GEN2053: Calculus II

(Summer Session, 2014)

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Course Description

Calculus is an essential knowledge for natural sciences and engineering. This course present the part of calculus which include taking limits, differentiating and integrating functions including a few transcendental ones and also deals with polar coordinate system, sequences and series.

Course Objective

The aim of the course is to teach the students the basic concepts of mathematics and to train them so that they may be able to apply these basic concepts to various situations and may get used to scientific thinking.

Required Textbook

Calculus, Author : James Stewart, 7th edition (Brooks/Cole)

Homework: There will be weekly homework problem sets given in most class periods.

Examinations: One midterm exam and one final exam will be given. No makeup exam will be given. The exams will be closed-book and closed notes. However, you may use one page formula sheet.

Grading
Grades for the course will be determined using the following weights for each component of the course:

Midterm Exam	100 pts.
Final Exam	200 pts.
Homework	100 pts.
Attendance	100 pts
TOTAL	500 pts.

Course Coverage Schedule

* Week 1
12.1Three Dimensional Coordinate Systems (Report : 5,27,28,29,30,32)
12.2 Vectors (Report : 3,6,15,17,19,20)
12.3 The Dot Product (Report : 9,17,20,26,29,39)
12.4 The Cross Product (Report : 1,2,3,4,7,13,17,23,25)
12.5 Equations of Lines and Planes (Report : 5,9,13,25,27,29)
12.6 Cylinders & Quadric Surfaces (Report : 3,5,7,9,17,23,29)

* Week 2
13.1 Vector Functions and Space Curves (Report : 1,5,7,9,32,34)
13.2 Derivative and Integral of Vector Functions
13.3 Arc Length and Curvature (Report : 3,7,9,11,19,21,25)
14.1 Functions of Several Variables (Report : 5,7,10,13,41)
14.2 Limits and Continuity (Report : 7,11,12,13,31)

* Mid-Term Examination (July 14th, 2014)

* Week 3
14.3 Partial Derivatives (Report : 5,6,21,23,35,41,46,49,77)
14.4 Tangent Planes and Linear Approximation (Report : 1,9,13,25,27,35)
14.5 The Chain Rule (Report : 4,10,12,19,27,32)
14.6 Directional Derivatives and the Gradient Vector
(Report : 6,8,15,17,21,29,37,41,43)
14.7 Maximum and Minimum Values (Report : 1,6,7,11,26,27,41)

* Week 4
15.1 Double Integrals over Rectangles (Report Nothing)
15.2 Iterated Integrals (Report : 5,8,12,13,15,17,20)
15.3 Double Integrals over General Regions
(Report :9,10,11,17,25,39,40)
15.4 Double Integral Polar Coordinates (Report:2,4,6,8,9,13,15,21,27)
15.6 Surface Area (Report : 6,7,21,23,28)

* Final Examination (July 25th, 2014)