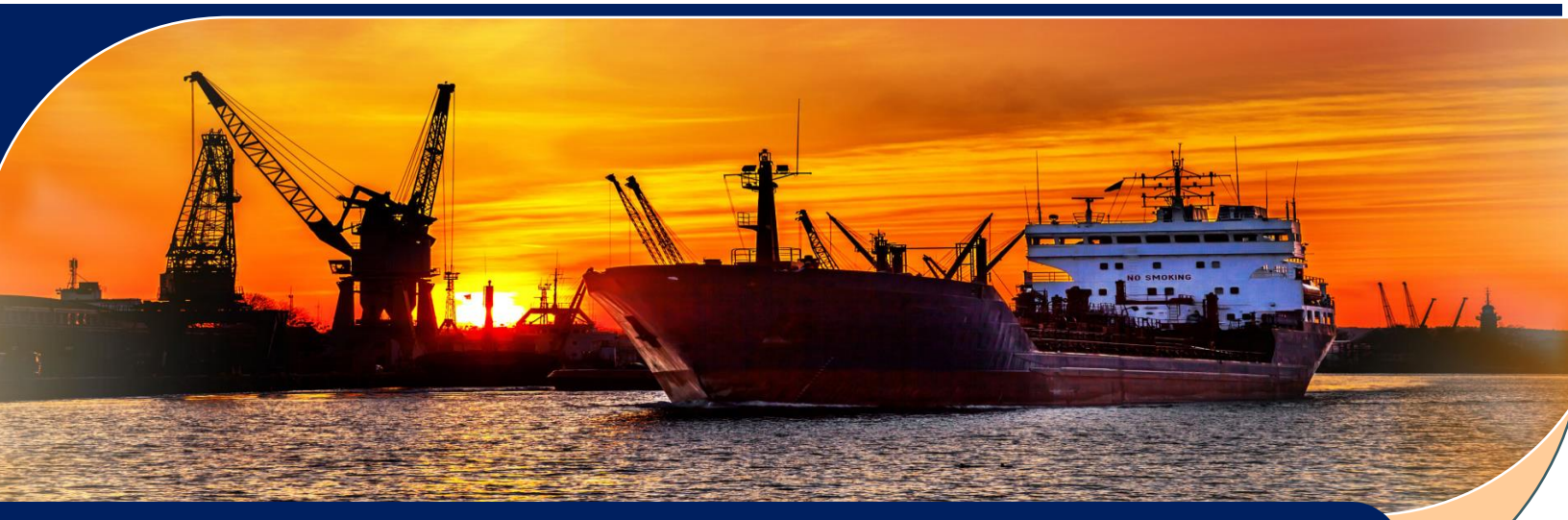


Best Technology Solutions (BTS)

Oil and Gas Marine Terminals: Operations, Management and Accordance With International Standards Training

Introduction:

In today's oil & gas industry in the world, the transport of crude and other refined products is predominantly done by large sea carriers. In this respect, the organization and safe & operation of marine terminals is considered of utmost importance for efficient transferring and storing of petrol products at the designated facilities. Professionals in charge of operating and managing of Oil & Gas Marine Terminals are required to have full and updated knowledge of Health, Safety, Security, and Environment (HSSE) aspects, including mechanical integrity of equipment and safety of operation procedures that are governed by international regulations and standards, ISGOTT, EMA, etc., together with the environmental pollution protection aspects, according to MARPOL Convention.

In this training course, the participants coming from companies that operate marine terminals will be provided with the necessary knowledge and updated tools and skills that will enable them to successfully handle various technical and safety issues during terminal operations such as cargo transfer support, including custody transfer, emergency response and vessel berthing support, according to international regulations

and standards. This BTS course will focus on both managerial and technical aspects of terminal operation that are prerequisite for successful operation of such complex facilities. This course will include several workshops with real problems from the terminal practice which will enable discussions and exchange of experiences

The training course will feature:

- Hydrocarbon Properties & Handling
- Regulations & Requirements
- Terminal Operation and Safety Management
- Vessel Operations and Interaction with Terminal
- Terminal Emergency Organization
- Security & Safety According to International Standards

Who is this Training Course for?

