SHIP SIMULATION
COURSE BROCHURE
Welcome to Southampton Solent University and Warsash Maritime Academy. As pioneers in the use of simulation for the professional development of ship’s personnel since the 1970s, we are proud to remain at the forefront in delivering world-class specialist higher level simulation training using bridge, engine room and liquid cargo simulators and scaled model ship handling training.

Our clients operate from every type of modern commercial vessel. A significant element of our provision is tailoring simulation training programmes and services to customers’ requirements. We work closely with maritime sectors across the globe ensure that our training methods are relevant for today’s mariner.

The information within this brochure highlights the range of simulation programmes that we offer, and demonstrates how the combined use of the technology and teaching expertise can advance personnel’s professional skills to improve the operational safety and efficiency of your vessels.

We look forward to welcoming you to Warsash. Please do not hesitate to contact us if you would like more information on our course provision.

Captain Syamantak Bhattacharya
Director, School of Maritime Science and Engineering
Why choose ship simulation training?

Simulation provides an opportunity to have experiences that occur rarely in reality, but for which it is necessary to have had robust training in order to react correctly and safely.

The opportunity to extend beyond the specific experience and extrapolate how it could affect other operations enables you to attain higher levels of learning. Furthermore, simulation provides the basis for self-examination and offers the opportunity to explore alternative approaches to known problems in a safe environment, increasing the ability to react to unknown situations.

Real-time simulation
The set-up and design of our programmes are backed by extensive experience of practical simulator training and academic application. What lies at the heart of many of our successful training programmes is creating an atmosphere that as closely as possible recreates the conditions to be found on board a ship.

Expertise through experience
A key factor of exceptional training is the quality of delivery. All of our simulation lecturing staff are former seafarers and bring specialist knowledge from a variety of marine sectors. Highly respected internationally, and with a focus on research-informed teaching, their professionalism, experience and technical knowledge add valuable insight to the learning experience.

We operate in a dynamic global industry and understand the strategic changes that are shaping our ship’s diverse sectors and personnel. Our training programmes not only meet statutory needs but also promote best practice.
Investment
Over recent years Solent University has made significant investment in our specialist simulation training provision. Our world-renowned Ship Handling Centre relocated to a purpose-built lakeside facility near Romsey in May 2011, and more recently, investment extended to a fully equipped Full Mission Engine Room Simulator, expansion of dedicated electronic chart display and information systems (ECDIS) suites, and innovation in software applications for our bridge and liquid cargo simulators.

Approvals/Accreditations
Our maritime heritage spanning many decades has forged deep-rooted connections with industry bodies such as the IMO, MCA, IMarEST and MNTB—establishments that shape, govern and change the future of maritime training requirements globally.

We pioneer training and assessment methods recognised internationally and maintain the professional approvals and accreditations required for Certificate of Competency (CoC).

“"This Full Mission Engine Room Simulator is a very impressive multi-functional training tool that covers a wider spectrum of training than ever before.""  

Mr Milhar Fuazudeen, Head of the Maritime Training and Human Element Section, IMO
Case study of integrated simulation training

The brief
To provide a bespoke integrated simulation training programme for the benefit of deck and engineer officer teams of a major oil shipping company.

Key aim
To build upon the technical, managerial and professional competencies and qualities of the company’s officers, through a combination of specialist courses covering both technical knowledge and experience in team resource management, leadership and human interaction.

Programme
The programme, devised by our client and the academy, has been developed each year as company procedures, STCW regulatory requirements and maritime best practice have evolved and been updated.

Duration
Twelve days’ training repeated twice a year

Results
This integrated training has proven highly effective in building the team’s spirit, interaction and competence for our client, as well as enhancing confidence in officers of all ranks, in preparation for their subsequent promotion opportunities.

“’

The opportunities for British seafarers, both at sea and ashore, are excellent. Warsash Maritime Academy has given me an excellent foundation upon which I can build a career that is rewarding, fulfilling and secure.

