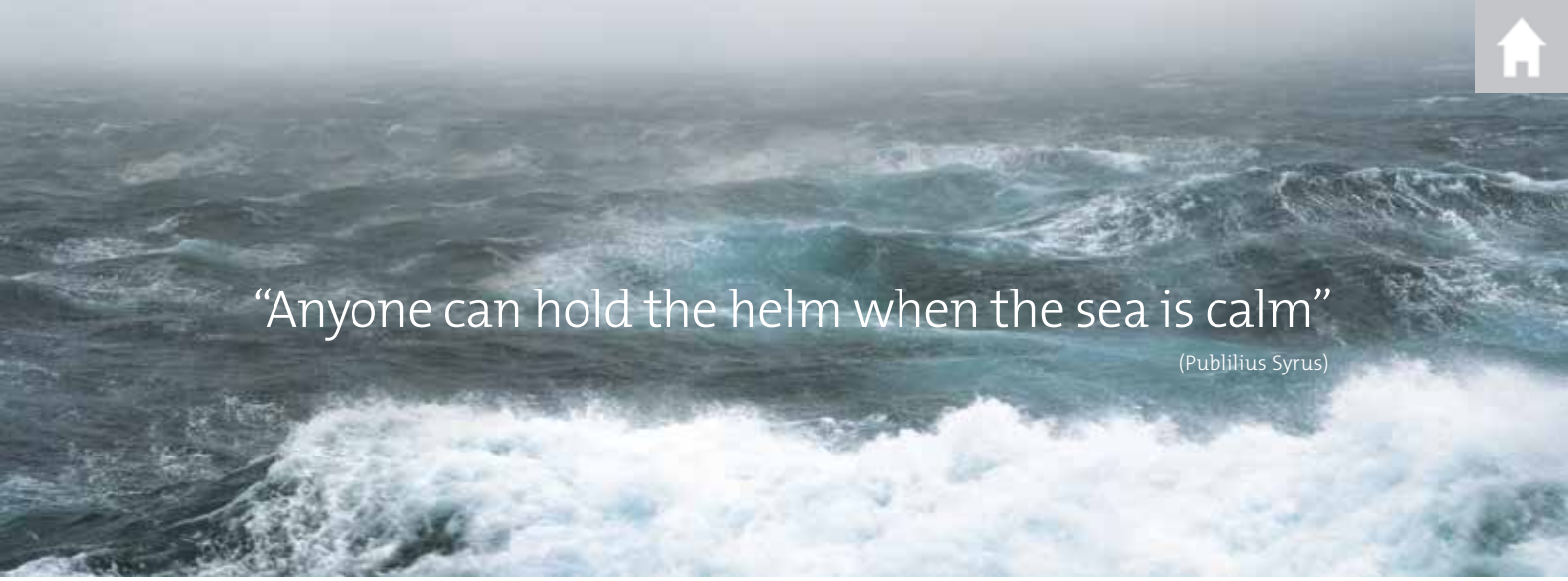
Rolls-Royce

Marine product training

Course catalogue

Contents



“Anyone can hold the helm when the sea is calm”

(Publilius Syrus)

“As a Captain and Deck Officer, I have been out at sea in unforgiving conditions. I understand the need to rely on your crew and on your ships systems to complete your mission and return home safe. The maritime environment is becoming increasingly complex - from new environmental regulations, to new operations in harsh areas, sailors must adapt and do more every day.

Rolls-Royce is a leader in providing mission critical systems for the maritime industry. We believe that our breadth of products and our depth of knowledge allow Rolls-Royce to provide better systems and superior service to our customers.

The best products in the world require competent crew members to operate and maintain them. We know our products will provide the best through life value and our training is designed to enhance this experience.

Rolls-Royce marine training is aligned to your needs. Our knowledge as a systems integrator allows our staff and trainers to help our customers understand and operate their vessels safely, more effectively and more efficiently. Our trainers bring years of technical and operational experience and have the support of our designers, engineers and services organisation.

Have confidence in choosing Rolls-Royce Marine systems. We are here to support you.

Jonny Knudsen
Chief DP Product Trainer
Global Training & Service Development

Protecting your investment

Skilled and experienced people are a key asset. Crew taking our training will gain a good understanding of our systems giving them the confidence to operate and handle equipment safely and competently. Using the latest simulators and training aids, our experts in product training ensures crew are equipped to operate mission critical systems in the broadest range of operational and maintenance scenarios.

Driving efficiency

As technology advances, so must the competence levels of operators and service personnel, some may even need to learn new skills. At Rolls-Royce we believe that regular training ensures that you get the best economic and environmental value out of a vessel's enquipment and systems.

Attracting talent

It has been shown that investing in training helps to attract and retain the best talent and skill. Our world class brand ensures your time-pressed crew has multi-product training in state-of-the-art facilities at convenient global locations. We provide accredited training (including Nautical Institute accreditation for dynamic positioning operators and IMCA recommended training for anchor handling crew) that ensures crew keep pace with regulatory requirements.

Our training philosophy

We employ a blended teaching technique with a combination of e-learning, classroom, workshop and simulator training. This enables us to provide strategic learning solutions matched to your needs. By offering your crew a combination of learning methods, they will be able to gain the necessary skills through the right learning solution.

E-learning

This type of solution is ideal for course preparation, where the participant is exposed to theoretical training for fundamental basic knowledge, with e-assessments throughout the module to assist in measuring the participants understanding of the basics.

Classroom

This type of solution is ideal for theoretical training, especially for larger groups. It goes through detailed systems overview including drawings and functionality.

Workshop/technical room

This type of solution is ideal for practical training with focus on maintenance and troubleshooting on actual products. This type of training used together with classroom training can provide a holistic view of complete systems.

Simulators

This type of solution is ideal for operator training where simulations of real life scenarios occurring at sea expose crew to dangerous situations in a controlled environment. They can be configured for systems or stand-alone operations like subsea, bridge, crane or winch operations.

DP simulator

Practice manoeuvring around an oil platform in all types of sea conditions. Learn from realistic situations using operator stations arranged as on the vessel.

Winch simulator

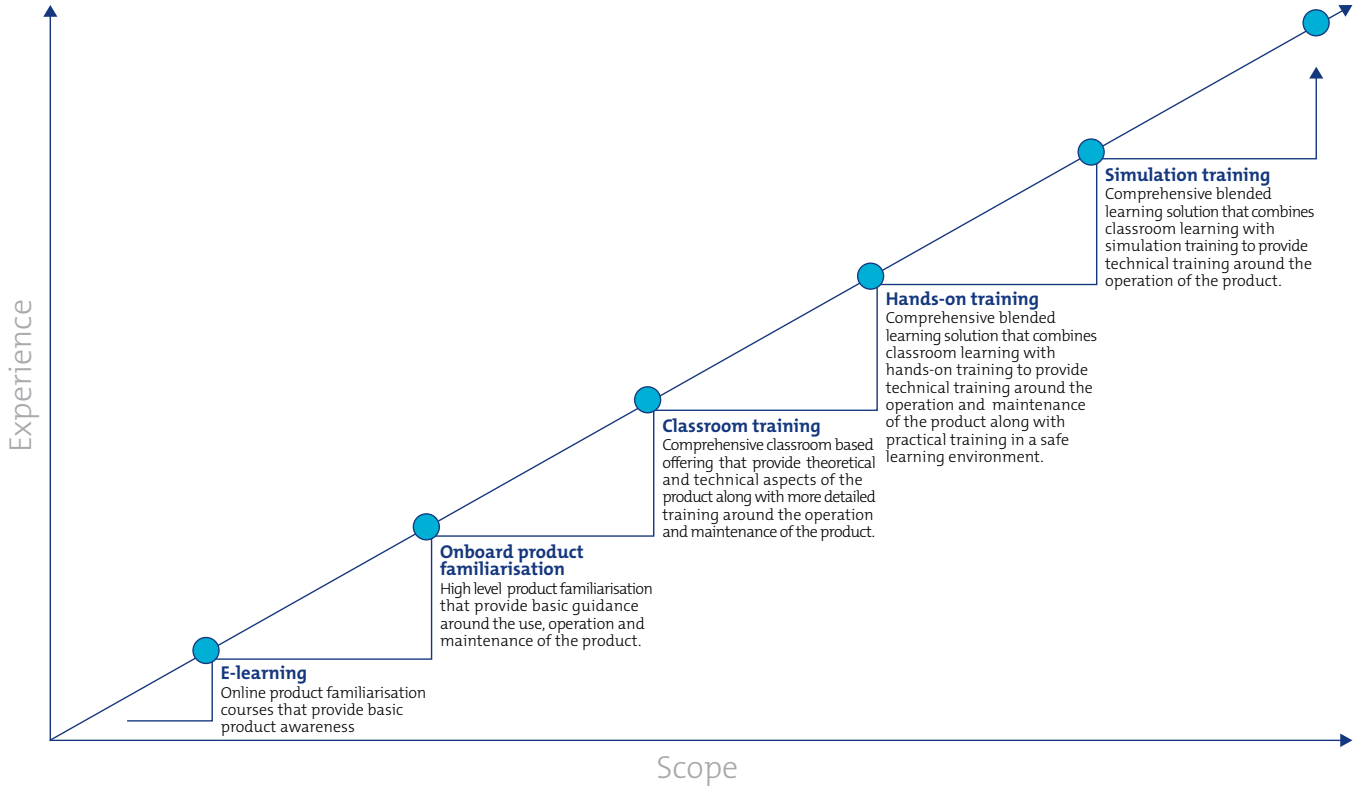
Enhanced with a winch remote control and monitoring system, the latest winch configurations helps crew practice and learn how to handle complex winch operations.

