

## Workover and Well Stimulation Techniques

1.1 Course Number: PE432

1.2 Contact Hours: 3-0-0 Credits: 9

1.3 Semester-offered: 4<sup>th</sup> Year-Even

1.4 Prerequisite: Production Engineering, Process and Equipment Design

1.5 Syllabus Committee Member: Dr. Shivanjali Sharma

### 2. Objective:

- To introduce basic concepts of Workover
- To kindle interest in Production Operations
- To impart fundamental understanding of methods for reducing formation damage

### 3. Course Content:

Unit-wise distribution of content and number of lectures

Unit	Topics	Sub-topic	Lectures
1	Introduction to Workover	Introduction: Well completions and work over operations, Subsurface production and control equipment	10
2	Completion and workover fluids	Completion and work over fluids, Squeeze Cementing	10
3	Stimulation Operations	Sand Control Techniques, Hydraulic Fracturing, Acidizing, Perforation Techniques, Paraffins and asphaltenes, Scales in oil fields	20
		<b>Total</b>	<b>40</b>

#### 4.1 Textbook:

- 1) Well Design Drilling and Production- Craft, Holden and Graves
- 2) Production operations – Vo1. 1& 2 - Alan P. Roberts, Thomas O. Allen

#### 4.2 Reference books:

- 1) Well Control Problem Solutions- N.J Adams
- 2) Oil Well Drilling- H.Rabia4.2.3. Rathore, M. M. Thermal Engineering, McGraw Hill Education India, 2010.

**5 Outcome of the Course:** At the end of the course, the students will have focus on

understanding the impacts of the various reservoir and production conditions on well completion and knowledge of the various well completion designs to make the most effective selection of well completions for various conditions. Tubing design and selection procedure will be discussed and demonstrated through design practice problems. Different types of completion and work over fluids, their properties and selection criteria are also discussed. Description, design considerations and implementation procedures of typical completion and work over operations such as perforating, remedial cementing, sand control and matrix stimulation will also be covered.