



Course Specifications

Course Title:	Mathematics-II
Course Code:	092 MATH
Program:	MMET, EPET, CHET
Department:	Basic Sciences and Supporting Studies
College:	College of Applied Industrial Technology
Institution:	Jazan University

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A. Course Identification

1. Credit hours: 4hrs
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: Second level/ First year
4. Pre-requisites for this course (if any): 091 MATH
5. Co-requisites for this course (if any): None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	75	100
2	Blended	--	--
3	E-learning	--	--
4	Distance learning	--	--
5	Other	--	--

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	45
2	Laboratory/Studio	--
3	Tutorial	30
4	Others (specify)	--
	Total	75

B. Course Objectives and Learning Outcomes

1. Course Description

The course is a logical extension of 091 Math. The course introduces some advanced algebraic topics such as inverse of functions, exponential and logarithmic function with their graphs and their properties, trigonometric functions, trigonometric identities, inverse trigonometric functions, parabola and ellipse, matrices and system of linear equations. The course also introduces the concepts of elementary analytic geometry.

The course is introduced through four classes weekly. There are 3 classes (1 hour each) for theoretical part and 2 hours class for tutorial for which students discuss and solve the problems of the lectures.

2. Course Main Objective

The main purpose of this course is to build on concepts delivered in 091 MATH and develop the students' understanding of trigonometric concepts, analytical geometry and matrices, and the ability to apply them in solving mathematical problems involved in technical specialty courses.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Demonstrate knowledge of algebra of matrices and determinants.	K1
1.2	Discuss the elementary notion of analytic geometry.	K1
2	Skills :	
2.1	Recognize the basic concepts of trigonometric functions.	S1
2.2	Identify the different types of trigonometric identities.	S1
2.3	Examine the law of sines, law of cosines, area of triangle and trigonometric form of a complex number.	S1
3	Values:	
3.1	Observe the ability to work independently and meet deadlines.	V1

C. Course Content

No	List of Topics	Contact Hours
1	<u>Introduction to matrices</u> a. Types of Matrices b. Algebra of matrices c. Matrix products d. The inverse of a square matrix e. Determinants and Cramer's rule	15
2	<u>The Trigonometric function</u> a. Units of angle measurement b. Conversion from degree to radian and vice-versa c. Properties of trigonometric functions and trigonometric ratios d. Right triangle trigonometry	15
3	<u>Trigonometric identities</u> a. Basic trigonometric identities b. The sum and difference identities c. Double-angle, and half-angle identities	15
4	<u>Applications of trigonometry</u> a. The law of sines b. The law of cosines c. Area of triangle in terms of angle d. The trigonometric form of a complex number	15
5	<u>Concepts of Elementary Analytic Geometry</u> a. Parabolas b. Ellipses c. Hyperbolas	10
	Revision of theoretical concepts	5
Total		75

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	Demonstrate knowledge of algebra of matrices and determinants.	Lecture, tutorial, active learning	Quiz, exams
1.2	Discuss the elementary notion of analytic geometry.	Lecture, tutorial, active learning	Quiz, exams
2.0	Skills		
2.1	Recognize the basic concepts of trigonometric functions.	Lecture, tutorial, active learning	Quiz, exams
2.2	Identify the different types of trigonometric identities.	Lecture, tutorial, active learning	Quiz, exams
2.3	Examine the law of sines, law of cosines, area of triangle and trigonometric form of a complex number.	Lecture, tutorial, active learning	Quiz, exams
3.0	Values		
3.1	Observe the ability to work independently and meet deadlines.	Active learning	Class activity

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	All weeks	20%
2	Assignments & Class activity	All weeks	15%
3	Midterm Exam	Week 8	15%
4	Final Term Exam	As scheduled	50%

*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 :

Office hours are specified and instructors can be reached through emails.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<ul style="list-style-type: none"> Lecture Notes College Algebra and Trigonometry: R N Aufmann, V C Barker and R D Nation, 7th –ISBN-13: 948-1-4390-4860-3, 2011.
Essential References Materials	Algebra and Trigonometry: Functions and Applications by Paul A Foerster, 5 th -ISBN-13:978- 0131657106, 2005.

Electronic Materials	<ul style="list-style-type: none"> • Not utilized
Other Learning Materials	<ul style="list-style-type: none"> • Not utilized

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms should be furnished for 25 students with <ul style="list-style-type: none"> • White board • Appropriate Chairs
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> • Computer with data show • Calculator
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	<ul style="list-style-type: none"> • Not utilized

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Confidential student Course Evaluation Survey	Institution	Online Direct Survey
End of semester CLO	Course Coordinator	Direct Survey

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	7
Reference No.	CAIT 210704
Date	28-9-2021