Seismic simulator

Realistic training on deploying the streamer cable and deflector. Simulating the operator's tasks on the back deck of a seismic vessel, using the control system together with the radio remote.

Training levels

Our courses are designed so students can obtain the level of training they need in order to match their level of experience. The training level diagram charts the type of courses we have developed to ensure training objectives and competence levels are achieved.



Course overview

Automation and control

Product courses	Target group	Duration	Training Centre
Acon, automation system	Technical/maintenance personnel	2 days	Aalesund, Norway/Singapore
Acon LNG, automation system	Technical/maintenance personnel	2 days	Aalesund, Norway
LNG - safety management	Crew cat. ABC/clients on gas fuelled vessels	2 days	Aalesund, Norway
Helicon X3, remote control system	Technical/maintenance personnel	3 days	Aalesund, Norway/Singapore
Azipull manoeuvring with Helicon X3 controls	Bridge personnel	2 days	Aalesund, Norway
Helicon X, remote control system	Technical/maintenance personnel	3 days	Aalesund, Norway/Singapore
Stabilisers	Bridge/technical personnel	1-2 days	Dunfermline, UK/On board
Vector controls	Bridge/technical personnel	4 days	Kokkola, Finland
Controllable pitch propeller manoeuvring	Captains/officers	3-5 days	On site
Compact control system	Bridge/technical personnel	3-5 days	Kokkola, Finland
Waterjet, Kamewa S-series	Captains/officers	3-5 days	On site
Podded propulsor, Mermaid pod	Captains/officers	3-5 days	On site/On board

Deck machinery

Product courses	Target group	Duration	Training Centre
AHT winch - operation	Bridge/technical personnel	2 days	Aalesund, Norway/Niterói, Brazil/Singapore
Towcon RT, AHT winch - technical	Bridge/technical personnel	3 days	Aalesund, Norway/Niterói, Brazil
Rig anchor and mooring winch system	Bridge/technical personnel	2 days	On board
Introduction to hydraulics	Crew/chief/techn. personnel	3 days	Aalesund, Norway
Subsea crane	Crane operators/chief/techn. personnel	2-3 days	Training Centre/On board
Deck crane/cargo rail crane	Crane operators/chief/techn. personnel	1-2 days	On board
Offshore crane	Crane operators/chief/techn. personnel	1-2 days	On board

Dynamic positioning system

Product courses	Target group	Duration	Training Centre
Icon Dynamic Positioning system	Bridge personnel	2 days	Aalesund, Norway/Niterói, Brazil/Singapore
Icon Dynamic Positioning system	Bridge personnel	1 day	Aalesund, Norway/Niterói, Brazil
Icon Dynamic Positioning system	Technical personnel	5 days	Aalesund, Norway/Niterói, Brazil
Poscon joystick	Bridge/technical personnel	1 day	Aalesund, Norway
DP basic	Bridge personnel	4 days	Aalesund, Norway
DP simulator	Technical personnel	4 days	Aalesund, Norway

Engines

Product courses	Target group	Duration	Training Centre
Bergen diesel engine	Technical/maintenance personnel	3 days	Bergen, Norway/Singapore
Bergen gas engine	Technical/maintenance personnel	3 days	Bergen, Norway/Singapore

Power electric system

Product courses	Target group	Duration	Training Centre
Diesel-electric propulsion system	Technical personnel	3 days	Aalesund, Norway
Power management system	Technical personnel	1 day	Aalesund, Norway

Propulsion

Product courses	Target group	Duration	Training Centre
Waterjet, Kamewa S-series	Technical/maintenance personnel	5 days	Kristinehamn, Sweden
Waterjet, Kamewa S-series	Technical/maintenance personnel	5 days	Kristinehamn, Sweden
Waterjet mechanics, Kamewa FF-series	Technical personnel	3 days	Kokkola, Finland/Singapore
Waterjet mechanics, Kamewa A3-series	Technical personnel	3 days	Kokkola, Finland/Singapore/Aalesund, Norway
Controllable pitch propeller	Technical/maintenance personnel	3-5 days	Aalesund, Norway/Singapore/ Kristinehamn, Sweden/On board
Controllable pitch propeller	Technical/maintenance personnel	5 days	Kristinehamn, Sweden
Reduction gear, type AGSC/AGHC	Technical personnel	3 days	Aalesund, Norway
Steering gear, type SR/SV	Technical personnel	2-4 days	Aalesund, Norway

Seismic and subsea

Product courses	Target group	Duration	Training Centre
Seismic - observer	Observer/technical personnel	2 days	Aalesund, Norway
Seismic - hydraulic	Technical personnel	3 days	Aalesund, Norway
Seismic - hydraulic and electric	Technical personnel	5 days	Aalesund, Norway
Launch and recovery systems	Operators/chief/techn. personnel	3 days	Aalesund, Norway
Launch and recovery systems	Operators/chief/techn. personnel	2 days	Aalesund, Norway

Thrusters

Product courses	Target group	Duration	Training Centre
Azimuth thruster, type TCNS/TCNC	Technical/maintenance personnel	1-2 days	Aalesund, Norway
Azimuth thruster, type UL/US/UUC/UUS	Technical/maintenance personnel	2-3 days	Rauma, Finland
Azimuth thruster, Captains training	Bridge personnel	3-5 days	On board
Azimuth thruster, type Azipull	Technical/maintenance personnel	2 days	Aalesund, Norway
Tunnel thruster, type TT	Technical/maintenance personnel	1-2 days	Aalesund, Norway/Singapore
Podded propulsor, Mermaid pod	Operational/maintenance personnel	3 days	On board
Podded propulsor, Mermaid pod	Operational/maintenance personnel	3 days	On site
Podded propulsor, Mermaid pod	Technical/maintenance personnel	5 days	Kristinehamn, Sweden

Naval marine products

Product courses	Target group	Duration	Training Centre
Product familiarisation	Technical/maintenance personnel	1 day	North America/On board
LCS 172S AWJ and 172B AWJLCS waterjet	Technical/maintenance personnel	3 days	North America/On board
LCS 153SII and 153B LCS waterjet	Technical/maintenance personnel	3 days	North America/On board
Bird-Johnson CPP system	Technical/maintenance personnel	3 days	North America/On board
Bird-Johnson new CPP 156	Technical/maintenance personnel	3 days	North America/On board
Bird-Johnson CPP legacy 156	Technical/maintenance personnel	3 days	North America/On board
MT30 gas turbine engine	Technical/maintenance personnel	5 days	North America/On board
LCS-1 main propulsion gas turbine module	Technical/maintenance personnel	5 days	North America/On board
DDG-1000 main turbine generator	Technical/maintenance personnel	2 days	North America/On board
DDG-1000 main turbine generator	Technical/maintenance personnel	1 day	North America/On board
Gas turbines	Technical/maintenance personnel	2 hours	North America/On board

Onboard training

Product courses	Target group	Duration	Training Centre
Product familiarisation	Crew/technical/maintenance personnel	1-2 days	On board

Online learning courses

Product courses

Acon familiarisation
Anchor handling and tow winch system familiarisation
Azimuth thruster (Azipull) familiarisation
Tunnel thruster (TT) familiarisation
Azimuth thruster (US) familiarisation
Common control platform familiarisation
Engine B familiarisation
Helicon X3 familiarisation
Icon DP familiarisation
Mermaid Pod familiarisation
Propellers (XF5) familiarisation
Waterjet (Kamewa FF- and A-series) familiarisation
Waterjet (Kamewa S3- Series) familiarisation
Reduction gears familiarisation
Stabilisers familiarisation
Steering gear and rudders familiarisation

Additional information

- The number of training days can be extended depending of days required.
- Familiarisation and operator training can be conducted on board a vessel or at any pre selected venue.
  Please note that operator and hands-on training is subject to the availability of the relevant equipment.
- If you have questions or need more information, please do not hesitate to contact us.

Rolls-Royce

Product courses

Automation and control

Acon automation system/Acon LNG system
LNG - safety management
Helicon X3/Helicon X remote control system
Stabilisers/Vector controls
CPP manoeuvring/Compact control system
Waterjet, Kamewa S-series
Podded propulsor, Mermaid pod

Acon, automation system

Operation and maintenance training

Objective[1]

After completing the course, the participants should be able to identify and define the design and functionality of the Acon system.

The participants will learn how to operate the Acon system, the different alarm situations and the effect that they may have on the vessel performance. Participants will also discover the possibilities and limitations of the system and how to reduce human errors and their effects .

Course content

System description

General description of the Acon system including:
Bridge and ECR operation stations components.
E0 alarm panels, Acon cabinets, tank sounding system, DMS, communication in Acon and remote switchboard operation. Other system BNWAS.

System operation

Covering the function and mode of operation of the system including operation principles, system operation, operation from bridge stations, operation from Engine Control Room (ECR).

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares
- Backup and restore of the software
- Calibrate Acon to sensors

Practical training exercises:

- Operate the system
- Handle alarms and errors
- Operate pumps and valves
- Acon operation of switchboard
- Troubleshooting
- Safety notes
- Trending

[1] The training complies with the regulations of the International (IMO) STCW code.

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway / Rolls-Royce Training Centre, Singapore.
Duration	2 days.
Target group	Technical and maintenance personnel on board.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training in technical room.
Course code	ACAA1000-01.