This **BTS** training course is suitable to a wide range of professionals but will greatly benefit:

- Marine Terminal Facility Managers and Coordinators
- Terminal Superintendents, Supervisors and Engineers
- Safety and Environmental Managers, Engineers and Officers
- Spill Management Team Members
- Transfer Supervisors
- Marine Shipping Coordinators
- Dock Maintenance Planners

Objectives

By the end of this training course, the participants will be able to:

- Identify the important aspects of operations of oil & gas marine terminals

- Follow the international regulations & requirements
- Carry out planning of storage & transfer systems for different petrol products
- Understand the procedure of interaction with oil tankers and gas carriers
- Manage and organize the emergency response plans in case of oil spill
- Apply updated methods of risk assessment in marine terminal operations

Accreditation:

BTS attendance certificate will be issued to all attendees completing a minimum of 80% of the total course duration.

Course Outline

Day One: Cargo Properties

Competency Description: Familiarization with technical properties of oil & gas cargo

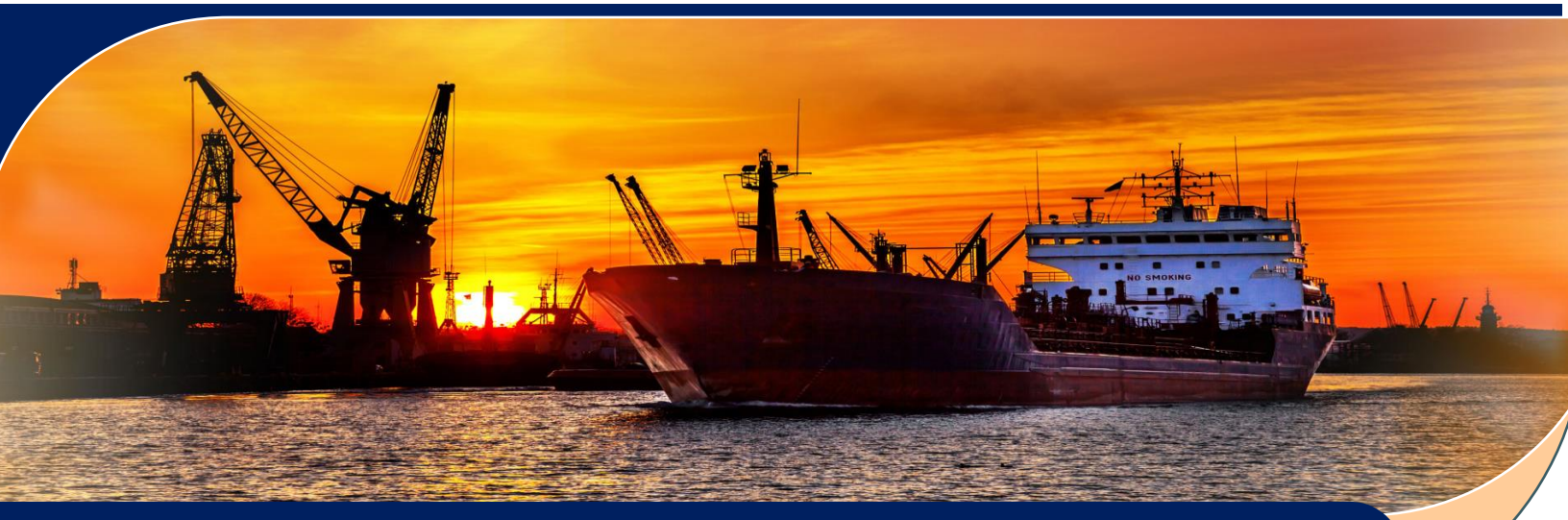
Key points

- Main types of oil & gas transferred
- Details of storing oil & gas

- Significance of fire hazard regarding oil & gas

Topics to be covered

- Course Overview and Introductions
- Dangerous Cargos
    - Toxicity
    - Confined spaces
    - Breathable atmospheres
- Hydrocarbon properties
    - Crude oil
    - Liquefied Petroleum Gas
    - Liquefied Natural Gas
- Fires & Explosions
    - UEL & LEL
    - BLEVE
    - Pancake cloud explosions



