VESSEL TRAFFIC MANAGEMENT AND INFORMATION SYSTEM (VTMIS)



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Introduction

A busy port approach carries ferries, tankers, container ships, and fishing vessels through the same water, often in poor visibility. VTMIS exists to see that traffic, talk to it, and intervene before a close-quarters situation becomes a collision. This Vessel Traffic Management and Information System (VTMIS) Training Course gives VTS operators, port marine staff, and maritime technology professionals a complete working method for that system. Participants learn VTS principles, sensor and communication technology, traffic organisation, information services, incident response, and system performance management.

Vessel Traffic Management and Information System (VTMIS) Course Objectives

- Apply IMO VTS guidelines and the legal basis for vessel traffic services.
- Apply radar, AIS, and CCTV sensor fusion for traffic monitoring.
- Apply VHF communication procedures and standard maritime phrases.
- Apply traffic organisation schemes: separation, routing, and reporting.
- Deliver information services: navigational, traffic, and meteorological.
- Apply SOLAS V and port authority reporting requirements to VTS operations.
- Manage close-quarters situations, groundings, and emergency response.
- Apply geo-fencing, alarms, and automated alerting configuration.
- Apply cybersecurity and resilience measures to VTMIS infrastructure.
- Measure performance with detection reliability, intervention rate, and incident rate.

Course Methodology

- Facilitated sessions built on real VTS logs, incident reports, and system configurations.

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- Case workshops on close-quarters situations, false alarms, and system outages.
- Scenario exercises using radar and AIS simulator data where available.
- Communication, alarm configuration, and SOP practice labs.
- Group exercise on a VTMIS operations and improvement plan.

Who Should Take This Course

- VTS operators, supervisors, and watch officers.
- Port authority marine operations staff.
- Harbour masters and pilotage personnel.
- Marine traffic and navigation technology specialists.
- Coastal surveillance and search and rescue staff.
- Port engineering, IT, and communications staff.

Vessel Traffic Management and Information System (VTMIS) Course Outlines

Day 1: VTS Framework and Legal Basis

- IMO VTS guidelines and the concept of vessel traffic services.
- Types of VTS: port, coastal, and estuarial services.
- Legal basis, authority, and enforcement limits.
- UNCLOS and coastal state obligations.
- Roles and responsibilities of VTS, pilots, and port authorities.
- Levels of service and operator decision authority.
- Documentation, recording, and evidence retention.

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Day 2: Sensors, Communications, and Data

- Radar types, coverage, and performance limitations.
- AIS: message types, data, and known weaknesses.
- CCTV, thermal imaging, and night vision systems.
- Sensor fusion and track management logic.
- VHF radio procedures and standard marine communication phrases.
- Recording and replay systems for investigation.
- Data integration with port and pilotage systems.

Day 3: Traffic Organisation and Information Services

- Traffic separation schemes and routing measures.
- Reporting systems and mandatory reporting points.
- Navigational information and notice to mariners.
- Traffic information and meteorological broadcasts.
- Navigational assistance and its scope and limits.
- Anchorage management and berth approach sequencing.
- Special operations: dredging, diving, and towage.

Day 4: Emergency Response and Incident Management

- Close-quarters situation recognition and intervention.
- Grounding, collision, and pollution incident response.
- Coordination with pilots, tugs, and search and rescue.
- Emergency anchorage and refuge area management.

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- Communication under pressure and bridge-to-bridge practice.
- Incident reporting, investigation, and evidence handling.
- Multi-agency exercises and debriefing practice.

Day 5: System Performance, Cybersecurity, and Improvement

- Detection reliability and performance monitoring.
- False alarm and nuisance alert management.
- System redundancy, backup, and outage procedures.
- Cybersecurity for VTMIS networks and equipment.
- KPIs: detection reliability, intervention rate, and incident rate.
- Standard operating procedure development and review.
- Building a VTMIS operations improvement roadmap.

Conclusion

By successfully completing the Vessel Traffic Management and Information System (VTMIS) Training Course, participants will have acquired a thorough working knowledge of VTS legal frameworks, radar, AIS and communication technology, traffic organisation and information services, emergency response and incident coordination, and VTMIS system performance and cybersecurity. They will leave able to monitor and guide vessel traffic with confidence, intervene before close-quarters situations develop, and keep the VTMIS system reliable and secure. Gentex Training Center delivers this programme with VTS and port marine practitioners working in live operations.

LEARN BOLD. **LEAD BEYOND**
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FAQs for the Vessel Traffic Management and Information System (VTMIS) course

Q1 What is the "Vessel Traffic Management and Information System (VTMIS)" course about?

It is a five-day programme on operating and managing a vessel traffic service. It covers the VTS legal framework, radar, AIS and communication technology, traffic organisation and information services, emergency response, and system performance and cybersecurity.

Q2 What are the key benefits of the "Vessel Traffic Management and Information System (VTMIS)" course?

Participants detect developing close-quarters situations earlier and intervene with standard procedures, coordinate incidents with pilots, tugs and rescue services without confusion, and keep the VTMIS reliable through tested redundancy and alert management. They also report VTS performance with measurable indicators.

Q3 What skills will I gain from the "Vessel Traffic Management and Information System (VTMIS)" course?

You will gain VTS legal framework and service application, radar, AIS, and sensor fusion operation, traffic organisation, information, and emergency response management, and VTMIS performance, procedure, and cybersecurity management.

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Q4 What tools, methods, or standards are covered in the "Vessel Traffic Management and Information System (VTMIS)" course?

The course works with the IMO VTS guidelines and port, coastal and estuarial VTS types, legal authority and enforcement limits, UNCLOS coastal state obligations, VTS, pilot and port authority role definitions, levels of service and operator decision authority, documentation and evidence retention, radar types, coverage and performance limitations, AIS message types and known weaknesses, CCTV, thermal imaging and night vision systems, sensor fusion and track management logic, VHF procedures and standard marine communication phrases, recording and replay systems, traffic separation schemes and routing measures, reporting systems and mandatory reporting points, navigational information and notice to mariners, meteorological and traffic information broadcasts, navigational assistance scope and limits, anchorage management and berth approach sequencing, special operations for dredging, diving and towage, close-quarters situation recognition and intervention, grounding, collision and pollution response, coordination with pilots, tugs and search and rescue, emergency anchorage and refuge area management, bridge-to-bridge communication practice, incident reporting and evidence handling, multi-agency exercise and debriefing practice, detection reliability monitoring, false alarm management, system redundancy and outage procedures, VTMIS cybersecurity controls, standard operating procedure development, and KPIs covering detection reliability, intervention rate and incident rate.

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Q5 How is the "Vessel Traffic Management and Information System (VTMIS)" course applied in real-world practice?

Teams apply it when monitoring an approach channel during poor visibility, issuing navigational assistance to a vessel off track, managing an anchorage during congestion, coordinating a grounding response with tugs and pilots, investigating a false alarm from a sensor, and reviewing detection reliability and intervention rate at a VTS performance review.