

**17MPE130 : Health, Safety and Environment in Oil and Gas Sector**

Teaching Scheme					Exam Scheme					
L	T	P	C	Hrs/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
2	0	0	2	4	25	50	25	--	--	100

**Unit I**

**Hours: 06**

Physical Hazards Noise, Heat, Vibration, Illumination, Radiation, extreme climatic conditions etc, Chemical Hazards Hydrogen sulfide gas, Hydrocarbons, Ammonia, Chlorine, Formaldehyde, Hydrochloric Acid, Methanol, Sulphur, Sulphuric acid, Sodium Hydroxide, etc. Biological Hazards, Psychological Hazards, Ergonomic Hazards, Injuries, Burns etc Prevention & Remedial controls of Occupational Hazards In Oil & Gas Industry for each type of Hazards Engineering Control, Administrative Control, Medical Control, Use of Personal Protective Equipment (PPE) Understanding Fire: Fire triangle/tetrahedron, Stages of development of fire Flammability, Concept of flash / Fire point, volatility, Flammable Limits, Fire Detection; Fire signature, Smoke, Heat, Flame, Combustible Gas Detection Fire Prevention, Fire suppression, Process Safety: Safety Analysis Table, Safety Analysis Checklist & SAFE Chart(ref API 14 C)

**Unit II**

**Hours:05**

Risk Matrix, HAZID, HAZOP, QRA (API 14 J, OISD), Safe Work Practices : PTW, MOC, SIMOPS etc (ref API RP 75,OISD, OMR), Electrical Safety;, Classification of Hazardous locations, use of electricity I Hazardous area (Ref IER, OISD, OMR, API RP 500 & 14 F) Accident Investigations: Study of major accidents like Piper Alpha, Flixborough, Bhopal etc., Investigation techniques Emergency Response planning Audits & Inspection. Audit methodology, protocol, typical check lists for Drilling rigs, Work over activities, logging, etc (ref OISD Standards)

**Unit III**

**Hours: 07**

**Occupational Health and Safety**

Occupational Exposure to Gas leak and Explosions, Confined spaces, Electrocution, Emergencies and classification of emergencies, Various Emergency Plans, Emergency Response and Disaster Management Plans, Indicative preventive measures and procedures, Zoning and Maps, Layout and Flow Diagrams, Manpower Data, organogram of ERDMP, Siren codes, safe work practices and work permits, personal protective equipments, Fire safety, Health and safety audit.

**Unit IV**

**Hours:06**

**Environment and Environment Concepts:** Effect on eco-system:- Air, Water, & Soil of HC's. Impact of Exploration & Exploitation of Hydrocarbon on Environment Environmental studies (Off shore & On Shore) - Environmental Impact Assessment Oil Spills Control and their management. State, Government of India and international Maritime Environmental Rules & Regulations. Drilling / Oil Storage / Effluent water / waste (solid & sludge) treatments their disposal and remediation of soil etc.