

King Fahd University of Petroleum and Minerals

Department of Mathematics

Math 451 Syllabus, Term 211

Instructor: Dr. Jaecheon Joo

The Course Code and Name: Math 451, Differential Geometry

The Course Credit Hours: 3-0-3

The Course Objective: The objective of the course is to introduce students to the concepts of curvatures of curves and surfaces and their applications.

The Course Content: Curvature and torsion of curves, Frenet-Serret equation, Normal curvatures of surfaces, First and Second Fundamental forms, Gauss curvature, Gauss Theorema Egregium, Isometry.

The Course Prerequisite: Calculus III, Linear Algebra

The Grading Policy: Homeworks (30%), Midterm Exam (30%), Final Exam (40%)

Dates of Exams: Will be discussed in the class.

Textbook(s)

1. J. Oprea, "Differential geometry and its applications" 2nd ed.
2. M. do Carmo, "Differential geometry of curves and surfaces" 2nd ed.