HSE PRACTICES IN MARITIME ENGINEERING

Fundamentals of Marine HSE:Introduction to marine HSE: importance, history, key conventions (SOLAS, ISM); Roles & responsibilities: employers, officers, seafarers; Safety culture and human factors (human element); Hazard Identification & Risk Assessment: Risk assessment procedures and control; HAZID/HAZOP, FMEA, Fault Tree & Event Tree analysis; PermittoWork systems, toolbox talks, Management of Change (MoC); Safety Management Systems & Audits: SMS development under ISM Code; Internal audits, compliance reviews, documentation & training requirements; Accident investigation and near-miss reporting.; HSE in Vessel and Port Operations

Safety in port operations: quayside, cargo handling, anchorage, equipment operation; PPE, slips/trips, working at height, confined space entry; Occupational health (fatigue, ergonomics, diseases); Environmental Protection & Sustainability: Pollution prevention: MARPOL Annexe I–VI, Ballast Water Management, garbage, emissions; Waste segregation, spill response planning (SOPEP/OSCP), EIA for offshore infrastructure; HSE in Offshore Marine Operations: Offshore logistics operations: towing, anchor handling, DP vessels, personnel transfer, bunkering; Safety critical elements: berthing offshore, platform accommodations, collision risk management; Emergency Preparedness and Crisis Management: Emergency & contingency planning: incident command systems, stakeholder roles, drills and audits; Fire, oil spill, medical evacuation (MEDEVAC), salvage planning; Incident Investigation & Safety Culture

Investigation techniques: root-cause, event analysis, corrective action plans; Analysing classic maritime accidents (Titanic, Herald of Free Enterprise, Exxon Valdez); Building safety leadership and a continuous improvement culture.