



# Course Specification

— (Bachelor)

**Course Title:** Fundamental of Mathematics

**Course Code:** 202126-3

**Program:** Bachelor in Computer Science

**Department:** Department of Computer Science

**College:** College of Computers and Information Technology

**Institution:** Taif University

**Version:** V1.2024

**Last Revision Date:** 01/02/2024



## Table of Contents

<b>A. General information about the course:</b> .....	3
<b>B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods</b> .....	4
<b>C. Course Content</b> .....	5
<b>D. Students Assessment Activities</b> .....	5
<b>E. Learning Resources and Facilities</b> .....	5
<b>F. Assessment of Course Quality</b> .....	6
<b>G. Specification Approval</b> .....	7



## A. General information about the course:

### 1. Course Identification

1. Credit hours: ( 3 )

#### 2. Course type

A.  University  College  Department  Track  Others  
B.  Required  Elective

3. Level/year at which this course is offered: ( 1/1 )

#### 4. Course general 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, cutting and functions

#### 5. Pre-requirements for this course (if any):

None

#### 6. Pre-requirements for this course (if any):

None

#### 7. Course Main Objective(s):

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

### 2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	E-learning	0	0
3	Hybrid <ul style="list-style-type: none"> <li>• Traditional classroom</li> <li>• E-learning</li> </ul>	0	0
4	Distance learning	0	0



### 3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	0
3.	Field	0
4.	Tutorial	0
5.	Others (specify)	0
<b>Total</b>		<b>45</b>

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge and understanding</b>			
1.1	To introduce concepts, techniques, and analytical skills from the field of mathematics	<b>K1</b>	Lecture Problem Solving	Written Exams Quizzes
1.2				
...				
<b>2.0</b>	<b>Skills</b>			
2.1	To apply mathematics methods to solve computing problems.	<b>S1</b>	Lecture Problem Solving	Written Exams Quizzes
2.2	To select solutions to problems based on mathematical efficiency.	<b>S2</b>	Lecture Problem Solving	Written Exams Quizzes
2.3	To use mathematical notions to express and solve computer problems.	<b>S1</b>	Lecture Problem Solving	Written Exams Quizzes
<b>3.0</b>	<b>Values, autonomy, and responsibility</b>			
3.1				
3.2				



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
...				

### C. Course Content

No	List of Topics	Contact Hours
1	Induction	5
2	Calculus and Logic	5
3	Sets	5
4	Relations	5
5	Functions	5
6	Number Theory	5
7	Recurrences	5
8	Counting	5
9	Generating Functions	5
<b>Total</b>		<b>45</b>

### D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	continues	10%
2.	Midterm Exam	8	30%
3.	Final Exam	16	60%
4.			

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

### E. Learning Resources and Facilities

#### 1. References and Learning Resources

<b>Essential References</b>	Mathematics for Computer Science, Eric Lehman and Tom Leighton, Edition1, 2004
<b>Supportive References</b>	NON
<b>Electronic Materials</b>	NON
<b>Other Learning Materials</b>	NON

#### 2. Required Facilities and equipment





Items	Resources
<p><b>facilities</b> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)</p>	<ul style="list-style-type: none"> <li>• A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board.</li> <li>• A Lab room appropriate for maximum 15 students with a personal computer, a data show and a smart board.</li> </ul>
<p><b>Technology equipment</b> (projector, smart board, software)</p>	<ul style="list-style-type: none"> <li>• Lab materials and required software</li> </ul>
<p><b>Other equipment</b> (depending on the nature of the specialty)</p>	<ul style="list-style-type: none"> <li>• A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board.</li> <li>• A Lab room appropriate for maximum 15 students with a personal computer, a data show and a smart board.</li> </ul>

#### F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Students surveys and Students course evaluation
Effectiveness of Students assessment	Course Coordinator	deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Quality of learning resources	Curriculum Committee	<ul style="list-style-type: none"> <li>• Review CAF (Course assessment file)</li> <li>• Alumni surveys.</li> </ul> Periodic exchange and remarking of tests or a sample of assignments with staff at another
The extent to which CLOs have been achieved	Curriculum Committee	<ul style="list-style-type: none"> <li>• Review CAF (Course assessment file)</li> <li>• Alumni surveys.</li> </ul> Periodic exchange and remarking of tests or a sample of assignments with staff at another
Other		

**Assessors** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)





## G. Specification Approval

COUNCIL /COMMITTEE	CS COUNCIL
REFERENCE NO.	MEETING #11
DATE	07/03/2024