Day Two: Storage & Transfer

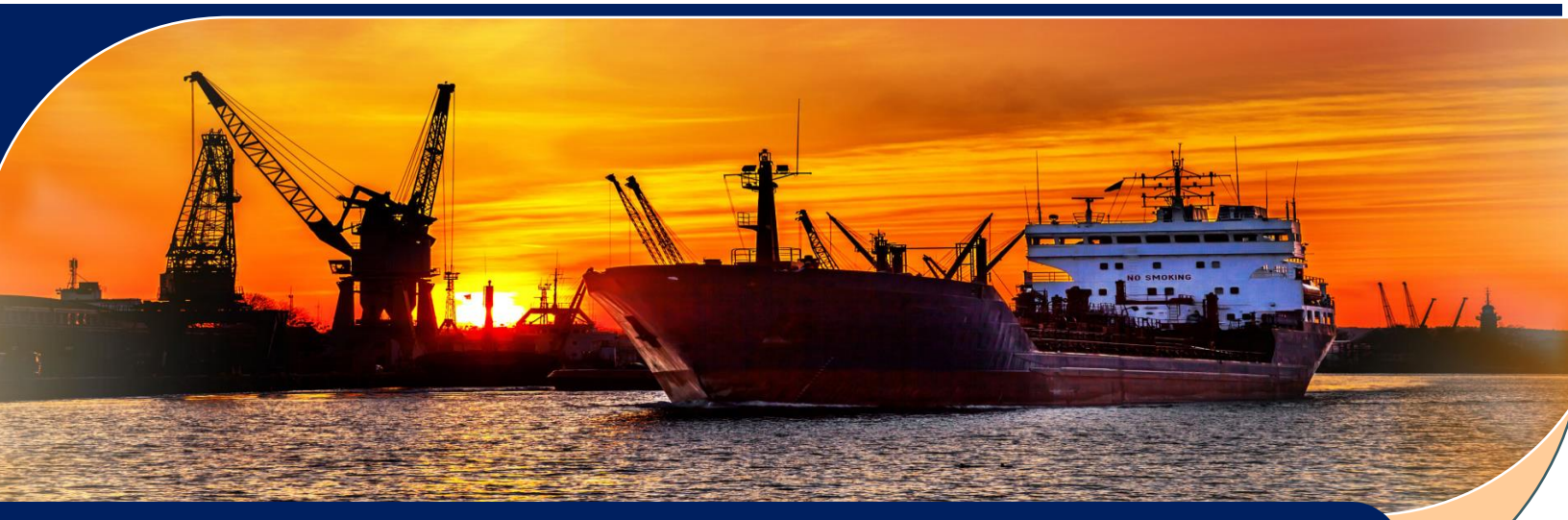
Competency Description: Understanding technical aspects of terminal storage & oil-gas transfer

Key points

- Main types of oil storage tanks
- Details of transfer systems
- Organization of ship-shore transfer

Topics to be covered

- Storage Tanks
    - Atmospheric aboveground storage tanks
    - Floating roof, fixed roof, variable vapors space and pressurized tanks
    - Tank inspections & cleaning
- Transfer Systems
    - Centrifugal pumps design and operation
    - Piping systems



- Flow and pressure matching

- Ship-shore Transfers
  - Marine Loading Arms
  - Lightering
  - The Ship/Shore Safety Checklist