Christopher Doyle,
Third Navigation Officer
## A typical twelve-day course structure

| Days 1 to 5 | Deck officers | **Scale model ship handling training**  
The realistic experience of ship handling in 1/25th scale ship models delivered at our Ship Handling Centre. A variety of regular and irregular navigational and environmental circumstances – adapted for the company’s ship type and typical operational and navigational safety procedures. |
| Days 6 to 7 | Deck and engineer officers | **Full Mission Engine Room Simulator**  
Technical training to familiarise and build upon main and auxiliary machinery and systems knowledge. This included machinery and systems preparations and safe start-up procedures for all main and auxiliary generation and distribution systems. A series of exercises in machinery reversionary mode operations is included to enhance the engineer officers’ technical and communications skills. |
| Days 8 to 12 | Deck and engineer officers | **Human factors seminar**  
Lectures and exercises in human interaction, communication, leadership and management. |
| Days 8 to 12 | Deck and engineer officers | **Bridge and engine room team resource management training**  
Utilising both Full Mission Bridge and Engine Room Simulators, and teams working in tandem, to develop:  
- scenario, spatial and human resource awareness  
- bridge/engine room and intra-team communication, delegation and interpersonal skills  
- confident and competent relationship and leadership skills  
- effective technical and managerial responsiveness to routine and non-routine scenarios. |

### Method
Delivering a series of navigational and machinery state exercises. Initiating increasingly challenging scenario settings, whilst exchanging roles, within teams, to ensure that situational awareness, communication and delegation skills are enhanced.
Facilities and equipment

Our bridge, engine room and LICOS simulation facilities are centred within Solent University’s Warsash Maritime Academy campus, close to Southampton. The Ship Handling Centre facility is located at our Timsbury Lake campus near Romsey in Hampshire, approximately 25 miles from Warsash.

Bridge simulators
- Five multi-purpose bridge simulators (Kongsberg)
- Full Mission Bridge Simulator with 270 degree panoramic view
- Extensive training scenarios
- In-house graphics support
- A wide range of merchant ship types and superyacht models
- Three instructor stations, full recording of bridge equipment, CCTV and ability to link all bridges together

Full Mission Engine Room Simulator
- Three vessel models: bulk, ro-ro ferry and cruise ship
- Engine control room
- Engine room containing three photorealistic touch-screen stations
- Emergency switchboard room
- High voltage (11KVA) room containing an HV breaker and control panel
- Instructor station, CCTV and controlled engine environment tools
- Dedicated class and student assessment room with TV

Liquid Cargo Operations Simulator (LICOS)
- Eight fleet models: membrane (MkIII and No96) LNG, spherical LNG, fully refrigerated LPG, chemical tanker, FPSO and double hull crude oil/products carrier
- Six simulator stations
- MPRI simulator approved by DNV as a Class A maritime simulator
- Extensive training scenarios, for the storage, handling and transfer of hazardous bulk liquid cargoes
Ship Handling Centre, Timsbury Lake campus
• Dedicated ten-acre lake training facility set in a 25-acre site
• Nine scaled ship models which replicate twelve vessel types
• Four radio-controlled tugs
• Jack-up oil rig
• Variety of berths, canals, channels and basins to simulate bespoke client environments
• Fully equipped classroom, changing room and student refreshment facilities

Facilities
Further information about our ship simulation facilities can be found at: warsashacademy.co.uk/facilities

"Course delivery was particularly good. My lecturer was excellent—very friendly and supportive. So glad to attend the ECDIS course at Warsash."

ECDIS private student
Bridge simulation and ECDIS

Our impressive range of dedicated bridge simulation and ECDIS training facilities is ably supported by highly experienced lecturing staff who have extensive practical navigation knowledge, as well as their professional teaching and assessor qualifications.

The suite of bridge simulators consists of five networked multi-purpose bridge simulators and one Full Mission Bridge Simulator. Each bridge includes two radars and an ECDIS unit in an environment that closely resembles the equipment and layouts found in the 'real-world'. The simulators are able to replicate a range of ship types and sizes, target vessels and geographical databases in which to exercise.

