

كلية المجتمع
قسم الحاسب الآلي
برنامج نظم المعلومات



المملكة العربية السعودية
وزارة التعليم العالي
جامعة نجران

Computer Mathematics Course Specifications

Institution Najran University	Date of Report
College/Department Community College – Computer Department	

A. Course Identification and General Information

1. Course title and code: Computer Mathematics 120 comp-3		
2. Credit hours 3 Hrs		
3. Program(s) in which the course is offered. Information systems program		
4. Name of faculty member responsible for the course Dr. Ahmed Khalid Ahmed Salih		
5. Level/year at which this course is offered 2nd level		
6. Pre-requisites for this course (if any)		
7. Co-requisites for this course (if any)		
8. Location if not on main campus		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom	<input checked="" type="checkbox"/> What percentage?	<input type="text"/>
b. Blended (traditional and online)	<input type="checkbox"/> What percentage?	<input type="text"/>
c. e-learning	<input type="checkbox"/> What percentage?	<input type="text"/>
d. Correspondence	<input type="checkbox"/> What percentage?	<input type="text"/>
f. Other	<input type="checkbox"/> What percentage?	<input type="text"/>
Comments:		

B Objectives

<p>1. What is the main purpose for this course?</p> <p style="text-align: center;">Understand the basic concepts of computer mathematic</p>
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)</p>

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
<p>The Set's theory , Set , Elements , Belonging , Methods of writing set , Empty set , Finite set , Infinite set . --- Introduction to MATLAB , Some properties of MATLAB like it's sensitive to Small and Capital Letters .</p>	1	2
<p>The relations between sets , Containing , Subset , Equal sets , Universal set . Set's Operations , Union , Intersection , Subtract , Complement , and DE Morgan's laws . --- Using the main windows of MATLAB , List Bar , Tool Bar , Command window and Command History .</p>	1	4
	1	2

<p>The power set of aset , Computer representation of set (representation set in Binary system 0 , 1) , Set's Operations using Binary system , Union . --- Input and Output to MATLAB in Matrix form .</p>	1	2
<p>Intersection , Subtract and Complement , Comparing the results in Binary system and the results in normal system . --- Definition of matrix , Elements of matrix and MATLAB commands .</p>	1	2
<p>Relations , Cartesian Product . Methods of representing relations Arrow representation and Graphic representation . Functions , Function's types , on-to , one to one and Correspondence . --- Types of matrices , Zero – one matrices MATLAB commands and Condition for Matrices' Sum and Subtract.</p>	1	2
<p>Theory Exam 1 Practical Exam 1</p>	1	2
<p>Foundation of Logic , Proposition , The Propositions Not , Or , And , Exclusive-or , Bi-conditional and Implication , Logic in Binary system , Bit strings . --- Corresponding Elements of matrices , Diagonal elements of matrix , MATLAB commands and Condition for Matrices' Product .</p>	1	2
<p>Boolean Algebra , Variables , Operations , Boolean Expressions of degree n , Boolean Functions of degree n , Complement of Boolean Functions , Sum of Boolean Functions , Product of Boolean Functions. --- The operations on Zero – one matrices .</p>	1	2

<p>Mathematical Proof , Mathematical real Facts , Methods of Mathematical Proof , Rule of Inference , Fallacy and Methods of proofing theorems . --- Transferring sets into Zero – one matrices , then operating the Complement and Union on them , then comparing the results .</p>	1	2
<p>Theory Exam 2 --- Transferring sets into Zero – one matrices , then operating the Intersection and Subtract on them , then comparing the results .</p>	1	2
<p>Number's Theory , Division , Prime numbers , Composite numbers , The Fundamental theorem of Arithmetic , Division Algorithm , Greatest Common Divisor (gcd) , Relatively Prime numbers and Least Common Multiple (lcm) . --- The Logic in Binary system then Operating the Propositions Not , Or , And , Exclusive-or and Bi-conditional .</p>	1	2
<p>Mathematical Induction , Steps of proofing by Mathematical Induction, The Well Ordering Prosperity , Recursive, Steps of proofing by Recursive . --- Boolean Algebra's Operations Complement , Sum and Product .</p>	1	2
<p>Trees , Some Idioms of trees . --- Drawing Points and lines .</p>	1	2
<p>Relations in tree and Sub trees . --- Drawing in different colors and types .</p>	1	2

Permutations and Combinations . --- Practical Exam 2	1	2
	1	2

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30		26			56
Credit	2		1			3

3. Additional private study/learning hours expected for students per week.	4
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	recognize theoretical knowledge of computer mathematics	<ul style="list-style-type: none"> • Lecture • Whole Group and small group discussion 	<ul style="list-style-type: none"> • Exams • Assignments
1.2	Define the main concepts of computer mathematics		
2.0	Cognitive Skills		
2.1	Solve the problems of the computer mathematics topics	<ul style="list-style-type: none"> • Lecture • Brainstorming • Small group work • Lab demonstration • Project 	<ul style="list-style-type: none"> • Exams • Group reports • Lab reports
2.2	Proof the theorems and the equations for computer mathematics		
3.0	Interpersonal Skills & Responsibility		
3.1	1- Demonstrate projects and assignments in team work for computer mathematics	<ul style="list-style-type: none"> -Small group work -Group presentation 	<ul style="list-style-type: none"> • Group reports

		- Projects	• Group presentations
3.2			
4.0	Communication, Information Technology, Numerical		
4.1	1- Illustrate knowledge of computer mathematics	• Individual presentation • Small group work	• Group reports • Lab reports • Assignments
4.2			
5.0	Psychomotor		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignment	4, 7, 11	3%
2	Group report	11	7%
3	Lab report	5,8,12	5%
4	First Monthly Exam	8	15%
	Second Monthly exam	11	15%
5	Practical exam	14	15%
6	Final exam	15	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

5 hours per week as office hours

E. Learning Resources

1. List Required Textbooks

1- Kenneth H. Rosen , DISCRETE MATHEMATICS AND ITS APPLICATIONS, SEVENTH EDITION, McGraw-Hill, 2012, ISBN 978-0-07-338309-5
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) <ul style="list-style-type: none"> - Classroom with 20 seats for 20students - Computer lab with 20 computers for 20 students
2. Computing resources (AV, data show, Smart Board, software, etc.) <ul style="list-style-type: none"> - Data show
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
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Student Evaluation Questioners

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor

3 Processes for Improvement of Teaching

Quality workshops in Deanship of Development and Quality

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Faculty or Teaching Staff: Dr. Ahmed Khalid Ahmed salih

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head**

Signature: _____ **Date:** _____