Course Specification
(Bachelor)

Course Title:	Computer Mathematics
Course Code:	180 CIS - 2
Program	Technical support
Department:	Computer
College:	Applied college
Institution:	Najran University
Version:	1
Last Revision Date:	2 October 2024

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: 2 (2+0)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (level 1)					
4. Course General Description:					
This course Introduces the main concepts of number systems, Binary, Decimal, Octal and Hexadecimal , Number System and their Conversion. Decimal to binary, decimal to octal, decimal to hexadecimal. , Binary to decimal, binary to octal, binary to hexadecimal. Octal to binary, octal to decimal and octal to hexadecimal. ,Hexadecimal to decimal, hexadecimal to binary and hexadecimal to octal , Logical gates: Truth table, AND, OR, NOT, BUFFER, NAND, NOR XOR, XNOR GATES. ,set theory, Introduction to Boolean Algebra: Logical diagram, Basic identities of Boolean algebra, functions and differentiation rules. , Introduction to sets,					
5. Pre-requirements for this course (if any)**:**					
6. Co-requisites for this course (if any)**:**					
7. Course Main Objective(s):					
Our focus in this course is to 1. Understand the basic concepts of computer mathematic 2. Build a strong mathematical background for future study in computer science. 3. Understand the concept of mathematical skills by using the proper logical thinking. 4. Train students to know methods and solution strategies. 5. Use a basic background in analysis					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30 hours	100 %
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30 hours
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		30 hours

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	**Define the main concepts of sets and their operations**	**K1**	**1. Interactive lectures 2. Self-studying 3. Lecture 4. Problem solving**	**1. Homework 2. Quizzes 3. Exams**
1.2	**Mentioning related mathematical definitions and theorems**	**K2**	**1. Interactive lectures 2. Self-studying 3. Lecture 4. Problem solving**	**1. Homework 2. Quizzes 3. Exams**

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.3	recognize of logic gates, Boolean algebra and thier functions	K3	1. Interactive lectures 2. Self-studying 3. Lecture 4. Problem solving	1. Homework 2. Quizzes 3. Exams
2.0	**Skills**			
2.1	Solve the problems of the number system and inter conversion.	S1	1. Interactive lectures 2. Self-studying 3. Lecture 4. Problem solving	1. Homework 2. Quizzes 3. Exams
2.2	Differentiate between various definitions and theorems of logic gates	S2	1. Interactive lectures 2. Self-studying 3. Lecture 4. Problem solving	1. Homework 2. Quizzes 3. Exams
2.3	Build truth tables for Boolean expressions.	S3	1. Interactive lectures 2. Self-studying 3. Lecture 4. Problem solving	1. Homework 2. Quizzes 3. Exams
3.0	**Values, autonomy, and responsibility**			
3.1	Respects others in various work environments and takes responsibility for decision-making	V1	1. Interactive lectures 2. Self-studying 3. Lecture 4. Problem solving	1. Homework 2. Quizzes 3. Exams
3.2	Practice and Innovation in work professionally in mathematics	V2	1. Interactive lectures 2. Self-studying 3. Lecture 4. Problem solving	1. Homework 2. Quizzes 3. Exams
...				

C. Course Content

No	List of Topics	Contact Hours
1.	the number systems, Binary, Decimal, Octal and Hexadecimal and their Conversion	2
2.	the Set's theory , Set , Elements , Belonging , Methods of writing set , Empty set , Finite set , Infinite set, The relations between sets	2
3.	Relations , Cartesian Product . Methods of representing relations Arrow representation and Graphic representation .	2
4.	Functions , Function's types , on-to , one to one and Correspondence .	2
5.	Foundation of Logic , Proposition , The Propositions Not , Or , And , Exclusive or , Bi-conditional and Implication , Logic in Binary system , Bit strings	2
6.	logical gates: Truth table, AND, OR, NOT, BUFFER, NAND, NOR XOR, XNOR GATES.	2
Total		12

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	First Monthly Exam	5	20%
2.	Second Monthly exam	8	20%
3.	Assignment	4 , 7	5%
4.	Quizzes	5 , 8	5%
5.	Final Exam	نهاية الفصل	50%
6.	Total		100 %

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Kenneth H. Rosen , DISCRETE MATHEMATICS AND ITS APPLICATIONS, SEVENTH EDITION, McGraw-Hill, 2012, ISBN 978-0-07-338309-5
Supportive References	
Electronic Materials	http://lib.nu.edu.sa/DigitalLibbrary.aspx
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	**1. Lecture Room with enough capacity Chairs Projector/Screen** **2. . Laboratories with Computers**
Technology equipment (projector, smart board, software)	**1. Laboratories computer and library for math books** **2. Projectors, Computer for Theory Classes and Presentation Sessions.**
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of Students assessment	Course Teacher	Direct
Quality of learning resources	Course Teacher	Direct
The extent to which CLOs have been achieved	Course Teacher Quality Unit	Direct
Processes for Improvement of Teaching	Quality Unit	Direct

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	