



## Course Specifications

<b>Course Title:</b>	Introduction to Mathematics 2
<b>Course Code:</b>	PMTH 127
<b>Program:</b>	Engineering/Computer Sciences/Sciences
<b>Department:</b>	Mathematics
<b>College:</b>	Deanship of common first year
<b>Institution:</b>	Majma'ah University

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## A. Course Identification

<b>1. Credit hours:</b> 4 (4+0)
<b>2. Course type</b>
a. University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b>
<b>4. Pre-requisites for this course (if any):</b> 1 <sup>st</sup> year ,2 <sup>nd</sup> level
<b>5. Co-requisites for this course (if any): PMATH 112</b>

### 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

### 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	60
2	Laboratory/Studio	-
3	Tutorial	-
4	Others (specify)	-
	<b>Total</b>	<b>60</b>

## B. Course Objectives and Learning Outcomes

<p><b>1. Course Description</b></p> <p>An understanding of the basics, necessary background and importance of the Mathematics, apply the basic rules, concepts, principles and theories.</p>
<p><b>2. Course Main Objective</b></p> <p>This course aims at providing make a pre-calculus background for the student by studying trigonometric functions, solving linear and nonlinear equations systems, studying Matrices, and obtaining a brief introduction to the limits and continuity and rules of differentiation with some of its applications and Integration.</p>

### 3. Course Learning Outcomes

CLOs		Aligned-PLOs
1	<b>Knowledge and Understanding</b>	
1.1	Learning the trigonometric functions and their properties.	Learning the trigonometric functions and their properties.
1.2	Solving the system of linear and nonlinear equations with different methods	Solving the system of linear and nonlinear equations with different methods
1.3	Identifying the matrices with their properties.	Identifying the matrices with their properties.
1.4	Learning rules of Limits and differentiation.	Learning rules of Limits and differentiation.
2	<b>Skills :</b>	
2.1	Finding integral of some functions and its applications.	Finding integral of some functions and its applications.
2.2	Finding the first derivative & second derivative.	Finding the first derivative & second derivative.
3	<b>Values:</b>	
3.1	Develop certain teamwork responsibility activities.	
3.2	Prepare and present certain topics during the semester, look out for certain issues in the course, use internet for further problems	

### C. Course Content

No	List of Topics	Contact Hours
1	Trigonometric Functions & Polar coordinates	16
2	Systems of linear and nonlinear equations	4
3	Matrices	4
4	Limits & Continuity	12
5	Derivatives	16
6	Application of Differentiation	4
7	Integration	4
<b>Total</b>		<b>60</b>



### 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	<b>Knowledge and Understanding</b>		
1.1	Learning the trigonometric functions and their properties.	Discussing problems, and using a graph	Continuous feedback, quizzes, and oral question
1.2	Identifying elimination and substitution methods to solve linear and nonlinear systems	Discussing problems, and using a graph	Continuous feedback, quizzes, and oral question
1.3	Identifying the matrices with their properties and learning inverse of matrix and Cramer rule.	Discussing problems, and using a graph	Continuous feedback, quizzes, and oral question

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.4	Learning rules of (Limits & differentiation & integration), and learning some of application of differentiation, Increasing and Decreasing Functions, and the Second Derivative Test, and Integration Techniques: Anti-derivatives, Integration by Substitution	Discussing problems, and using a graph	Continuous feedback, quizzes, and oral question
<b>2.0</b>	<b>Skills</b>		
2.1	Contrasting different trigonometric functions and solving related problems, and Finding the variables of the system of two equations, and Finding the determinant and inverse of matrices	Solving problems	Quizzes, written exams
2.2	Finding the limits at any point using graphs or other method, finding the first derivative & second derivative, and finding limits through L'hospital rule, and finding integral of some function	Graphing	Quizzes, written exams
...			
<b>3.0</b>	<b>Values</b>		
3.1	Develop certain teamwork responsibility activities.	Discussion	Evaluation of teamwork
3.2	Prepare and present certain topics during the semester, look out for certain issues in the course, use internet for further problems	Presentation under supervision Solving problems	Evaluation of Presentations Evaluation of problems

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First exam	7-8	20%
2	Second exam	12-13	20%
3	Quizzes	During the semester	10%
4	Participation	---	10%
5	Final exam	17-18	40%

\*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 :**

Every group of students have an academic counselor who is responsible to guide students, other consultation provided by the course teacher who has at least four office hours which help the students and give them advice.

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	Introduction to Math 2 compiled from Introduction to calculus by M. Zahri and College Algebra and Trigonometry by M. Lial and Calculus by R. Adams
<b>Essential References Materials</b>	Rhonda Huettenmueller, Pre-calculus Demystified, McGraw Hill, 2012, 2nd edition
<b>Electronic Materials</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.khanacademy.org/math">www.khanacademy.org/math</a></li> <li>• <a href="http://www.coolmath.com">www.coolmath.com</a></li> <li>• <a href="http://www.youtube.com">www.youtube.com</a></li> <li>• <a href="http://www.wikipedia.com">www.wikipedia.com</a></li> </ul>
<b>Other Learning Materials</b>	Microsoft office, Adobe

### 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms with 20 chairs
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Data show, Smart boards, Microsoft office, Adobe
<b>Other Resources</b> (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 and assessment	Students	Online survey
Extent of achievement of course learning outcomes	Students	Questioner

**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	
Reference No.	
Date	

