



## Syllabus Math 483 – Selected Course (Differential Geometry)

<b>Instructor</b>	DR. EMAD MOHAMED SELOUMA
<b>Credits:</b>	3
<b>Prerequisite:</b>	
<b>E-Mail:</b>	<a href="mailto:emadms74@yahoo.com">emadms74@yahoo.com</a>
<b>Office:</b>	3 <sup>rd</sup> floor, Office :SR 73
<b>Office Hours</b>	

### Course Materials

**Textbook:** A First Course in Differential Geometry, Hsiung, Chuan-Chih, International Press, Cambridge, USA, 1997

### Course Contents

Chapter	Topics	Week
Theory of Space Curves	Curves, Tangent of the space curve, Curvature principle, Normal, Binormal, Torsion.	2
	Spherical indicatrix, Helices, Circle of Curvature, Sphere of Curvature, Canonical equation of a space curve .	2
	Corresponding Curves, The Involute, Evolute of space curve, Bartrand Curves.	3
Theory of Surfaces	Parametric Curves, Fundamental Forms, Direction on a surface, Area on the surface, Normal Curvature, on the surface, Gaussian Curvature, Mean Curvature.	3
	Line of Curvature, Euler's Theorem, Principle Curvature, Asymptotic Curves and Conjugate.	2
	Directions, Geodesics Lines, Bonnet's Theorem	2
	Ruled Surfaces, Minimal Surfaces	2

#### Exams (common):

- Midterm1: 8<sup>th</sup> week(16/5/1435H)
- Midterm2: 14<sup>th</sup> week(6/7/1435H)
- Final: 16<sup>th</sup> week

#### Grading:

- Midterm1: 20%
- Midterm2: 20%
- Participation, home works & quizzes: 20%
- Final Exam: 40%

