Course Code	Course Title	ECTS Credits
OGEE-510DL	Petroleum Geology and Geomechanics	7.5
Department	**Semester**	**Prerequisites**
Engineering	Fall, Spring	None
Type of Course	**Field**	**Language of Instruction**
Required	Oil, Gas and Energy Engineering	English
Level of Course	**Year of Study**	**Lecturer(s)**
2nd Cycle	1st/2nd	Dr Ernestos Sarris
Mode of Delivery	**Work Placement**	**Co-requisites**
Distance Learning	N/A	None

Objectives of the Course:

The main objectives of the course are to:

- Introduce students to geologic processes, tectonics and sedimentation that took part at the formation of eastern Mediterranean and Cyprus basins.
- Provide technical knowledge for understanding the mechanism of hydrocarbon generation, migration and entrapment.
- Introduction to tectonic stress fields.
- Understand the concept of pore pressure at depths in sedimentary basins
- Introduction to petroleum related rock mechanics.
- Wellbore failure and stress determination in vertical and deviated wells.

Learning Outcomes:

After completion of the course students are expected to:

- Explain the main characteristics of the geologic processes, tectonics and sedimentation that took part at the formation of eastern Mediterranean and Cyprus basins.
- Describe the mechanism of hydrocarbon generation, migration and entrapment in the regional basins of Cyprus.
- Familiarize the students with the importance of the stress field and its magnitude.
- Understand the mechanisms of overpressure generation in geological settings.
- Introduce the concepts of failure in compression, tension and shear.
- Understand the problem of the wellbore failure and understand the stress determination on vertical and deviated wells.

Course Contents:

- Basic concepts and terms.
- Geological settings of eastern Mediterranean and Mechanisms of hydrocarbon generation, migration and entrapment (traps and seals of hydrocarbons).

- Reservoirs characteristics (Porosity, Permeability, Pressure, Quality, Reserves calculation).
- The tectonic stress field.
- Pore pressure in sedimentary basins and reservoirs.
- Rock failure in compression, tension and shear.
- Wellbore stability.

Learning Activities and Teaching Methods:

Lectures, Online Questions, Projects, Discussion

Assessment Methods:

Assignments, Online Exercises, Final Exam

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
R.C. Selley	Elements of Petroleum Geology (2nd ed.)	Academic Press	1997	0126363706

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Mark Zoback	Reservoir Geomechanics	Cambridge University Press	2007	9780521770699
Erling Fjar, R.M. Holt, A.M. Raaen, R. Risnes and P. Horsrud.	Petroleum Related Rock Mechanics 2nd Edition	Elsevier Science	2008	0444502602
A.H.F. Robertson	The Geology of the Eastern Mediterranean	The Geological Society	1996	