

## Faculty of Engineering & Technology

### Reservoir Rock Properties

**Information :**

**Course Code :** PE 302

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Department of Petroleum Engineering

**Instructor Information :**

Title	Name	Office hours
Lecturer	Omar Saad Ahmed Mahmoud	

**Area Of Study :**

The course introduces the students to the various disciplines of Reservoir Engineering. Those disciplines include porosity, permeability, fluid saturation, wettability, electric conductivity, capillary pressure and net pay thickness. It also provides an overview of the well coring.

**Description :**

Basic petrophysical properties of reservoir rocks including porosity, permeability, fluid saturation, electrical conductivity, capillary pressure, and relative permeability. Laboratory measurement of the reservoir rock characteristics mentioned above.

**Course outcomes :**

**a. Knowledge and Understanding: :**

- |     |                                                                                          |
|-----|------------------------------------------------------------------------------------------|
| 1 - | To get acquainted with the various petroleum engineering disciplines                     |
| 2 - | To understand the rock properties of the reservoir in which the hydrocarbons accumulated |

**b. Intellectual Skills: :**

- |     |                                                                                         |
|-----|-----------------------------------------------------------------------------------------|
| 1 - | To use simple data and information related to course contents.                          |
| 2 - | To apply various basic geological and engineering concepts to reservoir problem solving |

**c. Professional and Practical Skills: :**

- |     |                                                                                        |
|-----|----------------------------------------------------------------------------------------|
| 1 - | To be able to solve problems related to drilling, reservoir and production engineering |
|-----|----------------------------------------------------------------------------------------|

**d. General and Transferable Skills: :**

- |     |                                                                       |
|-----|-----------------------------------------------------------------------|
| 1 - | Ability to work in team                                               |
| 2 - | Ability to understand and predict the hydrocarbons reservoir behavior |

**Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction	2	Introduction	

### **Course Topic And Contents :**

<b>Topic</b>	<b>No. of hours</b>	<b>Lecture</b>	<b>Tutorial / Practical</b>
Porosity	4	Petroleum Engineering Disciplines	Discussion of Assignments and weekly work sheets
Well Coring	2	As above	As above
Fluid Saturation	2	As above	As above
Permeability	4	As above	As above
Electric Conductivity	2	As above	As above
Capillary Pressure	4	As above	As above
Wettability	2	As above	As above
Rock Compressibility	2	As above	As above
Net Pay Thickness	4	As above	As above

### **Teaching And Learning Methodologies :**

Weekly oral lectures using white board

PowerPoint presentations and data show with handouts

Short duration video tapes

### **Course Assessment :**

<b>Methods of assessment</b>	<b>Relative weight %</b>	<b>Week No</b>	<b>Assess What</b>
Final Exam	40.00	10	
Quizzes	10.00	5	
Reports and special assignments	10.00	1	
Weekly tutorials and attendance	10.00	1	

### **Course Notes :**

Available on pdf files

### **Recommended books :**

Tarek Ahmed, %working guide to reservoir rock properties and fluid flow+

Gian Luigi Chierici. %Principles of Petroleum Reservoir Engineering+Ar translated from the Italian by Peter J. Westaway.

B. C. Craft, and M. F. Hawkins %Applied Petroleum Reservoir Engineering+E

L. P. Dake, %Fundamentals of Reservoir Engineering %Elsevier Scientific Publishing Company, Amsterdam, Oxford, New York, 1978.

Carl Gatlin %Petroleum Engineering, drilling and well completion+P Printece- Hall, Inc