Course summaries

Electronic Chart Display and Information Systems (ECDIS)
Training towards: Generic ECDIS training certificate
Course duration: 5 days (40 hours)

The aim of this course is to train bridge watchkeeping officers and other interested personnel in the safe and efficient use of ECDIS. The course meets the guidance in the latest IMO Model Course 1.27 Operational Use of ECDIS, for generic ECDIS training and is also approved by Transas for type-specific training on the Navi Sailor 4000 ECDIS.

Successful completion of this course will result in the issue of certification for generic ECDIS training (to IMO 1.27), accredited by the MCA and Transas Navi Sailor 4000 ECDIS equipment training. It follows the recommendations of IMO Model Course 1.27 and concentrates on the safe and efficient use of ECDIS at sea in a variety of conditions, from ocean passages to pilotages. The course also includes particular emphasis on the safe use of ECDIS without an electronic position source, using manual fixing techniques.
ECDIS Paperless Transition
Training towards: Further ECDIS training
Course duration: 5 days

Designed to assist clients with their efforts to deal with the transition to ‘paperless’ navigation, this course looks at company standing orders/procedures and then provides a platform on which to trial, verify, review and modify them where necessary.

This is achieved through active dialogue between the academy and company personnel to identify bespoke best practices in terms of paperless navigation. Through the use of the bridge simulators, you are then placed in a challenging environment in which your use and application of the procedures is assessed.

Navigation Aids and Equipment Simulator Training (Operational Level)
Training towards: Officer of the Watch certification
Course duration: 5 days

This course is undertaken as an integral part of the deck officer of the watch (OOW) certification programme. Students for a CoC as officer in charge of a navigational watch on ships of 500 gross tons (GT) or more must complete this mandatory course during the final stages of their training.

The aims of the training at this level are to equip you with the fundamental knowledge and skills needed to keep a safe navigational watch and to use radar, automatic radar plotting aids (ARPA), electronic chart display and information systems (ECDIS), automatic identification systems (AIS) and other electronic aids to maintain safety of navigation.

Navigation Aids and Equipment Simulator Training (Management Level)
Training towards: Chief Mate certification
Course duration: 1 week

This course is undertaken as an integral part of the chief mate certification programme. You must have completed at least 12 months’ watchkeeping service prior to taking this course, whilst holding a certificate of competence issued under Regulation II/1 of the STCW Convention, 1978 (as amended). Further documentary evidence is required, including a generic ECDIS certificate.

The aim of the training at this level is to maintain safe navigation through the use of radar, automatic radar plotting aids (ARPA), ECDIS, automatic identification systems (AIS) and modern navigation systems to assist command decision-making and the application of effective bridge resource management principles and procedures.

Officer of the Watch (Yachts) – Navigation and Radar
Training towards: Officer of the Watch (Yachts) certification
Course duration: 3 weeks

The first part of this course includes lectures, practical demonstrations and exercises covering chart work and navigation aids, including AIS, tides and an introduction to ECDIS. In the second week, you practise real-time radar plotting skills and the practical application of radar theory. By the third week, you develop and practise navigation and collision avoidance skills in our multi-purpose radar and navigation bridge simulator.

Master (Yachts) – Navigation, Radar and ARPA Simulator
Training towards: Master (Yachts) certification
Course duration: 2 weeks

This course includes passage planning, basic training in the use of ECDIS, knowledge of International Regulations for the Prevention of Collisions at Sea (IRPCS), competence in search and rescue, and a full understanding and expertise in the use of radar and ARPA. Five days are spent in our multi-purpose radar and navigation bridge simulator.

Bridge Team Management (BTM)
Training towards: MCA approved professional development
Course duration: 5 days

Investigations into marine casualties consistently indicate that a major factor in their causes is a weakness in bridge organisation and management. This course is designed for bespoke company training and is optimised to run with four candidates.