Acon LNG, automation system

Operation and maintenance training

Objective[1]

After completing the course, the participants should be able to identify and define the design and functionality of the Acon system.

The participants will learn how to operate the Acon system, the different alarm situations and the effect that they may have on the vessel performance. Participants will also discover the possibilities and limitations of the system and how to reduce human errors and their effects.

Course content

System description

General description of the Acon LNG system including:
Bridge and ECR components.
E0 gas alarm panels, ACON LNG cabinets, communication between safety, control cabinets and to alarm system.

System operation

Covering the function and mode of operation of the system including operation principles, system operation, operation from bridge stations, operation from Engine Control Room (ECR).

Maintenance

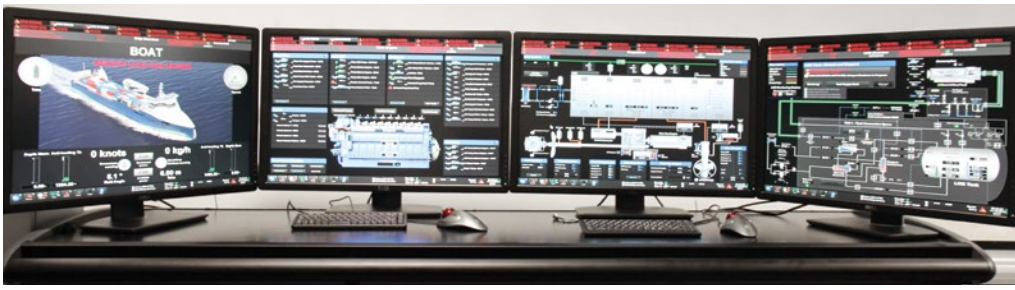
- Daily, weekly and monthly onboard maintenance
- Utilising test equipment and proper tools
- Spares
- Backup and restore of the software
- Calibrate Acon LNG to sensors
- Testing of gas detectors with 50%LEL test gas

Practical training exercises:

- Operate the Acon LNG system
- Handle alarms and errors
- Operate pumps and valves
- Bunkering manual/automatic explaination
- Troubleshooting
- Safety notes
- Trending of signals

[1] The training complies with the regulations of the International (IMO) STCW code.

Key information



Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	2 days.
Target group	Technical and maintenance personnel on board.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training in technical room.
Course code	ACAA1001-02.

LNG - safety management

Crew training

Objective[1]

After completing the course, the participants should be able to identify and define the design and functionality of the fuel containment system.All major components and interactions in the system will be covered including safety barriers, risk reducers and precautions with special focus on bunkering operations. Practical excersises at the field with gas leak and fire are included.

The participants will be introduced to operating the fuel system, how safety barriers are arranged and the different alarm situations and the effect that they may have on the vessel performance. The course covers mandatory training for crew category ABC.

Course content

System description

General description LNG system including: TCS, bunkering station and ECR functions, gas theory, `What is a gas´, Cryogenic liquid as a fuel and thermodynamic properties, vaporaising, pressure build up and superheating NG, inerting procedures and issuing an `Work permit´.

Participants will discover the possibilities and limitations of the system and how to reduce human errors and their effects through HAZID/HAZOP (Risk analysis), `safe job analysis´ and emergency preparedness and `best practice´. Special focus will be on the ship the mariners will serve on.

System operation

Covering the function and mode of operation of the system including operation principles, system operation.

Maintenance

- Daily, weekly and monthly onboard maintenance
- Utilising test equipment and proper tools
- ESD test procedures
- Safety valves renewal procedures
- Redundancy
- Testing of gas detectors with 50%LEL test gas
- Contaminated tanks Level sensor

Practical training exercises:

- Gas fire in liquid and gaseous state
- Handle alarms and errors
- Operate pumps and valves
- Bunkering manual/automatic explanation
- Troubleshooting
- Safety notes
- Transfer of Experience
- Dead ship recovery

[1] The training follows the regulations of the International (IMO) (IGF) code and NMD regulations `Gas fuelled´.

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	2 days.
Target group	Crew category ABC and clients on gas fuelled vessels.
Group size	Maximum 12 participants.
Teaching method	Classroom and hands-on training in technical room. Practical fire extinguishing training.
Course code	ACAA1010-01.

Helicon X3, remote control system

Maintenance training

Objective

After completing the course the participants should be able to identify and define the design and functionality of the Helicon X3 control system.

The participants will be introduced to operating functions in the system, learn about different alarm situations and what influences they may have on the performance of the vessel.

Course content

System description

General description of the Helicon X3 control system including system layout, installation description, onboard layout, bridge/ ECR equipment layout, indicators and panel PC's and control and interface units.

System operation

General overview of Helicon X3 control system including operation modes, main and back-up control, fixed pitch (FP) and controllable pitch (CP), start/stop functionalities.

Helicon X3 session plan

- Course introduction
- Helicon X3 introduction
- System overview
- Operations
- Safety
- Maintenance
- Troubleshoot

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway / Rolls-Royce Training Centre, Singapore.
Duration	3 days.
Target group	Technical/maintenance personnel.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training in simulator rooms.
Course code	ACAA1002-02.

Azipull manoeuvring with Helicon X3 controls

Manoeuvring training

Objective

After completing the course, the participants should be comfortable to manoeuvre a vessel with azipull or azimuth thrusters as a propulsion system and understand the design and basic functionality of the Helicon X3 control system.

Course content

System description

A general description of the Helicon X3 and Azipull system is given.

System operation

The participants will be introduced to operating functions and principles in Azipull manoeuvring and practice this in our 360 degree bridge simulator and smaller product simulators. The focus will mainly be on practical operation of the system with focus on manoeuvring in “Bias”.

Practical training exercises:

- Manoeuvring from forward bridge
- Manoeuvring from aft station with Bias
- Different techniques for Bias operation
- Mode changes, limitations in HCX3
- Utilising Icon DP/Poscon joystick as heading control

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	2 days.
Target group	Bridge personnel.
Group size	Maximum 4-6 participants.
Teaching method	Classroom and hands-on training in simulator rooms.
Course code	ACAA1003-01.

Helicon X, remote control system

Maintenance training

Objective

After completing the course the participants should be able to identify and define the design and functionality of the Helicon X control system.

The participants will be introduced to operating functions in the system, learn about different alarm situations and what influences they may have on the performance of the vessel.

Course content

System description

General description of the Helicon X control system including system layout, installation description, on board layout, bridge/ECR equipment layout, indicators and panel PC's and control and interface units.

System operation

General overview of Helicon X control system including operation modes, main and back-up control, fixed pitch (FP) and controllable pitch (CP), start/stop functionalities.

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway / Rolls-Royce Training Centre, Singapore.
Duration	3 days.
Target group	Technical/maintenance personnel.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training in simulator rooms.
Course code	ACAA1004-01.

Stabilisers

Mechanical, hydraulic and control system training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the fin stabiliser system.

The participants will acquire necessary knowledge in the functionality of the system, and be able to perform simple faultfinding and mandatory maintenance in order to promote reliable and safe operation of the equipment.

Course content

Introduction to mechanical and hydraulics.
General description of the mechanical and hydraulical fin stabiliser system, how it works, size calculation, ship stability and damping.
Fin lift and sea input.

Mechanical description

- Shaft
- Seals
- Bearings
- Mechanisms

Hydraulic description

- Fixed-displacement pumps
- Proportional valves
- 3-port compensator
- Fin tilt
- Fin house-extend
- Other hydraulic details

System operation

Overview of the fin stabiliser control system including reliable operation and long life of the equipement.

Control system description:

- System
- Components
- Servo-loop
- HMI
- Alarms and indications
- Operation
- Maintenance
- Fault-finding

Key information

Location	Rolls-Royce Product Centre, Dunfermline, UK / On board.
Duration	1-2 days.
Target group	Bridge and technical personnel shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training in simulator rooms.
Course code	ACDF1005-01.

Vector controls

Maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the Vector control system.

Course content

System description

General description of the Vector control system including the bridge layout, main functions, software versions, operating principles, alarm indications and alarm system.

System operation

Overview of the main components, scope of supply, hardware components, operator stations, control cabinets, cabling and drawing layout.

Practical training exercises:

- Calibration
- Change panels
- Use the user manual
- Detect faults
- Find and implement solution

Maintenance

- Daily, weekly and monthly on
- Claim reporting
- Support

Key information

Location	Rolls-Royce Product Centre, Kokkola, Finland.
Duration	4 days.
Target group	Bridge and technical personnel, shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	ACDF1006-01.

Controllable pitch propeller manoeuvring

Manoeuvring training

Objective[1]

After completing the course, the operators will gain a deeper understanding for the design and function of the system so that the equipment can be utilised to an optimum, to ensure continued safe and efficient operations and hence commercial viability. The operator will be given a good knowledge of the alarm situations that can arise and how to act, and what influences they may have on the performance of the vessel.

The hands-on training will give all participants an illustrative opportunity to understand the vessel, the propulsion forces, possibilities and limitations and how to reduce the human errors and the effects of these.

Course content

Introduction

- General description of the control system

Remote control system

- General description of the bridge layout
- Control system
- Propulsion system
- Thrusters system
- Control stations and components
- Instrument handling and training
- Safety notes
- Operation from bridge stations
- Operation from ECR
- Alarm and error handling
- Maintenance and daily routines
- Trouble shooting

Optimising of

- Operation of propulsion system
- Manoeuvring equipment
- Manoeuvring responsibility
- Manoeuvring mode
- Manoeuvring with joystick
- Using autopilot
- Auto heading (joystick)
- Bow and stern thrusters
- Joystick control mode
- Vessel movement, thrust vectors
- Supervising and control of propulsion
- Supervising and control of thrusters
- Supervising and control system indicators
- Control failures
- Operation in back up mode
- Operation from ECR room

[1]The training complies with the regulations of the International (IMO) STCW code.

