

Prince Sultan University
Department of Mathematical Science
Course Syllabus-Term 142



COURSE NUMBER : Math215

COURSE NAME : Engineering Mathematics

CREDITS : 3 (3+1), Term 142

COURSE CATALOGUE DESCRIPTION: This course has two parts-the first introduces the students to advanced topics in calculus such as such functions of several variables, double integrals and their applications and triple integrals, the second part deals with elementary topics in linear algebra. Indeed, topics like Vectors in 2-Space and 3-Space, Vector spaces, Inner Product Spaces and Eigenvalues and Eigenvectors are considered.

TEXT BOOK:

- Calculus: Early Transcendental Functions. 7th Ed. By J. Stewart.
- Elementary Linear Algebra. 9th Ed. By H. Anton.

Week	Date	Sec.	Material
1	Jan25- Jan29	14.1 14.2	Functions of Several Variables Limits and Continuity
2	Feb01-Feb05	14.3 14.4	Partial Derivatives Tangent Planes and Differentials
3	Feb08-Feb12	14.5 14.7	The Chain Rule Maximum and Minimum Values
4	Feb15-Feb19	15.1 15.2	Double Integrals Iterated Integrals
5	Feb22-Feb26	15.3 15.4	Double Integrals over General Regions Double Integrals in Polar Coordinates
6	March01-March05	15.6 15.7	Surface Area Triple Integrals
7	March08-March12	15.8 15.9	Triple Integrals in Cylindrical coordinates Triple Integrals in Spherical coordinates
8*	March15-March19	3.1 3.2	Introduction to Vectors Norm of a vector: Vector Arithmetic
	March20-March28		Midterm Vacation
9	March29-April02	3.3 3.4	Dot product: Projections Cross Product
10	April05-April09	3.5	Lines and planes in 3-space
11	April12-April16	4.1 4.2	Euclidean Inner Product Linear Transformations
12	April19-April23	4.3 5.1	Properties of Linear Transformations Real vector Spaces
13	April26-April30	5.2 5.3 5.4	Subspaces Linear Independence Basis and Dimensions
14*	May03-May07	6.3 7.1	Orthonormal Bases Eigenvalues and Eigenvectors
15	May10-May14	7.2 7.3	Diagonalization Orthogonal diagonalization

	May18-May29		Final Exams Preparation Period
			Final Exams

***Major I: . *Major II:**

LEARNING OBJECTIVES:

1. To acquire the ability of dealing with multiple integrals and their applications.
2. To understand the mathematical concepts and terminology involved in Linear Algebra.
3. To gain an acceptable level of computational proficiency involving the procedures in Linear Algebra.

HOMEWORKS :

A set of problems will be given to students as homework assignments.

ASSESSMENT METHODS:

1. Quizzes and Homeworks.
2. Two mid-term exams.
3. Final exam

GRADING POLICY:

- | | |
|---------------|-----|
| ➤ First Exam | 20% |
| ➤ Second Exam | 20% |
| ➤ Quizzes | - |
| ➤ Homework | 10% |
| ➤ Attendance | 10% |
| ➤ Final Exam | 40% |

CLASS ATTENDANCE:

- Students should not miss any class lecture without a legitimate excuse.
- In case a student misses a class, he must contact any one of his classmates to get all information and topics covered of classes he missed.
- “DN Grade” will be issued to a student who misses 16 classes.