The course objectives concentrate on passage planning skills and bridge management techniques. The combination of these essential skills enables the participants to recognise the importance of proper planning, threat assessment, effective communications and good teamwork. Candidates will learn to identify and break developing error chains, and the issues involved in incorporating a pilot into the bridge team are also investigated.
• **Bridge Team Management (Paperless)**
*Training towards:* MCA approved professional development
*Course duration:* 5 days

This course has been developed at the request of several industry majors to meet their needs in the significant change to hitherto 'traditional' practices and to assist in their transition to paperless navigation.

The course is designed for bespoke company training and is optimised to run with four candidates ranging in rank from master to third officer, allowing participants to rotate through all roles and appreciate the difficulties and differences of each position.

The course includes all the requirements of the normal BTM course, including emergencies and dealing with pilots, but all navigation is carried out using ECDIS. Different ECDIS may be fitted and used on the Full Mission Bridge Simulator, depending on the customer's requirements. Company procedures are used to add to the realism, while changes to procedures can be tested in a safe environment before being used at sea.

Upon completion, candidates are awarded a Kongsberg or Transas type-specific ECDIS certificate.

• **Bridge Resource Management (including Simulation)**
*Training towards:* MCA approved professional development
*Course duration:* 5 days

This training will benefit all members of the deck department and is suitable for personnel serving on all types of vessels, including large yachts. The course is designed to meet the bridge resource management requirements detailed in Table A-11/I of the 2010 Manila Amendments to the STCW Convention and Code. The course has been approved by the MCA as ‘best practice’ in this challenging field of bridge operations.

The aim is to provide opportunities for personnel to consider their role in the working environment and offer a range of tools and techniques aimed at ensuring effective performance. The subject areas include: situational awareness, situation and risk assessment, communication, culture, leadership and teamwork, and managing workload. Extensive use is made of our bridge simulators to give candidates practical opportunities to practise and demonstrate the bridge resource management skills that are developed throughout the course.

• **Professional Development – Ship Simulation**
*Training towards:* Professional development
*Course duration:* Up to 5 days

We offer operators of floating production storage off-loading (FPSO) facilities the opportunity to conduct their mooring procedures in a range of realistic conditions. This five-day course is designed and conducted in close liaison with the client, ensuring a bespoke product is delivered in order to meet a company’s exacting demands in terms of their procedures and drills.

With a mix of turret-and spread-moored target FPSOs, mooring masters and pilots can be challenged in a variety of ways, ranging from variable weather conditions, including solitons, to parting hawsers and tug-related issues.

• **Crew Resource Management**
*Training towards:* Professional development
*Course duration:* 5 days

The purpose of this course is to introduce the main tenets of resource management and to provide a training environment where candidates can develop their non-technical skills in order to enhance the operational safety and efficiency of your company’s vessels.

The course is designed for mixed groups of deck and engineering officers. The optimum numbers are between four and six officers of each discipline per course.
Port Pilots – Professional Development  
Training towards: Professional development  
Course duration: 5 days

Simulation enables the human mind to be prepared for emergency scenarios when they happen in reality. IMO Resolution A.960 covering training and CPD for pilots specifically recommends the use of simulators for practising dealing with emergency situations, such as loss of propulsion or navigation equipment, or navigating in restricted visibility. It further recommends the use of simulators for maintaining familiarity with navigation equipment.

The time that a pilot spends on board a vessel is usually at the most critical phases of a voyage, such as the start and the finish. During these periods the opportunities for events to be clouded with hyper-activity, excessive communication, close-quarter traffic and berthing encounters are all too plentiful.

This course helps to combat these issues through the practice and sharing of experiences and techniques. An examination of current methodology for transits, anchor manoeuvres, berthing and unberthing on the Full Mission Bridge Simulator, in varying conditions of tide, wind and visibility, is designed to provide pilots with opportunities to practise their skills in a challenging, though realistic, environment.