Key information

Location	On site.
Duration	3-5 days.
Target group	Captains and officers already trained to operate conventional ships and who are transferred to Mermaid equipped vessels.
Group size	Maximum 4 participants.
Teaching method	Classroom and hands-on training.
Course code	ACDF1007-01.

Compact control system

Maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the Rolls-Royce Compact control system.

Course content

System description

General description of the Rolls-Royce Compact control system including the bridge layout, graphical user interface, main functions, software versions, operating principles, alarm indications and alarm system.

System operation

Overview of the main components, scope of supply, hardware components, operator stations, control cabinets, cabling and drawing layout.

Practical training exercises:

- Calibration
- LCD-panel functions
- Cabling
- Detect faults
- Find and implement solution

Maintenance

- Daily, weekly and monthly onboard maintenance
- Claim reporting
- Support

Key information

Location	Rolls-Royce Product Centre, Kokkola, Finland.
Duration	3-5 days.
Target group	Bridge and technical personnel, shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	ACDF1008-01.

Waterjet, Kamewa S-series

Manoeuvring - level A training

Objective[1]

After completing the course, the operators will gain an understanding of the design and function of the system so that the equipment can be utilised to an optimum, to ensure continued safe and efficient operations and hence commercial viability. The operator will be given a good knowledge of the alarm situations that can arise and how to act, and what influences they may have on the performance of the vessel.

The hands-on training will give all participants an illustrative opportunity to understand the vessel, the propulsion forces, possibilities and limitations and how to reduce the human errors and the effects of these.

Course content

Introduction

- General description

Remote control system

Covering the design, function and mode of operation:

- General description of the bridge layout
- Control stations and components
- Instrument handling and training
- Function and mode of operation
- Alarm and error handling
- Maintenance and daily routines
- Trouble shooting
- (Function of joystick)

Manoeuvring

- Craft movement, jet thrust vectors
- Common modes
- Separate mode
- (Joystick mode)
- Auto pilot
- Override functions
- Steering modes
- Status mode (failure)
- Back up mode
- Control station/mode changeover
- Crash stop
- Clogged jet
- Entering port
- (Bow thruster)

Optimising of

- Fuel consumption (save fuel/keep schedule)
- Turning (rate of swing/turn)
- Comfort
- Daily routines and communication
- Avoiding damages of the craft
- Rough weather operation

[1] The training complies with the regulations of the International (IMO) code of safety for high speed craft, chapter 1.2.3-18.1.3.7 and 18.3.

Key information

Location	On site.
Duration	3-5 days.
Target group	Captains and officers already trained to operate conventional ships who are transferring to high speed crafts.
Group size	Maximum 4 participants.
Teaching method	On ship and suitable classroom.
Course code	ACDF1009-01.

Podded propulsor, Mermaid pod

Manoeuvring training

Objective[1]

After completing the course, the operators will gain a deep understanding for the design and function of the system so that the equipment can be utilised to an optimum,to ensure continued safe and efficient operations and hence commercial viability. The operator shall be given a good knowledge of the alarm situations that can arise and how to act, and what influences they may have on the performance of the vessel.

The hands-on training will give all participants an illustrative opportunity to `get to know´ the vessel, her propulsion forces, possibilities and limitations and how to reduce the human errors and the effects of these.

Course content

Introduction

- General description of the pod propulsion system

Remote control system

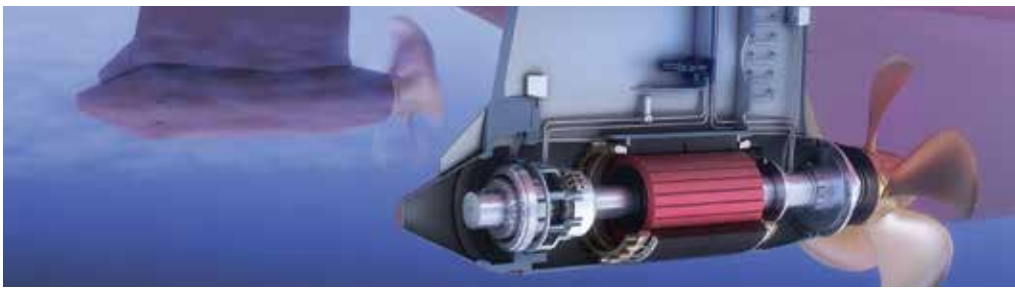
- General description of the bridge layout
- Control system
- Steering hydraulics
- Propulsion system
- Control stations and components
- Instrument handling and training
- Safety notes
- Operation from bridge stations
- Operation from ECR or pod room
- Alarm and error handling
- Maintenance and daily routines
- Trouble shooting

Manoeuvring

- Operation of steering and propulsion systems
- Manoeuvring equipment
- Manoeuvring responsibility
- Manoeuvring mode
- Steering control mode
- Manoeuvring with azimuth lever
- Steering with helm
- Using autopilot
- (Bow thrusters)
- Joystick control mode (manoeuvring)
- Joystick rotation centre
- Vessel movement, thrust vectors
- Display unit
- Supervising and control of propulsion
- Supervising and control of system indicators
- Status mode (failure)
- Operation in back-up mode
- Operation from ECR and pod room

[1] The training complies with the regulations of the International (IMO) STCW code.

Key information

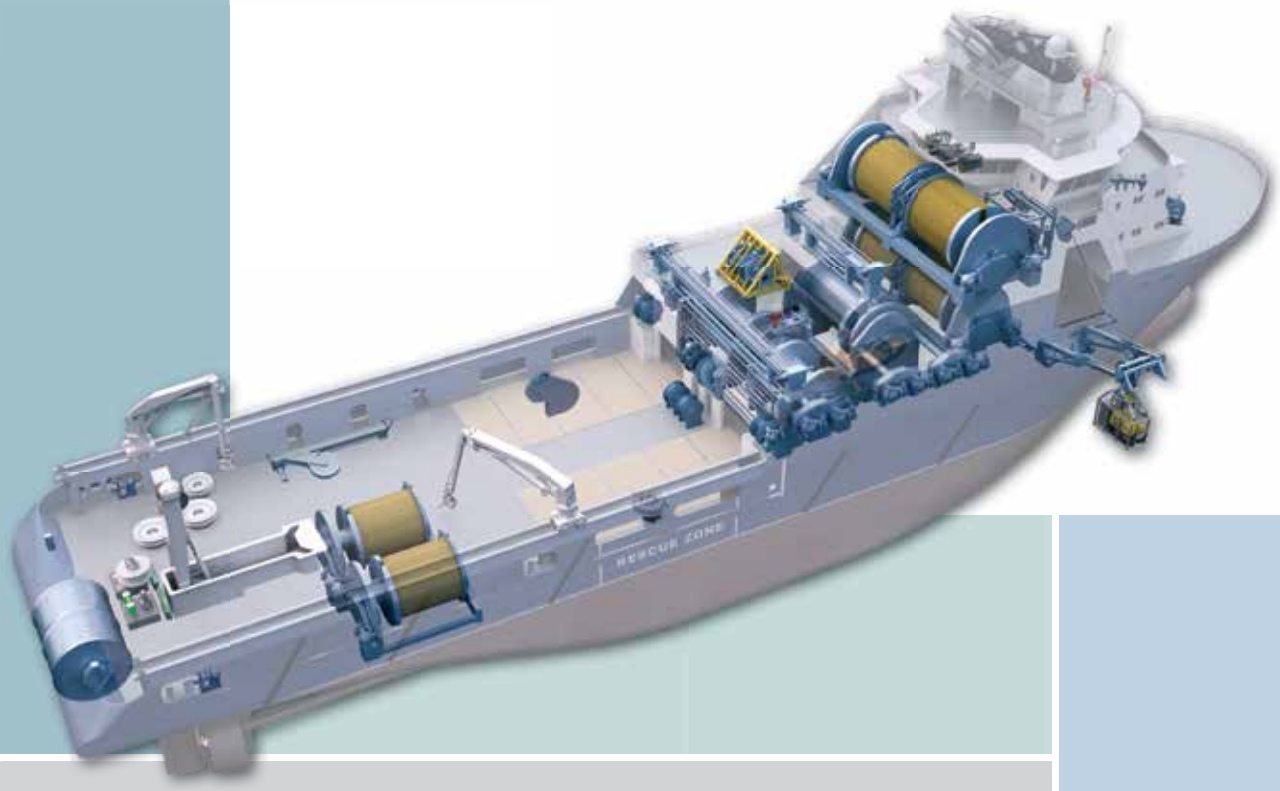


Location	On site and on board.
Duration	3-5 days.
Target group	Captains and officers already trained to operate conventional ships and who are transferred to Mermaid equipped vessels.
Group size	Maximum 4 participants.
Teaching method	On board.
Course code	ACDF1010-01


S.H.

Rolls-Royce

Product courses



Deck machinery

AHT winch - operation
Towcon RT, AHT winch - technical
Rig anchor and mooring winch system
Introduction to hydraulic
Subsea crane
Deck crane/cargo rail crane
Offshore crane

AHT winch - operation

Operation training

Objective[1]

After completing the course, the participants should be able to identify and define the design and functionality of the winch system in order to avoid incidents, accidents and damage of the equipment.

The participants will be introduced to the operation modes of the winch system and the winch control system.

Course content

System description

General description of the winch system including customer specific design information of the system, scope of supply and main components.

System operation

Covering the function and mode of operation of the system including operation principles and system operation. Remote control of winches from bridge including system and components, operator/user functions, graphical views of main winch and components for applicable vessel.

The control and monitoring systems will be available for trainees for minor adjusting and testing of the system.
Essential winch components will be available for maintenance and service training.

Practical training exercises on how to operate the Towcon RT system:

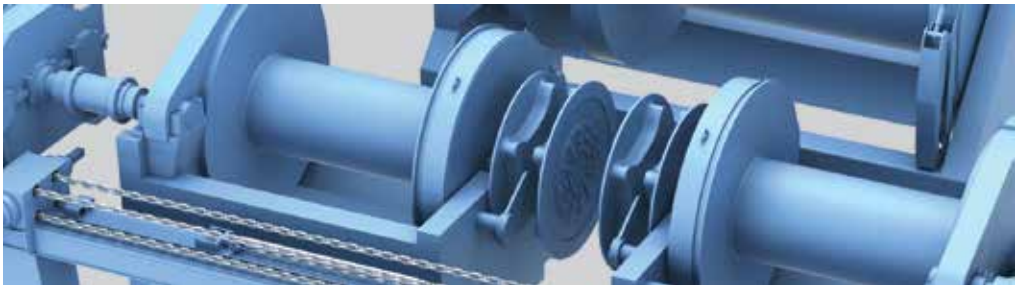
- Winch systems in dome simulators
- Maintenance on winch package in workshop
- Winch system in instrument room

Maintenance

Daily, weekly and monthly on board maintenance.

[1] Training complies with GOMO - Guidelines for Offshore Marine Operations as from November 2013, Chapter 5.4.5.3 – Vessel Winch Operators and is covering winch knowledge, safety systems, functions and limitations.

Key information



Location	Rolls-Royce Training Centre, Aalesund, Norway / Rolls-Royce Training Centre, Niterói, Brazil / Rolls-Royce Training Centre, Singapore.
Duration	2 days.
Target group	Bridge and technical personnel, shore or vessel based.
Group size	Maximum 4 participants.
Teaching method	Classroom and hands-on training in simulator domes and workshop.
Course code	DMAA2000-01.

Towcon RT, AHT winch - technical

Maintenance training

Objective[1]

After completing the course, the participants should be able to identify and define the design and functionality of the winch and towing control system (Towcon RT) in order to avoid incidents, accidents and damage of the equipment.

The participants will be introduced to the winch system and the winch control system.

Course content

System description

Technical description of the winch system including information of the winch system, piping diagram Towcon RT, pump units, servo units, hydraulic motor and valve arrangement.

System operation

Covering the function of the system, remote control of winches and components.

The control and monitoring system Towcon RT will be available for the participants for minor adjusting and trimming of the system as well as for basic trouble shooting.
Essential winch components will be available for service training.

Practical training exercises on how to handle the Towcon RT system:

- Fault finding signal
- Signals and functions
- Change of circuit board and adjustments
- Brake-coupling-speed-tension and spooling functioning
- Static and dynamic load sensing
- Length sensing
- Emergency release functions

Practical training exercises on winch shaft arrangement:

- New emergency coupling
- Torsion shaft arrangement
- Full scale drum coupling arrangement and band brake
- Servo unit
- Motor / valve arrangement

Maintenance

- Daily, weekly and monthly on board maintenance

[1] Training complies with GOMO - Guidelines for Offshore Marine Operations as from November 2013, Chapter 5.4.5.3 – Vessel Winch Operators and is covering winch knowledge, safety systems, functions and limitations.

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway / Rolls-Royce Training Centre, Niterói, Brazil.
Duration	3 days.
Target group	Bridge and technical personnel, shore or vessel based.
Group size	Maximum 4 participants.
Teaching method	Classroom and hands-on training in simulator domes and workshop.
Course code	DMAA2001-01.

Rig anchor and mooring winch system

Operation training

Open course

Objective[1]

After completing the course, the participants should be able to identify and define the design and functionality of the anchor mooring winch operation system in order to avoid incidents, accidents and damage of the equipment.

The participants will be introduced to the operation modes of the winch drive and control system.

Course content

System description

General description of the anchor mooring windlasses including customer specific design information of the system, scope of supply, windlasses with static brake system and couplings, water cooled dynamic brake, electric motor and disk brake, deluge system, gearbox including high- and low gear, load cell arrangement, service chain stoppers and fairleads.

System operation

Covering the function and mode of operation of the system including system and components, servo aggregate with interface cabinet, speed and tension control, emergency release and emergency stop, set-up parameters with applicable screen shots, variable speed drive, bridge control system and alarm system.

Practical training exercises on how to:

- Operate the system from operator cabinet
- Handle alarms and errors
- Troubleshoot

The control and monitoring systems will be available for trainees for minor adjusting and trimming of the system as well as for basic trouble shooting. Essential winch components will be available for maintenance and service training.

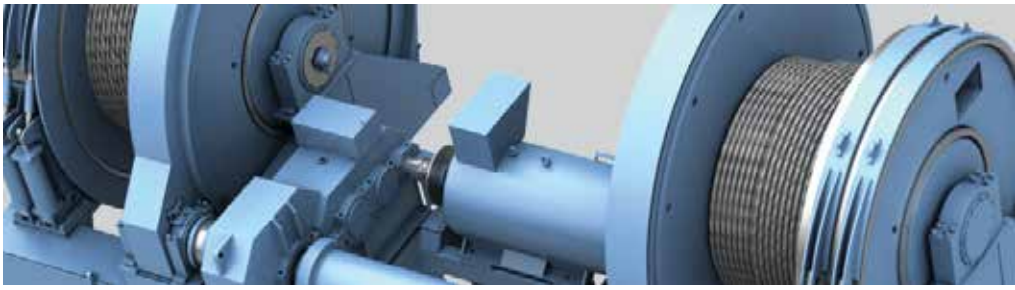
As vessel owners and operators often have unique training requirements, we also tailor this course for individual/vessel specific needs. Training is specific and normally covers the actual equipment on the vessel. For information about tailor made maintenance course see own factsheet.

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools

[1] Training complies with NWEA - Guidelines for Safe Management of Offshore Supply and Rig move operations, Chapter 9.1.4 anchor-handling, and is covering winch knowledge and operation safety functions, precaution and limitations.

Key information



Location	On board.
Duration	2 days.
Target group	Bridge and technical personnel, shore or vessel based
Group size	Maximum 8 participants.
Teaching method	Classroom.
Course code	DMAA2002-01.

Introduction to hydraulics

Operation and maintenance training

Objective

After completing the course, the participants should be able to understand how hydraulic circuit diagrams are built up.

The training spans from simple auxiliary equipment to more complex swing-up thrusters, cargo rail cranes, larger offshore cranes and/or ROV winch systems. They will gain an understanding of hydraulic drawings, symbols used and functionality of different pumps, valves and auxiliary equipment (filters, heaters, oil coolers, and accumulators) which are often key to be able to do faultfinding on hydraulic systems.

Course content

Introduction to hydraulics

Familiarisation of mechanical and hydraulic components used in typical systems that could be found on board a Plattform Supply Vessel (PSV) and/or Anchor Handling Vessel (AHV).
Safety working with hydraulic systems.

Hydraulic Power Unit (HPU)

Familiarisation of mechanical and hydraulic components used.
Hydraulic circuit diagrams and how to do simple faultfinding on a typical HPU.

Maintenance

Daily, weekly and monthly on board maintenance related to hydraulic systems.

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	3 days.
Target group	Marine crew, chief and technical personnel, shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	DMAA2003-01.

Subsea crane

Familiarisation training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the subsea crane.

The participants will acquire necessary knowledge, and be able to operate the subsea crane, and perform simple faultfinding and mandatory maintenance in order to promote a reliable and safe operation of the crane.

Course content

System description

General description of the hydraulic and electrical systems.
Familiarisation of hydraulic and electrical components used in the subsea crane. Scope of supply.

System operation

Faultfinding on the hydraulic and electrical system.

Maintenance

Daily, weekly and monthly on board maintenance

Key information

Location	Rolls-Royce Training Centre / On board.
Duration	2-3 days.
Target group	Crane operators, chief and technical personnel, shore or vessel based
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training on board.
Course code	DMAA2004-01.

Deck crane/cargo rail crane

Familiarisation training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the deck crane/cargo rail crane.

The participants will acquire necessary knowledge, and be able to operate the deck crane/cargo rail crane, and perform simple faultfinding and mandatory maintenance in order to promote a reliable and safe operation of the crane.

Course content

System description

General description of the hydraulic systems. Scope of supply.

System operation

Faultfinding on the hydraulic and electrical system.

Maintenance

Daily, weekly and monthly on board maintenance

Key information

Location	On board.
Duration	1-2 days.
Target group	Crane operators, chief and technical personnel, shore or vessel based
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training on board.
Course code	DMAA2005-01.

Offshore crane

Familiarisation training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the offshore crane.

The participants will acquire necessary knowledge, and be able to operate the offshore crane, and perform simple faultfinding and mandatory maintenance in order to promote a reliable and safe operation of the crane.

Course content

System description

General description of the hydraulic and electrical systems.
Familiarisation of hydraulic and electrical components used in the offshore crane. Scope of supply.

System operation

Faultfinding on the hydraulic and electrical system.

