

**Faculty of Engineering & Technology**

**Subsurface Production Engineering**

**Information :**

**Course Code :** PE 408

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Department of Petroleum Engineering

**Instructor Information :**

Title	Name	Office hours
Lecturer	Mohsen Gad Elkarim Elnoby Mohamed	

**Area Of Study :**

Overall aims of the course are:

- Prepare students to introduce completion techniques and equipment
- Train students to introduce perforating methods and techniques
- Develop students skills to present Wellhead and downhole equipment
- Enrich students knowledge about Hydraulic fracturing, Acidizing, Squeeze Cementing and Scale Removal Technique .

**Description :**

Study of the fundamentals and applications of completion and workover operations including various completion designs, reservoir and mechanical considerations, basic tubing design, subsurface equipment, completion and workover fluids, perforating, stimulation, sand control and remedial cementing. Horizontal well completion technology. Laboratory sessions involve actual completion and workover problem solving, and demonstration of the design and operation of basic completion and control equipment.

**Course outcomes :**

**a. Knowledge and Understanding: :**

1 -	List various completion equipment and techniques
2 -	Explain the appropriate methods needed to design a well completion
3 -	Recognize all the different methods to complete oil and gas wells

**b. Intellectual Skills: :**

1 -	Apply methods, of completion design requirement
2 -	Interpret the different completion techniques

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

1 -	Compute the completion design requirement
2 -	Perform practical application of different completion schemes

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

1 -	Communicate effectively
2 -	work through a team work

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

<b>Topic</b>	<b>No. of hours</b>	<b>Lecture</b>	<b>Tutorial / Practical</b>
Completion Design philosophy Type of well completion, Interval selection	3	Introduction	
Tubular Goods and Loading Analysis Subsurface Equipment, Packers, nipples, ..., etc. Subsurface completion and Production Control Equipment Completion and work over fluids Perforating techniques	18	Petroleum Engineering Disciplines	Discussion of Assignments and weekly work sheets
Sand control, Formation Damage	6	As above	As above
Well stimulation	9	As above	As above
Work over Planning & Cost Control Work over Operations	9	As above	As above

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

Interactive Lecturing

Discussion

Problem Solving

### **Course Assessment :**

<b>Methods of assessment</b>	<b>Relative weight %</b>	<b>Week No</b>	<b>Assess What</b>
Assignment	10.00		
Final exam	40.00		
In Class Quizzes	10.00		
Mid-Term exams	30.00		
Performance	10.00		

### **Recommended books :**

1. Text Book: Well Completion Design By Beilarby, Jonatham Publisher: Elsevier,2009
2. Lecture notes on the course Available pdf files + handouts
3. Recommended Readings: [www.spe.org](http://www.spe.org)