We are able to set up almost any scenario. An example of this was a feasibility assessment by Port Talbot pilots ahead of the arrival of Newcastle max bulk cargo vessels.

FPSO/ SBM Berthing Master Training  
Training towards: Professional development  
Course duration: 5 days

The academy has been involved with the floating production storage off-loading (FPSO) and single buoy mooring (SBM) area for many years and the training is particularly aimed at the berthing and mooring masters’ disciplines. We are able to simulate berthing and unberthing at SBMs, and both spread-moored and turret-moored vessels.

Environmental changes can be added, including current, wind regimes such as passing squalls, sudden changes in wind, and failures and emergencies. We are also able to include tugs if required. The training conducted can be tailor-made for experienced berthing masters or those new to the role.

Human element, leadership and management (HELM)

The human element and team performance are increasingly recognised as being fundamental to safe and efficient vessel operations. The management and development of essential non-technical skills are known as ‘resource management’.

We have worked extensively with the Merchant Navy Training Board (MNTB) and the MCA on the design and implementation of the latest requirements for STCW 2010. Our training underlines resource management principles intrinsic to professional competence and are essential in delivering commercial success and minimising risk for employers and owners.

The HELM and bridge resource management courses offer the same fundamental principles carefully tailored to the context in which they are applied – whether this is for the bridge team including pilots, the engine room team, the whole ship or shore-side managers – and the experience and seniority of those attending the courses.
Engine room systems and simulation

We produced the world’s first engine room simulator 30 years ago, and now our Full Mission Engine Room Simulator integrates simulator technology with real vessel control and electrical systems, introducing a realistic emergency switchboard room and a high voltage (11KVA) room containing an HV breaker.

What are the key benefits?
This engine room simulator brings realism into a highly specialist training area and provides an environment in which our clients can develop technical engineering skills and non-technical human element, leadership and management skills to exceed the requirements of the STCW 2010 Manila Amendments.

Course summaries

- **High Voltage (Operational Level)**
  - **Training towards:** STCW requirement
  - **Course duration:** 1 day

As required by STCW 2010 Table A-III/1, all engineering and electro-technical officers of the watch (unlimited or yachts) will have to undertake High Voltage (Operational Level) training before serving on a vessel with electrical switchboards of 1KV and above. The training gives seafarers the essential education and training in high voltage (HV) installations to meet the knowledge, understanding and proficiency requirements set out for electrical, electronic and control systems at the operations level.

The course consists of a blend of classroom and practical training, including the use of the engine room simulator, to enable you to understand the arrangement and protection of HV installations on board a vessel and the safety requirements necessary for HV installations.
High Voltage (Management Level)
Training towards: STCW requirement
Course duration: 4.5 days

As required by STCW 2010 Table A-III and before January 2017, all management grade engineering and electro-technical officers (unlimited or yachts) will have to undertake High Voltage (Management Level) training before gaining second (senior) certification and serving on a vessel with electrical switchboards of 1KV and above.

This training is suitable for marine engineering officers, electrical officers, engineer surveyors and marine superintendents. The course consists of a blend of classroom and practical training, including the use of the engine room simulator, to enable you to learn how to manage an HV system on board a ship, carry out HV fault diagnosis and maintain electrical supply. You will also understand the need for HV safety rules and regulations, the hazards associated with HV systems and the safety controls, procedures and documentation needed to enable the safe maintenance and operation of high voltage systems.

Engine Room Resource Management
Training towards: STCW professional development
Course duration: 4.5 days

The main principles of resource management relate to the non-technical skills associated with social interaction between team members, situation awareness and decision-making. This is a high commitment, complex, simulated working environment.

The learning objectives of this course cover all the requirements of the Manila STCW 2010 Amendments, including the addition of competence in Table A-III/2 of ‘Use leadership and managerial skills’. The course syllabus and material is relevant, current and appropriate, and reflects industry best practice.

