set goals towards solving them, and. observe results. I11. Perform comparisons between (algorithms, methods, techniques...etc). I13. Identify attributes, components, relationships, patterns, main ideas, and errors. I19. Generate an innovative design to solve a problem containing a range of commercial and industrial constraints.	**P11.** Perform independent information acquisition and management, using the scientific literature and Web sources. **P15.** Evaluate systems in terms of general quality attributes and possible tradeoffs presented within the given problem. **P19.** Deploy effectively the tools used for the construction and documentation of software, with	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7. Show the use of general computing facilities
Concepts of Operations Research Modeling	2				
Concepts of Operations Research Modeling	3				
Concepts of Optimization Search	4				
Linear Programming Algorithms	5				
Modeling with Linear Programming	6				

Course content	Week study	Knowledge	Intellectual skills	Professional skills	General skills
7th week Exam	7	design, object-oriented analysis and design, and artificial intelligence, and parallel and concurrent computing.	.	particular emphasis on understanding the whole process involved in using computers to solve practical problems.	
Linear Programming Duality and Output Analysis	8				
Linear Programming Duality and Output Analysis	9				
Shortest Paths and Dynamic Programming	10				
Network Flows	11				
12th week Exam	12				
Discrete Optimization	13				
Discrete Optimization	14				
Revision	15				

Course Instructor:

Head of Department:

Program Manager: