Faculty of Engineering & Technology

Structural Geology

Information :

Course Code :	GEO 301	**Level :**	Undergraduate	**Course Hours :**	2.00- Hours

Department : Department of Petroleum Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	Mostafa Abdou Roshdy Ahmed Teama	3
Lecturer	Mostafa Abdou Roshdy Ahmed Teama	3
Assistant Lecturer	YOUSSEF ELSAYED ABDELHAFEZ KANDIEL	
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Area Of Study :

Expand the scope of knowledge of the petroleum engineer to include the importance Structural Geology and hydrocarbon entrapment.
Understand the kinematic analysis and different rock behavior (Stress-strain relationship).
Identify the different types of deformation (brittle and ductile) and the structuration resulted.

Description :

The course gives a fundamental and thorough introduction to structures formed by brittle and ductile deformations. The structures will be discussed in terms of geometrical, kinematical, and mechanical analysis with emphasis on process understanding. Particular subjects that will be taught are: stress and strain analysis, fractures and faults, folding, shear zones, deformation mechanisms and rheology. The implication on the petroleum entrapment styles as well as the impact of structures on reservoir quality will also take place in this course.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Identify the probable type of stress that created a structure.
2 -	Identify the different deformation types (brittle and ductile deformations) and their associating structures.
3 -	Discriminate the different types and geometries of faults and folds.
b.Intellectual Skills: :	
1 -	Recognize different types of "tops-up" indicators.
2 -	Interpret the structural evolution of a complicated geometry.
c.Professional and Practical Skills: :	
1 -	Solve the 3-point problems to determine subsurface strike and dip of a bed.
2 -	Solve the folding and faulting geological maps to determine the throw amount.
3 -	Construct different topographic and geologic cross-sections.

d.General and Transferable Skills: :	
1 -	Use the geologic structure knowledge and experience to specify a case study petroleum trapping/sealing type via report writing.
2 -	Identify structures via field trip to Abu Roash area.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Plate tectonic theory	3	2	1
Kinematic analysis	6	4	2
Joints	6	4	2
Extensional faults	9	6	3
Compressional faults	9	6	3
Shear faults	3	2	1
Folds	9	6	3

Teaching And Learning Methodologies :

Interactive lecturing and discussion
Structural problem-solving
Presentation/Research
Field trip

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final exam	40.00		
Mid-Term exams	25.00		
Quizzes	20.00		
Report and assignments	15.00		