The course works best with a team of varied ranks and we recommend a complete engine room team of chief engineer, first/second engineer, second/third engineer and third/fourth engineer. The course normally accommodates a maximum of four officers and a minimum of three.
Electrical and Control Engineering for Marine Surveyors and Superintendents
Training towards: Professional development
Course duration: 5 days

This course is designed to give marine surveyors, shipyard technical designers and shipping company technical superintendents the in-depth knowledge and practical surveying experience of modern marine electrical and control engineering systems.

The course is run in conjunction with Lloyd’s Register of Shipping and is the only course of its type in the world. During the course, practical survey exercises are undertaken in our Full Mission Engine Room Simulator. At the end of the course, there is an examination and personal feedback on your individual performance during the survey exercises.

Steam Propulsion Plant Operations
Training towards: Professional development
Course duration: 5 days

The majority of steam turbine-propelled vessels are liquefied natural gas (LNG) carriers. These vessels are at present in the minority, relative to the world fleet. However, indications forecast a significantly large increase in these types of vessels.

The Steam Propulsion Simulator at the academy is a control room mock-up which can accommodate four students. The control room is arranged to produce a true working environment with four stations, each one being able to call up any specific part of the system. The simulator can be operated individually or as a team. The system depicts a single screw two-stage turbine and double reduction, articulated gearing system, with nitrogen purging and gas detection.

The course can be delivered at any venue, operating on a network of laptop PCs to suit client’s requirements.

Engineering Officer Assessments (Pre-Employment or Pre-Promotion)
Training towards: Professional development
Course duration: 4.5 days

This course is designed to assess the competence of senior engineering officers prior to them being employed or promoted by a shipping company.

Candidates for assessment are presented with a range of challenging scenarios, and performance is assessed throughout the course. Shipping companies can provide their own safe operating procedures to be followed during the course if they wish, or our own procedures can be used.

A minimum of three engineering officers is required to run the course and the maximum number is four. Assessments can be undertaken on any number of the candidates attending the course. A written assessment report is produced and sent to the shipping company for each of the candidates being assessed.

“The engine room simulator is a very welcome enhancement to a course which for several years has only seen positive feedback from our team members.”

Rick Harper, Director Safety, Training and Development
We are an associate member of SIGTTO and some of our courses are conducted to SIGTTO competency standards. All of our Liquid Cargo Operations Simulator (LICOS) courses meet the requirements of STCW at management level.

Our courses follow a logical voyage cycle, with cargo operations conducted in real time. The use of real time improves the authenticity of the simulation, and the exercises are designed to cover the most critical parts of each operation, such as loading and topping off of cargo tanks.

Each operation is preceded by a briefing which discusses the underlying principles behind the operation, the equipment to be used within the operation and the practical application of the principles to conduct the operation. You then take the theory and put it into practice by conducting the operation yourself. There is also an option to tailor courses to suit specific company requirements if desired.

### LNG Tanker Operations (Membrane)

**Training towards:** Professional development  
**Course duration:** 5 days

The course meets the requirements of STCW andIMO Model Course 1.36. It is based on a 136,000m³ LNG carrier with a GTT MkIII membrane and steam propulsion system. Exercises are also available on the No96 membrane system. The vessel leaves a shipyard with cargo tanks containing only dry air, and follows a voyage cycle during the course of the week. This includes initial inerting of inter-barrier spaces, cargo tanks and pipelines, gassing up of cargo tanks and lines, cooling down, loading, gas burning on a loaded voyage, discharge (with or without shore vapour return), cargo tank management on a ballast voyage and the pre-docking operations to gas-free the vessel.

Each operation is preceded by a briefing to discuss the operation and the equipment to be used. The detail and level of demonstration prior to conducting the operation varies depending on student experience.
The course does not include any formal assessment but it does conclude with a debriefing from the instructor to consolidate the learning experience.

**LNG Tanker Operations (Spherical)**

**Training towards:** Professional development  
**Course duration:** 4.5 days

This course meets the requirements of STCW and IMO Model Course 1.36.

