BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI, HYDERABAD CAMPUS
INSTRUCTION DIVISION, SECOND SEMESTER 20152016
Course Handout Part II

Date: 12.01.2016

In addition to part I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No. : MATH F342
Course Title : DIFFERENTIAL GEOMETRY
Instructorincharge : B. MISHRA

1. **Scope and Objective of the Course:**

The objective of this course is to provide a systematic exposition of the essential concepts of modern differential geometry, and an understanding and appreciation for the intrinsic beauty of these concepts, as well as their deep relationships to computer and physical Sciences. The under current is to generalize and reinforce the classical subject in a modern way.

2. **Text Book:** Andrew Pressley: Elementary Differential Geometry, Springer (India), 2001.

Reference Books:

1. Vaisman A First course in Differential geometry Marcel Dekker Inc. (1984).
2. Barrett O'Neill – Elementary differential geometry, 2/E, A Harcourt Science and Technology Company (1997).
3. Gray – Modern differential geometry of curves and surfaces with MATHEMATICA, 2/E, CRC Press (1999).
4. Struik D. J. –Lectures on classical differential geometry, 2/E, Dover Publications (1988) Reprint.

3. **Course Plan:**

Topics to be covered	No.of Lect.	Chapter in the Text Book
1. Curves in the plane and in space.	4	Chapter 1
2. How much does a curve curve?	4	Chapter 2
3. Global properties of curves	3	Chapter 3
4. Surfaces in 3-dimensions	5	Chapter 4
5. First Fundamental Form	3	Chapter 5(5.1 - 5.3)
6. Curvature of Surfaces	5	Chapter 6
7. Gaussian Curvature	6	Chapter 7
8. Gauss's Theorema Egregium	5	Chapter 10

9.	Geodesics	5	Chapter 8

| | Total | 40 | |

4. **Evaluation Scheme:**

Component	Duration	Weightage(%)	Date & Time	Remarks
Test I	1 Hour	20	27/2, 8.30 - 9.30AM	Closed Book
Test II	1 Hour	20	11/4, 8.30 - 9.30AM	Closed Book
Assignment / Presentation	To be announced in the class	20		Open Book
Comprehensive Exam	3 Hours	40	16/05 AN	Closed Book

5. Chamber consultation Hour: To be announced in the class.

6. Notice: Notice, if any, concerning this course will be displayed only in CMS.

7. Make up: Prior permission is needed for make up; make up will only be given if enough evidence is there for not being able to take regular test.

Instructorincharge
MATH F342