

# MTH 201, DIFFERENTIAL GEOMETRY OF CURVES AND SURFACES

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## LECTURE PLAN

**Text Book:** Elementry Differential Geometry, Andrew Pressley 2nd edition.

### Week 1.

- 28/12/2016 :  
Introduction about the course and other information related to course.  
HW: Revise Inverse function theorem and Change of variable formula which you learned in MTH 403.
- 29/12/2016 :  
Section 1.1, 1.2, 1.3 from chapter 1.  
HW: Revise curvature and torsion which you have learned in MTH 201.

### Week 2.

- 03/01/2017 :  
Section 1.3 from chapter 1.
- 04/01/2017 :  
Section 2.1, 2.2 from chapter 2.
- 05/01/2017 :  
Section 2.2, 2.3 from chapter 2.

### Week 3.

- 10/01/2017 :  
Section 2.3 from chapter 2.
- 11/01/2017 :  
Section 3.1, 3.2 from chapter 3.
- 12/01/2017 :  
Section 3.2, 3.3 from chapter 3.

### Week 4.

- 17/01/2017 :  
Section 4.1 from chapter 4.
- 18/01/2017 :  
Section 4.2 from chapter 4.

- 19/01/2017 :  
Section 4.3, 4.4, 4.5 from chapter 4.

**Week 5.**

- 24/01/2017 :  
Section 4.4 from chapter 4.  
Some exercises.
- 25/01/2017 :  
Section 4.5 from chapter 4. Mobius band is not orientable.  
Some exercises.
- 26/01/2017 :  
Section 5.1, 5.2, 5.3, from chapter 5 and section 6.1 from chapter 6.  
Home work: Read Theorem 5.2.2.
- 27/01/2017 :  
Section 6.1, 6.2 from chapter 6.  
Read Example 6.2.4 and note on page 129.

**Week 6.**

- 07/02/2017 :  
Section 6.3 from chapter 6.
- 08/02/2017 :  
Example 6.3.5 some exercises, section 6.4 from chapter 6. section 6.1 from chapter 6.
- 09/02/2017 :  
Theorem 6.4.6, 6.4.7 from chapter 6.  
Solution of Quiz.

**Week 7.**

- 14/02/2017 :  
The second fundamental form, section 7.1, 7.2 from chapter 7.
- 15/02/2017 : Section 7.3 from chapter 7.  
Some excercises
- 16/02/2017 :  
Section 8.1 from chapter 8.  
Some exercises.

**Week 8.**

- 21/02/2017 :  
Section 8.2 from chapter 8.
- 22/02/2017 :  
Surprise Quiz 1.
- 23/02/2017 : Eulers Theorem 8.2.4.  
Section 9.1 from chapter 9.

**Week 9.**

- 28/02/2017 :  
Section 9.2 from chapter 9.  
Theorem 9.2.1, Example 9.2.2.
- 29/02/2017 :  
Some excercises.
- 30/02/2017 :  
Some excercises.

**Week 10.**

- 21/03/2017 :  
Section 10.1 from chapter 10.  
The Gauss and CodazziMainardi equations, Gauss Equations,  
Theorem 10.1.3, Example 10.1.4.
- 22/03/2017 :  
Section 10.2 from chapter 10.  
Gauss Theorema Egregium,  
Formula of curvature in terms of first fundamental form.  
Any map of any region of the earths surface must distort distances.  
Isometries of a helicoid.  
H.W.:Corollary 10.2.3, Example 10.2.4.
- 23/03/2017 :  
Surprise Quiz-2.

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