The course is based on a 126,000m³ LNG carrier with five spherical (MOSS) tanks and steam propulsion. The vessel leaves a shipyard with cargo tanks containing only dry air, and follows a voyage cycle during the course of the week. This includes drying of hold spaces, inerting of cargo tanks and pipelines, gassing up of cargo tanks and lines, cooling down, loading, gas burning on a loaded voyage, discharge (with or without shore vapour return), cargo tank management on a ballast voyage and the pre-docking operations to gas-free the vessel.

Each operation is preceded by a briefing to discuss the operation and the equipment to be used. The detail and level of demonstration prior to conducting the operation varies depending on student experience. The course does not include any formal assessment but it does conclude with a debriefing from the instructor to consolidate the learning experience.

**LNG Cargo Operations – Management Level (SITGTO)**

**Training towards:** Professional development  
**Course duration:** 5 days

This course is best suited to those who have some LNG experience. The course follows the syllabus set out by SITGTO in their Suggested LNG Competence Standard (second edition, 2008) at the management level. It is approved by DNV-GL as meeting the requirements of this standard.

The training follows the same drydock to drydock voyage cycle as the LNG Tanker Operations (Membrane) course but includes a wider range of subjects, as set out in the SITGTO syllabus.

There is a short assessment each morning, in addition to a final assessment at the end of the course. All assessment marks are aggregated and candidates have to achieve a pass mark of 70 per cent or more to be awarded the course certificate. We recommend that those attending this course have had a minimum of three months’ service on an LNG tanker as a competent officer and hold a Tanker Endorsement (liquefied gas) or equivalent.

**Petroleum Tanker Operations Simulator**

**Training towards:** Professional development  
**Course duration:** 5 days

This course meets the requirements of IMO Model Course 2.06. It follows the voyage cycle of a 165,000dwt Suezmax crude/products tanker. The vessel leaves a shipyard with air in its cargo tanks, and the course includes inerting of cargo tanks, production of a loading plan from voyage orders and loading in accordance with the plan.

Discharge of cargo begins with the de-bottoming of tanks and includes crude oil washing and taking heavy weather ballast into designated cargo tanks. Discharge is completed with the stripping of lines and pumps.

Each exercise is preceded by a briefing to cover the operation and the equipment to be used, referencing recommended practice from ISGOTT and SOLAS regulations where appropriate.

**FPSO training**

**FPSO Level 3 Stability and Operations Simulator**

**Training towards:** Professional development  
**Course duration:** 5 days

This course includes instructions and assessment on stability at Level 3 over a period of two days. Then follows the operational cycle of a working FPSO for three days.

The course includes heading control of the FPSO, inerting of cargo tanks, receiving cargo from process and loading cargo tanks, heating of cargo and slops, crude oil washing and water washing. Gas freeing operations begin with purging with inert gas and then gas freeing.

Cargo tanks are then inerted after entry procedures are completed. Ballast operations are conducted at the appropriate stages. Discharge is completed with the stripping of lines and pumps.

Each exercise is preceded by a briefing to cover the operation and the equipment to be used, referencing recommended practice from ISGOTT, SOLAS and the industry where appropriate.
Our Ship Handling Centre is located at Solent University’s Timsbury Lake campus in Hampshire, UK (approximately 25 miles from the Warsash campus). The centre offers the international maritime industry an invaluable training facility, using accurately scaled model ships to simulate the handling characteristics of actual vessels.

The design and development of this innovative 25-acre site and ten-acre lake training facility has successfully integrated over 30 years of scale model operating expertise. Combined with a comprehensive understanding of the maritime industry’s needs, we are able to deliver world-leading programmes from our facilities.

As the only centre of its kind in the UK, and one of a few centres in the world, the lake site provides invaluable specialised training and assessment for pilots, captains and senior deck officers in ship handling. The facility enables mariners to practise and progress their ship handling skills through trial manoeuvres in a safe environment.

The fleet of nine different ship models, a jack-up oil rig and four tugs allows an extensive range of ship handling scenarios to be performed using a variety of models, berths, canals, channels and basins.