Maintenance

Daily, weekly and monthly on board maintenance

Key information

Location	On board.
Duration	1-2 days.
Target group	Crane operators, chief and technical personnel, shore or vessel based
Group size	Maximum 8 participants.
Teaching method	Classroom hands-on on board.
Course code	DMAA2006-01.

Rolls-Royce

Product courses

Dynamic Positioning system

Icon Dynamic Positioning system
Poscon joystick
DP basic
DP simulator

Icon Dynamic Positioning system

Operator training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the Icon DP system.

The participants will practice on the Icon DP graphical user interface (GUI) and be introduced to operating functions of the Icon DP system.

Course content

System description

General description of the Dynamic Positioning system include the bridge layout, scope of supply, main components, control loop, operator stations, control cabinets, printer, manoeuvring mode selector switch, UPS, thruster device, sensors and positioning reference systems and customer specific thruster and sensor information.

System operation

Covering the function and mode of operation of the system including operation principles, system operation, signal processing functions, joystick device, positioning device and graphical user interface (GUI).

Practical training exercises on how to handle:

- The Icon DP system
- Troubleshoot

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway / Rolls-Royce Training Centre, Niterói, Brazil / Rolls-Royce Training Centre, Singapore.
Duration	2 days.
Target group	Bridge personnel.
Group size	Maximum 6 participants.
Teaching method	Classroom and hands-on training in technical room.
Course code	DPAA3000-01.

Icon Dynamic Positioning system

Technical training for operators

Objective

After completing the course, the operator will gain a better understanding of the technical side of the Icon DP system and an introduction to basic fault finding on the system.
Participants must have attended the 2 day Icon DP Operator course, as a pre-requesite.

Course content

System description

General description of the Dynamic Positioning system including the bridge layout, main components, control loop, operator stations, control cabinets, printer, maneuvering mode selector switch, UPS, thruster device, sensors and positioning reference systems.

System operation

Overview of the DP system main components, hardware components, operator stations and control cabinets.

Maintenance

- Utilising built in fault finding tools
- Support

Practical training exercises:

- Recalibrate touch screen
- Dock Poscon portable panel
- Replace OS computer
- Change marine controller
- Calibrate position- and joystick device
- Download log files
- Export log files to DP support
- Reboot Icon DP (cold/warm)

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway / Rolls-Royce Training Centre, Niterói, Brazil.
Duration	1 day.
Target group	Bridge personnel.
Group size	Maximum 6 participants.
Teaching method	Classroom and hands-on training in technical room.
Course code	DPAA3001-01.

Icon Dynamic Positioning system

Maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the Icon DP system.

The participants will practice on the Icon DP graphical user interface (GUI) and perform both preventive maintenance and `hands-on´ in collaboration with DP support in order to promote a reliable and efficient operation of the equipment and ease communication with Rolls-Royce service personnel when assistance is needed.

Course content

System description

General description of the Dynamic Positioning system including the bridge layout, graphical user interface (GUI), main functions, software versions, different interfaces on the GUI, operating principles, alarm indications and alarm system, parameters and system handling and sensors and position reference systems.

System operation

Overview of the DP system main components, scope of supply, hardware components, operator stations, control cabinets, I/O system, cabling, position reference units, drawing layout and serial connectors RS232 and RS422.
A complete DP2 systems will be available for trainees for `hands-on´ training in faultfinding

Practical training exercises on how to handle:

- Download log files
- Export log files to DP support
- Reboot Icon DP (cold/warm)
- Calibrate position- and joystick device
- Recalibrate touch screen
- Change and calibrate the 10,4 inch screen
- Replace OS computer
- Change marine controller
- Dock Poscon portable panel
- Use the user manual
- Detect faults
- Find and implement solution

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Claim reporting
- Support

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway / Rolls-Royce Training Centre, Niterói, Brazil.
Duration	5 days.
Target group	Technical personnel shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training in technical room.
Course code	DPAA3002-01.

Poscon joystick

Familiarisation training

Objective

After completing the course, the participants will gain a basic understanding of the Poscon joystick system.

The participants will practice on the Poscon joystick system and be introduced to operating functions on the system.

Course content

Introduction

- System concept

System description

General description of the Poscon joystick system:

- Scope of supply
- Main components
- Control loop
- Operator stations
- Manoeuvring mode selector switch
- Thrust devices
- Customer specific thruster and sensor info

System operation

Covering the function and mode of operation of the system:

- Operation principles
- System operation
- Signal processing functions
- Joystick device
- Graphical user interface (GUI)

Practical training on how to:

- Use the Poscon system
- Troubleshoot
- Read alarm lists

Complete Poscon joystick systems will be available for trainees for minor adjusting and trimming of the system as well as for basic trouble shooting.

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	1 day.
Target group	Bridge and technical personnel shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training in technical room.
Course code	DPAA3003-01.

DP basic

NI approved - DPO

Objective

After completing the course, participants will gain the basic theoretical and practical knowledge of dynamic positioning as required by Nautical Institute (NI) training scheme, phase 1. The participants will perform practical exercises on the Icon DP graphical user interface (GUI) and be familiar with the operating functions, principles and practical use of the Icon DP system.

Course content

A wide specter of themes will be covered:

- Definitions and terminology
- Main elements in the DP system, including redundancy
- Connections to other ship systems, as well as Power Management
- Position references and other sensors
- Operator panels and manoeuvre modes
- Manoeuvring and control (simulator)
- Rules and regulations
- Alarm situations and restrictions

Entry qualifications

Participants must hold a STCW certificate (II-1, II-2, III-3 Deck or III-1, III-2, III-3 engine) or be a prospective DPO, who are in process of training to a STCW certificate.

Please note!

- The DP Basic / Induction course is Nautical Institute approved through our cooperation with Aalesund University College.
- This course is only offered as a tailored training course.

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	4 days.
Target group	Bridge personnel.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training in simulator.
Course code	DPAA3004-01.

DP simulator

NI approved - DPO

Objective

After completing the course, participants will gain further insight, confidence and knowledge to operate the DP desk and planning of DP operations. The participants will perform practical exercises on the Icon DP graphical user interface (GUI) and will therefore also be introduced and familiarised with the operating functions, principles and practical use of the Icon DP system.

Course content

The course is based on the DP Basic Course and is covering positioning systems, propulsion systems, power distribution and regulations. Emphasis is given on regulations and decrees from different authorities, safety and efficiency. Through lectures and simulator training the participants will achieve insight into the preparation and implementation of different DP operations.

Various reference systems and our Rolls-Royce Icon DP system will be utilised for this training course.

Entry qualifications

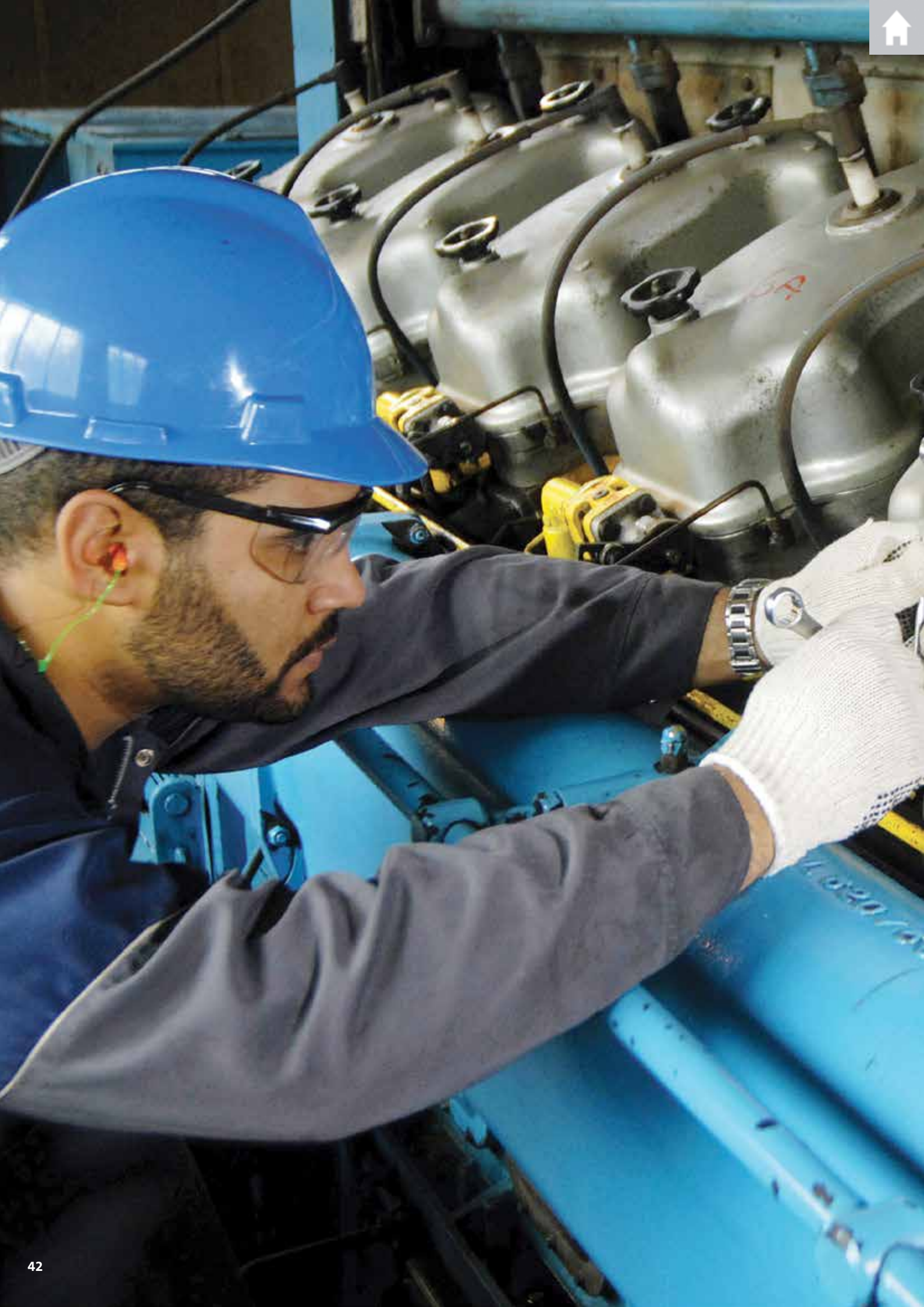
Participants must have had a DP Basic/Induction course and a minimum of 30 days documented DP practice (or the equivalent). A valid STCW certificate (II-1, II-2, III-3, Deck or III-1, III-2, III-3, engine) has to be presented.

