

Mathematics MAT 114

1 st year Semester one				
Course Title	Lecture	Tutorial	Practical	Credit Hours
Mathematics	3	1	-	3

Course Description:-

The course gives students a broad overview of the basic elements contained in the course and student should be able to know all the calculation methods as introduction to radiological math and physics

Prerequisite

None

Text Book

1. Andrew E. Blechman .A Mathematics Primer for Physics Graduate Students (2007).
2. Karl Heinz Dovermann . A Summary of Calculus. University of Hawaii 2003.
3. Ayres (Calculus) – 2nd Ed, Schaum's Series
4. Stevenson, (Mathematical Methods for Science Students).
5. James R. Brannan. ^{B001JSHK82} William E. Boyce. Introduction to Modern Methods and Applications (2008).

Course Objective

To enable students to be able to compute various radiological functions and physical parameters through mathematical manipulations.

Topic Covered

Lecture 1

Tensors

Lecture 2

Transformations and Symmetries

Lecture 3

-Differential Forms

Lecture 4

Complex Analysis

Lecture 5

Global Theory

Lecture 6

Integration

Lecture 7

The Exponential and Logarithm Functions

Lecture 8

Integral and differential Calculus

Lecture 9

Differential Equations

Lecture 10

Matrices and Determinants

Lecture 11

Complex Numbers.

Lecture 12

Eigen values.

Lecture 13

Linear equation with constant coefficient

Lecture 14

Trigonometry logarithm, Trig metric function

Lecture 15

Exponential law.

Class/Lab. Schedule

4-hours lectures, 2 hours tutorial per week

Computer Application

None.

Laboratory Projects

Tutorials

Contribution of Course to Meeting the Professional Component

Basic Science 3 credit hours

Relationship of Course to Program Outcomes

This course will enhance the students :

- a) Ability to apply knowledge in linear algebra and matrices to general physics I and II. In diagnostic and radio therapy technology.
- b) Ability to apply knowledge in mathematics to radiation physics and dosimetry.
- c) Ability to understand mathematical theories and dose calculation in radiation production program.
- d) Knowledge of current issues and awareness of emerging technologies .

Prepared by

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Date of Preparation

June 2010