Day Three: Harbor & Vessels

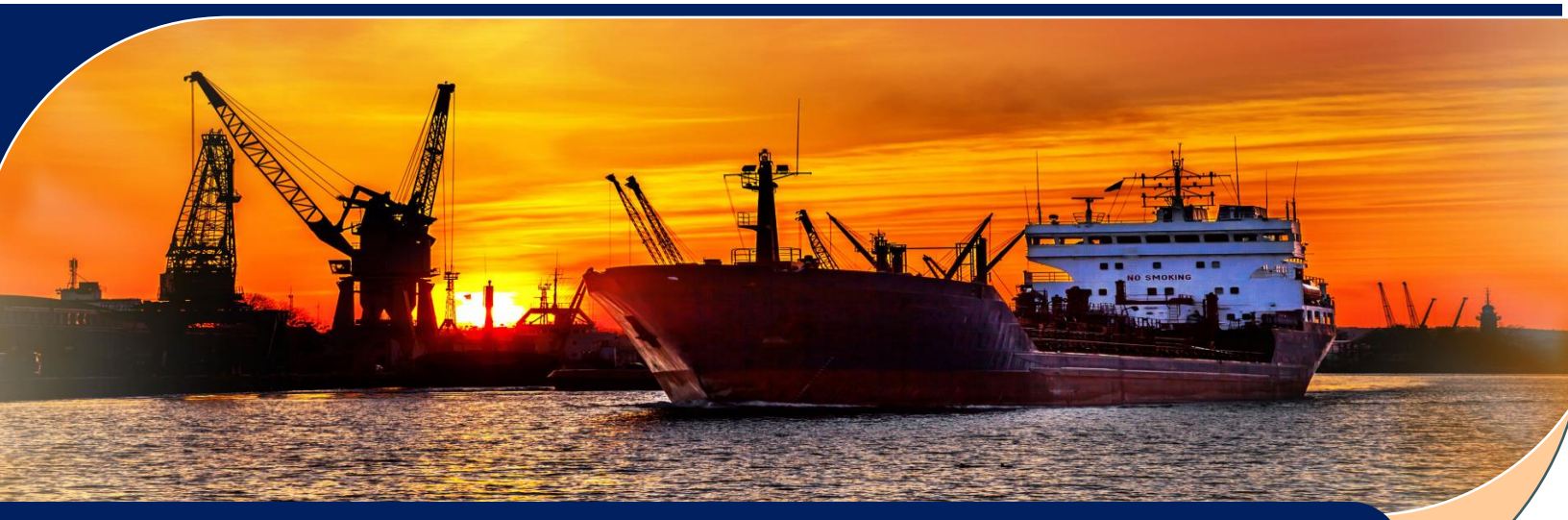
Competency Description: Familiarization with elements of harbor and vessels

Key points

- Main structural elements of harbor
- Technical characteristics of pipelines and hoses
- Significance of shipboard management

Topics to be covered

- Jetties, quays, wharves & SBMs
  - Harbour design and construction
  - Sizing & tidal effects

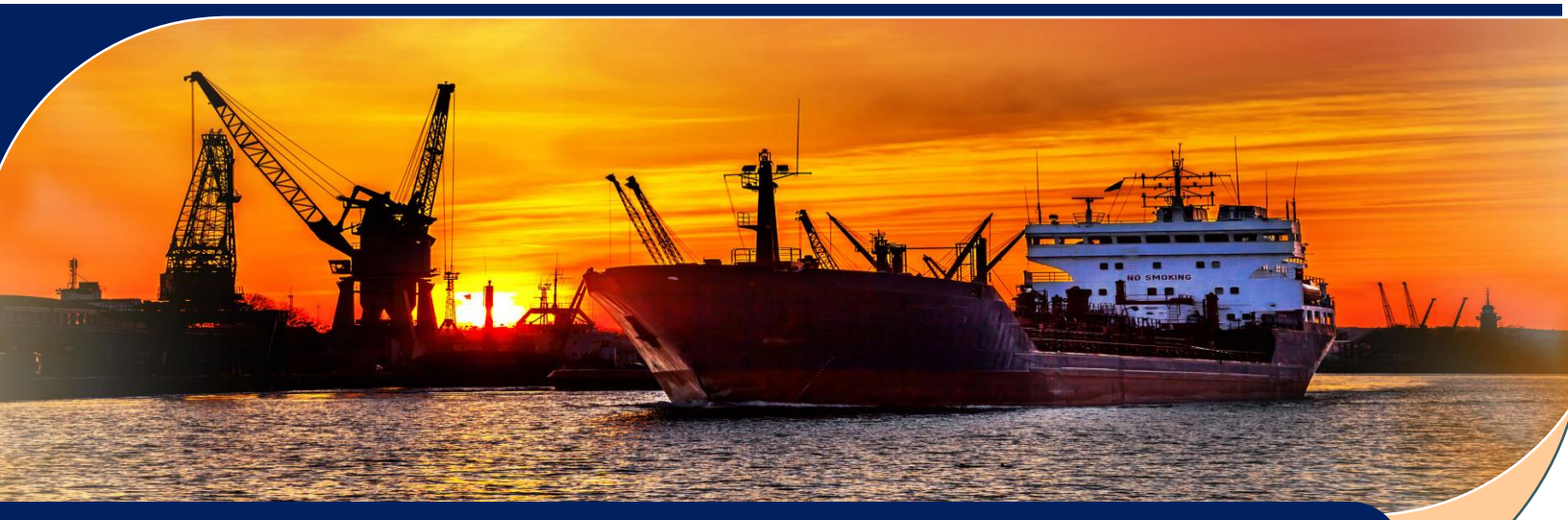


  - Depth constraints & dredging operations
  - SBM design & construction
- Hoses
  - Cargo compatibility
  - Marking & testing
  - Storage & maintenance
- Shipboard management
  - Disposal of tanks washings, slops & dirty ballast
  - Bunkering
  - Communications & emergency response plans

