اعتماد
NCAAA

T4

2020

Course Specifications

Course Title:	Fundamental of Mathematics
Course Code:	202126-3
Program:	**Bachelor in Computer Science**
Department:	**Department of Mathematics**
College:	**College of Science**
Institution:	**Taif University**

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Table of Contents

A. Course Identification

1. Credit hours: 3
2. Course type   **a.** University ☐ College ☑ Department ☐ Others ☐   **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: 1/1
4. Pre-requisites for this course (if any)**: NON**
5. Co-requisites for this course (if any)**: NON**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	5	100%
2	Blended	0	0
3	E-learning	0	0
4	Distance learning	0	0
5	Other	0	0

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	50
2	Laboratory/Studio	0
3	Tutorial	0
4	Others (specify)	0
	Total	50

B. Course Objectives and Learning Outcomes

1. Course Description

The course presents fundamental concepts and reasoning, distilled from mathematics science and other computational sciences, for types of proofs, Induction, number theory, Relations, Sums, Approximations, and Asymptotics, cunting and functions

2. Course Main Objective

To view, consider, analyze, design, plan, work, and solve problems based on mathematical perspective and to gain general knowledge about fundamental concepts and thinking processes from mathematics.

3. Course Learning Outcomes

CLOs	Aligned PLOs
1 **Knowledge and Understanding**	

	CLOs	Aligned PLOs
1.1	To introduce concepts, techniques, and analytical skills from the field of mathematics.	K1
2	**Skills :**	
2.1	To apply mathematics methods to solve computing problems.	S1
2.2	To select solutions to problems based on mathematical efficiency.	S2
2.3	To use mathematical notions to express and solve computer problems.	S1
3	**Values:**	

C. Course Content

No	List of Topics	Contact Hours
1	Induction	5
2	Calculus and Logic	5
3	Sets	5
4	Relations	10
5	Functions	5
6	Number Theory	5
7	Recurrences	5
8	Counting	5
9	Generating Functions	5
Total		**50**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Evaluate the limit of a function and use the result to determine whether a function is continuous discontinuous has vertical asymptotes horizontal asymptotes…etc…	Lecture Problem Solving	Written Exams Quizzes
2.0	**Skills**		
2.1	To apply mathematics methods to solve computing problems.	Lecture Problem Solving	Written Exams Quizzes
2.2	To select solutions to problems based on mathematical efficiency.	Lecture Problem Solving	Written Exams Quizzes
2.3	To use mathematical notions to express and solve computer problems.	Lecture Problem Solving	Written Exams Quizzes
3.0	**Values**		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	continues	10%
2	Midterm Exam	6	30%
3	Final Exam	12	60%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Academic advising and counseling of students is an important component of teaching; student academic advising is a mandatory requirement of College of Computers and Information Technology (CCIT). Appropriate student advising provides support needed for the student during times of difficulty. In addition, it helps the student to build a close relationship with his/her advisor and to provide student motivation and involvement with the institution.

In addition, since faculty are usually the first to recognize that a student is having difficulty, faculty members play a key role in developing solutions for the students or referring them to appropriate services. Faculty members also participate in the formal student-mentoring program.

Additional counseling is provided by course directors, who provide students with academic reinforcement and assistance and refer "at risk" students to the Vice Dean for Academic Affairs and the Vice Dean for female section.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Mathematics for Computer Science, Eric Lehman and Tom Leighton, Edition1, 2004
Essential References Materials	NON
Electronic Materials	NON
Other Learning Materials	NON

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board.

Item	Resources
	• A Lab room appropriate for maximum 15 students with a personal computer, a data show and a smart board.
Technology Resources (AV, data show, Smart Board, software, etc.)	• Lab materials and required software
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Students surveys and Students course evaluation
Improvement of Teaching	Course Coordinator	deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Verifying Standards of Student Achievement	Curriculum Committee	• Review CAF (Course assessment file) • Alumni surveys. Periodic exchange and remarking of tests or a sample of assignments with staff at another

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	CS council
Reference No.	Meeting #12
Date	23-10-1443