Please note!

- The DP Basic / Induction course is Nautical Institute approved through our cooperation with Aalesund University College.
- This course is only offered as a tailored training course.

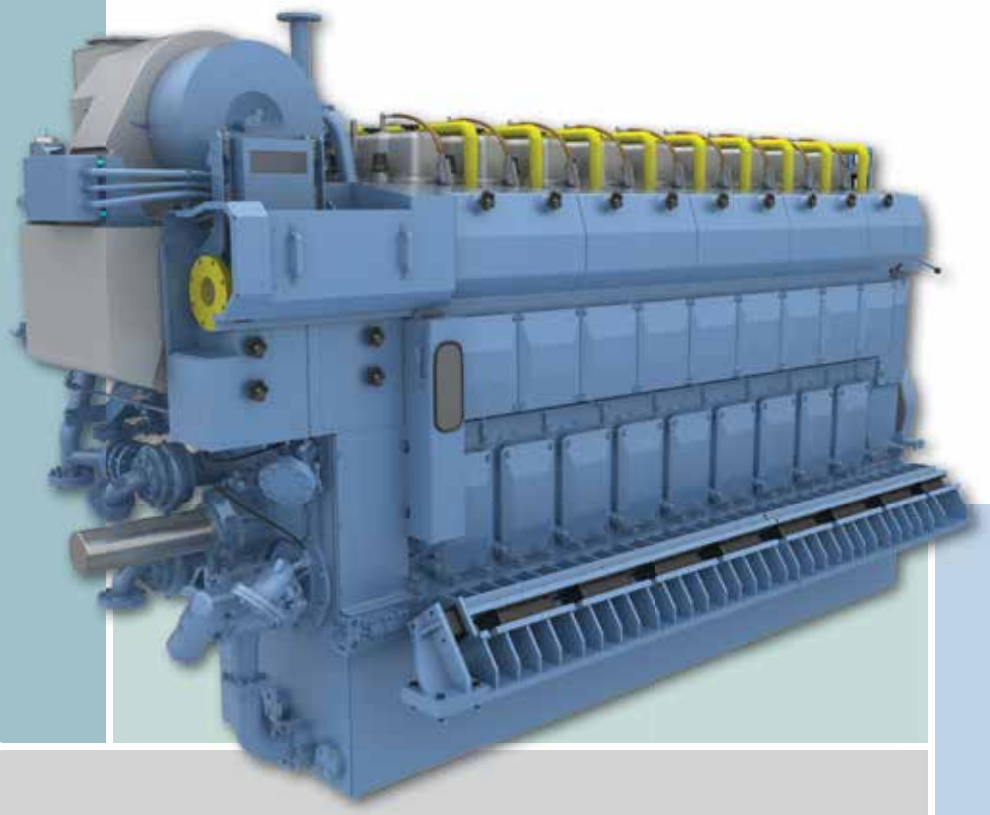
Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	4 days.
Target group	Technical personnel shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training in technical room.
Course code	DPAA3005-01.



Rolls-Royce

Product courses



Engines

Diesel engine
Gas engine

Bergen diesel engine

Maintenance training

Objective

After completing the course the participants should be able to identify and define the design and functionality of the Bergen engines in order to utilise the system to an optimum, and introduce a detailed programme for preventive maintenance to promote reliable and efficient operation of the equipment.

Course content

System description

General description of the design, function and mode of operation on the different parts of the engine, including cam and crank shaft, valves, pistons and cylinders, turbo charger, actuator, power takeoffs etc. and also general description of the engine control system.

System operation

The engine system covering design function and mode of operation; fuel oil system, temperature control system, luberication system,starting and controling air system, cooling water systems, safety systems.

Practical training exercises on how to:

- Perform maintenance and service
- Fault finding
- Troubleshoot

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares

Key information

Location	Rolls-Royce Product Centre, Bergen, Norway / Rolls-Royce Training Centre, Singapore.
Duration	3 days.
Target group	Technical and maintenance personnel.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	ENBE4000-01.

Bergen gas engine

Maintenance training

Objective

After completing the course the participants should be able to identify and define the design and functionality of the Bergen engines in order to utilise the system to an optimum, and introduce a detailed programme for preventive maintenance to promote reliable and efficient operation of the equipment.

Course content

System description

General description of the design, function and mode of operation on the different parts of the engine, including cam and crank shaft, valves, pistons and cylinders, turbo charger, actuator, power takeoffs etc. and also general description of the engine control system.

System operation

The engine system covering design function and mode of operation; fuel oil system, temperature control system, luberication system,starting and controling air system, cooling water systems, safety systems.

Practical training exercises on how to:

- Perform maintenance and service
- Fault finding
- Troubleshoot

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares

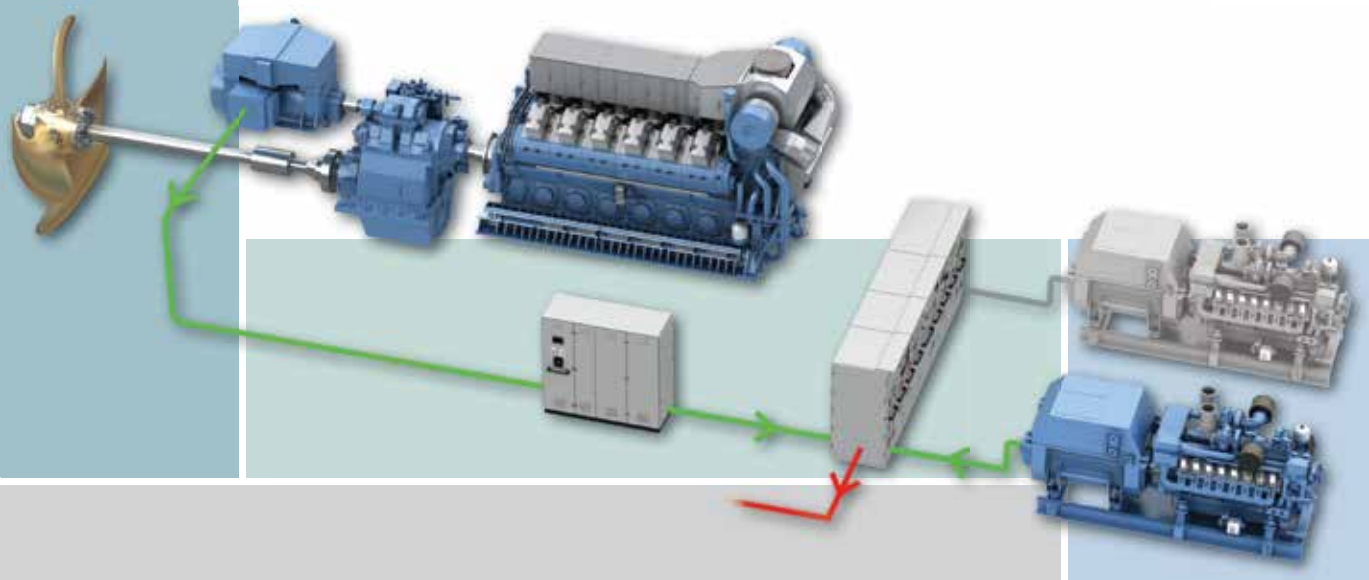
Key information

Location	Rolls-Royce Product Centre, Bergen, Norway / Rolls-Royce Training Centre, Singapore.
Duration	3 days.
Target group	Technical and maintenance personnel.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	ENBE4001-01.


Rolls-Royce
AFE 1

Rolls-Royce

Product courses



Power electric system

Diesel-electric propulsion system
Power management system

Diesel-electric propulsion system

Operation and maintenance training

Objective

After completing the course the participants should be able to identify and define the design and functionality of the diesel-electric propulsion system.

The participants will be introduced to the operating of the main switchboard, blackout prevention system, power management system and the AFE frequency converter drive.

Course content

System description

General description of the diesel-electric system include safety notes system philosophy, AFE converter drives, blackout prevention system, power management system, generators and motor for propulsion.

System operation

Overview of the diesel-electric system, its main component, functions, human interface, settings and fault finding.

Practical training exercises on how to handle:

- Safety precautions
- Synchronisation of generators
- Bustie breaker
- Power management system
- Blackout prevention system
- Shore connection
- Hybride shaft generator
- AFE frequency converter drive

The system will be available for trainees for minor adjusting and trimming of the system.

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	3 days.
Target group	Technical personnel, shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	PEAA5000-01.