Day Four: Safety and Risk

Competency Description: Ability to identify the major hazards involved in terminal operation

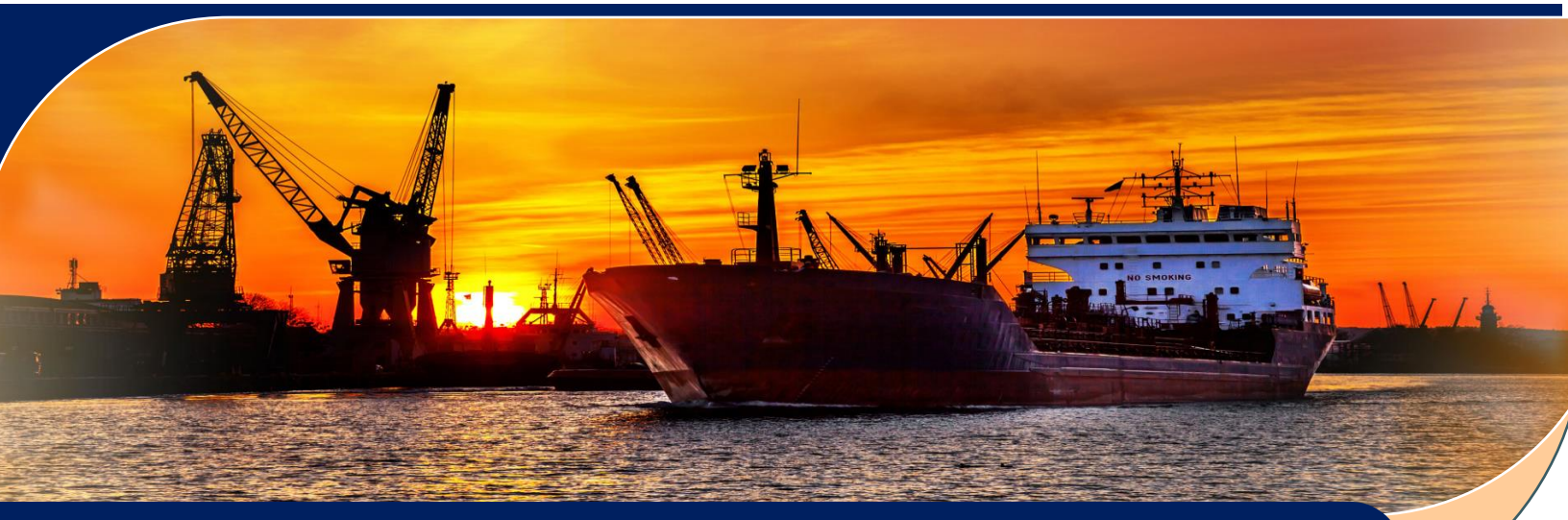
Key points



- Main types of potential ignition sources
- Fire-fighting organizational measures
- Risk assessment and risk mitigation measures

Topics to be covered

- Ignition sources
    - Electrostatic charge
    - Hazardous zone classification
    - Intrinsically safe equipment
- Firefighting & protection
    - Fire detection systems
    - Fire-fighting systems
    - Shipboard firefighting systems
- Risk
    - Risk assessments
    - Risk management
    - Qualitative and quantitative risk assessment techniques



Day Five: Terminal Management

Competency Description: Familiarization with all activities related to the terminal operation

Key points

- Cargo transfer support including berthing support
- Emergency measures planning and organization
- International regulations and standards

Topics to be covered

- Storage & transfer planning
- Berthing support
- Cargo transfer support
- Emergency response
- Vessel departure support
- Security and vessel access
- International regulations & requirements for oil & gas marine terminals