

20PEB401					ADVANCED PRODUCTION ENGINEERING AND MANAGEMENT					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hours/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3	0	0	3	3	25	50	25	-	-	100

### COURSE OBJECTIVES

- Demonstrate the concepts of Production enhancement.
- Develop skills to predict bottlenecks and optimize production system.
- Develop Skills to design Stimulation Jobs
- Imbibe the knowledge of offshore Safety and fire protection.

#### Unit I

Hours: 12

**Production Enhancement: Introduction:** An overview of various production enhancement techniques, Well Analysis and Remedial Measures, Low Productivity – Stimulation, Excessive Production of unwanted fluid, Water Control, Sand Control, Production Optimization

#### Unit-II

Hours: 8

**Stimulation:** Concept of Formation damage, Type & description of stimulation techniques to mitigate formation damage problem and address issues of low productivity, Design of matrix acidization and acid fracturing. Design of hydraulic fracturing, Multistage fracturing.

#### Unit III

Hours: 14

**Control of Excessive Production of unwanted fluid:** Reasons for excessive production of oil & gas, Causes and hazards of excessive sand production. Industry practices to contain their production. Water Control techniques-Reasons, identification and control techniques, Sand Control Techniques Reasons, identification and control techniques

#### Unit IV

Hours: 5

**Production optimization:** Modelling, Monitoring and Control, optimization processes.

### COURSE OUTCOMES

On completion of the course, student will be able to

- CO1- Regulate formation damage and find alternative methods to bring the well into production again.
- CO2- Analyze the fundamentals of productivity index and future IPR and understand the principles of production optimization
- CO3- Explain properly the principles of sucker rod pump, gas lift system, progressive cavity pump and electrical submersible pump.
- CO4- Determine the bottom-hole pressure, well head pressure, and handling oil and gas flow rates of hte reservoir.
- CO5- control in case of any calamity during installations at drilling or production.
- CO6- Evaluate the understanding of water control and sand control.

### TEXT / REFERENCE BOOKS

1. Dr. Guo Boyun, Computer Aided Petroleum Production Engineering
2. H Dale Begg, Production Optimization , OGCI Publication, Tulsa.
3. Deep water Petroleum Exploration & Production-By William Leffler, Richard Pattardozzi, Gordon Sterling
4. Floating Production System- By N.K. Mitra.

### END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100

Exam Duration: 3 Hrs.

**PART A:** Part A/Question: <Short Notes, Problems, Numericals>

20 Marks

**PART B:**<Justification, Criticism, Long answers, Interpretation >

80 Marks