Professional pilots attending our courses during their career will gain and maintain their licences through ship handling training, with some returning every five years to comply with local requirements.

Blended courses are also available for bespoke training using our Full Mission Bridge Simulator and the Ship Handling Centre facilities.

There are nine ship models in the fleet, some of which can be reconfigured to represent different ship types. Each vessel is an accurately scaled model of a real ship closely replicating the handling characteristics of an actual vessel, including single and twin screw propulsion. The fleet includes:

- 1:25 scale container vessel – Resolution
- 1:25 scale Panamax vessel – Intrepid
- 1:25 scale product tanker – Diligence
- 1:25 scale Panamax vessel – Progress (option to convert to a large car carrier)
- 1:15 scale twin screw ro-ro ferry – Challenger (option to convert to a supply vessel and small passenger ferry/superyacht)
• 1:30 scale twin screw shuttle tanker – *Endeavour* (option to convert to an LNG carrier)
• 1:40 scale Suezmax – *Endurance*
• 1:40 scale very large crude carrier (VLCC) – *Pioneer*
• 1:40 scale ultra large crude carrier (ULCC) – *Venture*

Four radio-controlled tugs are also available to support manoeuvring operations, including a Voith water tractor, an Azimuth stern drive and Kort nozzles, while a jack-up oil rig is available for specialist offshore training.

"I found the ship handling course content to be very beneficial, and appreciated the advice and observations provided by staff and instructors – it made for a very positive learning environment."

Ship handling course private student

**Courses**

**Masters, Deck Officers and Pilots**
• Ship Handling (Manned Models)
• Advanced Ship Handling (Manned Models)
• Formal Assessment of Ship Handling
• Ship Handling and Emergency Procedures
• Offshore Oil Operations
• Ship Handling Appreciation

**Specialist Pilots**
• Combined Ship Handling (Manned Models) and Bridge Simulator
• Pilots Emergency Procedures
• Pilots Professional Development
• Formal Assessment of Ship Handling

**Ship Handling Centre information**
For more detailed information on all our courses, operations and facilities, please ask for our dedicated Ship Handling Centre course brochure or visit: [warsashacademy.co.uk/facilities/ship-handling-centre](http://warsashacademy.co.uk/facilities/ship-handling-centre)
The use of simulation for maritime education and training is a key component of our services. The fields of consultancy and research enhance our knowledge and skills, as well as our delivery of training.

In addition to our library of ship models, we can create any ship type using tools that are termed ‘six degrees of freedom’ models. These have high fidelity and complement our ability to provide specific port scenarios and training requirements.

Our long history of using simulation to establish and/or broaden corporate expertise has been employed in areas ranging from high-end research projects such as Project HORIZON, which examined the cause and effect of fatigue in seafarers, to port development, accident investigation and ship design/handling.

Our research portfolio extends to projects investigating the operation of autonomous ships, using virtual reality as a maritime training tool and the linking of simulators across Europe for vessel traffic management, in a similar vein to air traffic control.

Please contact our commercial manager if you would like further information about potential projects utilising our simulation facilities.

“The research carried out on Project HORIZON has provided a scientific basis for fatigue mitigation programmes. MARTHA aims to take this data forward and produce models and recommendations that can be used to benefit the welfare of seafarers, increase the shipping industry’s management of fatigue and improve maritime industry safety.”

Professor Mike Barnett, project leader for MARTHA
Contact us

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General enquiries
T: +44 (0)23 8201 3000
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Also, visit our website for:
• full course descriptions, costs, availability and course dates
• contacts for key staff members
• a list of facilities and travel information to the campus
• information on careers and career progression
• news and events.

@warsashacademy

warsashacademy.co.uk

The information contained in this course brochure is also available at warsashacademy.co.uk

Every effort has been made to ensure that the information contained in this brochure is accurate and up to date. However, the content was prepared in April 2016, and there may be unforeseen circumstances which force change to some of the details printed.

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