Power management system

Operation and maintenance training

Objective

After completing the course the participants should be able to identify and define the design and functionality of the switchboard and the Deif Delomatic 4 power management system.

The participants will be introduced to the operating of the power management system.

Course content

System description

General description of the switchboard and the power management system include safety notes and system philosophy.

System operation

Overview of the main switchboard and the power management system, its main component, functions, human interface, settings and fault finding.

Practical training exercises on how to handle:

- Safety precautions
- Switchboard
- Protective units
- Synchronisation of generators
- Bustier breaker
- Power management system
- Shore connection
- Air Circuit Breaker and Moulded Case Circuit Breaker

The system will be available for trainees for minor adjusting and trimming of the system.

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	1 day.
Target group	Technical personnel, shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	PEAA5001-01.

Rolls-Royce

Product courses

Propulsion

Waterjets
CP propeller
Reduction gear
Steering gear

Waterjet, Kamewa S-series

Maintenance - level A training

Objective

After completing the course, the participant will have a deeper understanding of the design and function of the Rolls-Royce waterjet, type Kamewa S (SI, SII or S3) in order to utilise their system to an optimum and introduce the detailed programme for preventive maintenance to promote the reliable and efficient operation of their equipment.

Course content

Introduction

- General description
- Hydrodynamic aspects of waterjets

Mechanical layut

Covering the design, function and mode of operation:

- Pump unit with drive shaft and seals
- Steering and reversing gear

Hydraulic and lubrication oil systems

Covering the design, function and mode of operation:

- Hydraulic power pack
- Pumps and filters
- Alarm functions

Practical application on service and maintenance of hydraulic components will be carried out on training and test equipment in the training centre.

Remote control system

General description of the waterjet system:

- System assembly
- Cabling
- Central unit
- Control panels
- Function description

General description of the CanMan system:

- Hardware
- Software
- Hand held terminal presentation
- Alarm indicators and alarm system

A complete remote control system connected to a steering and backing bucket mounted on a dummy transom will be available for trainees for minor adjusting and trimming of the control system as well as for basic troubleshooting.

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares
- Planned preventive maintenance
- Protection against corrosion
- Preservation measures

Essential waterjet components will be available for trainees for maintenance and service training.
Information will be given on precautions before dry-docking and how to do shaft alignment and mount shaft seals.

Key information

Location	Rolls-Royce Product Centre, Kristinehamn, Sweden.
Duration	5 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	PRKR6000-01.

Waterjet, Kamewa S-series

Maintenance - level B training

Objective

After completing the course, the participants will gain a deep understanding of the design and function of the Rolls-Royce waterjet, type Kamewa S (SI, SII or S3) in order to utilise their system to an optimum and introduce a detailed program for preventive maintenance to promote the reliable and efficient operation of their equipment. Information will be given on the precautions to be made before drydocking and major overhauls.

Participants should have completed level A training.

Course content

Introduction

- Visit to Rolls-Royce hydrodynamic research centre

General description of the waterjet system:

- System assembly
- Function description

Mechanical layut

Covering the design, function and mode of operation:

- Pump unit with drive shaft and seals
- Steering and reversing gear

Practical training on how to:

- Dismantle a pump unit
- Exchange of impeller
- Mounting of seals
- Dismantling of coupling

Essential waterjet components will be available for trainees for maintenance and service training.

Hydraulic and lubrication oil systems

Covering the design, function and mode of operation:

- Hydraulic power pack
- Pumps and filters
- Function and separate valves
- Alarm functions

Practical application on service and maintenance of hydraulic components will be carried out on training and test equipment in the training centre.

Remote control system

- Hardware
- Software
- Hand held terminal presentation
- Calibration procedures
- Parameters and signals handling
- Trouble shooting
- Alarm indicators and alarm system

A complete remote control system connected to a steering and backing bucket mounted on a dummy transom will be available for trainees for minor adjusting and trimming of the control system as well as for basic troubleshooting.

Maintenance

- Daily,weekly and monthly on board maintenance
- Maintenance carried out on board by crew or together with base support team, with ship afloat.
- On board or depot special tools and test equipment

Key information

Location	Rolls-Royce Product Centre, Kristinehamn, Sweden.
Duration	5 days.
Target group	Technical and maintenance personnel surveyors, dock engineers.
Group size	Maximum 7 participants.
Teaching method	Classroom and hands-on training.
Course code	PRKR6001-01.

Waterjet mechanics, Kamewa FF-series

Maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the waterjet.

Course content

System description

General description of the Waterjets and propulsion line arrangement.
Obtaining basic knowledge about waterjets mechanics and hydraulics.

System operation

Overview of the waterjet principles, function description, main components, scope of supply and drawing layout.

Practical training exercises:

- Identify parts of the waterjet unit
- Change corrosion protection parts
- Change bushings
- Change O-rings
- Identify of the damaged parts
- Measurement methods

Maintenance

- Daily, weekly and monthly maintenance
- Claim reporting
- Support

Key information

Location	Rolls-Royce Product Centre Kokkola, Finland / Rolls-Royce Training Centre, Singapore.
Duration	3 days.
Target group	Technical personnel, shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	PRKO6002-01.

Waterjet mechanics, Kamewa A3-series

Maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the waterjet.

Course content

System description

General description of the Waterjets and propulsion line arrangement.
Obtaining basic knowledge about waterjets mechanics and hydraulics.

System operation

Overview of the waterjet principles, function description, main components, scope of supply and drawing layout.

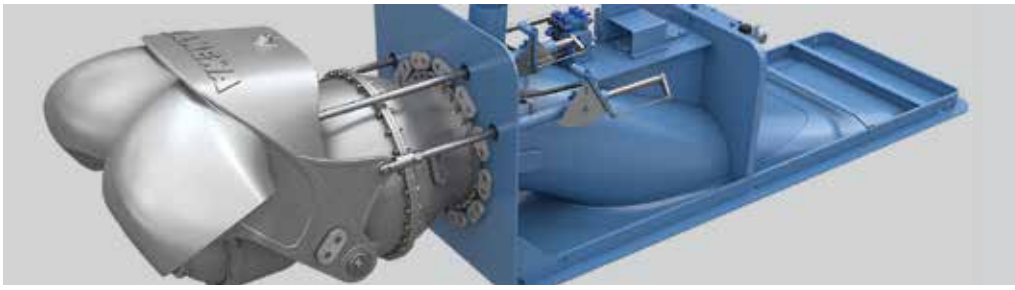
Practical training exercises:

- Identify parts of the waterjet unit
- Change corrosion protection parts
- Change bushings
- Change O-rings
- Identify of the damaged parts
- Measurement methods

Maintenance

- Daily, weekly and monthly maintenance
- Claim reporting
- Support

Key information



Location	Rolls-Royce Product Centre Kokkola, Finland / Rolls-Royce Training Centre, Singapore / Rolls-Royce Training Centre, Aalesund, Norway.
Duration	3 days.
Target group	Technical personnel, shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	PRKO6003-01.

Controllable pitch propeller

Operation and maintenance training

Objective

To improve the understanding for the design and function of the Rolls-Royce CP-main propeller in order to utilise your system to an optimum. Introduce the detailed program for preventive maintenance to promote a reliable and efficient operation of your equipment.

Course content

Introduction

- General description
- Hydrodynamic aspects of CPP propulsion
- Highly skewed propellers
- Fuel economy

Mechanical layut

Covering the design, function and mode of operation:

- Hub and blades
- Shaft, twin tube, coupling and seals

Hydraulic and lubrication oil systems

Covering the design, function and mode of operation:

- Oil distribution box (OD-box)
- Hydraulic power pack
- Pumps and filters
- Alarm functions

Practical application on service and maintenance of hydraulic components will be carried out on training and test equipment in the training centre.

Remote control system

General description of the propeller system:

- System assembly
- Cabling
- Central unit
- Control panels
- Function description

General description of the Canman system:

- Hardware
- Software
- Hand held terminal presentation
- Alarm indicators and alarm system

Maintenance

- Daily, weekly and monthly on-board maintenance
- Utilising test equipment and proper tools
- Spares
- Planned preventive maintenance
- Protection against corrosion
- Preservation measures

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway and Singapore / Rolls-Royce Product Centre, Kristinehamn, Sweden / On board.
Duration	3-5 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 7 participants.
Teaching method	Classroom and hands-on training.
Course code	PRAA6004-01.

Controllable pitch propeller

Maintenance - level B training

Objective

After completing the course, the partisipants will gain a deeper the understanding of the design and function of the Rolls-Royce CP-main propeller in order to utilise their system to an optimum and introduce a detailed programme for preventive maintenance to promote the reliable and efficient operation of their equipment. Information will be given on precautions to be made before drydocking and major overhauls.

Course content

Introduction

- Visit to Rolls-Royce hydrodynamic research centre

Mechanical layut

Covering the design, function and mode of operation:

- Hub and blades
- Shaft, twin tube, coupling and seals

Practical training on how to:

- Exchange propeller blade
- Dismantle coupling
- Withdraw propeller shaft
- Dismantle hub

Hydraulic and lubrication oil systems

Covering the design, function and mode of operation:

- Oil distribution box (OD-box)
- Hydraulic power pack
- Pumps and filters
- Function and separate valves
- Alarm functions

Practical application on service and maintenance of hydraulic components will be carried out on training and test equipment in the training centre.

Remote control system

General description of the propeller system:

- System assembly
- Function description

General description of the CanMan system:

- Hardware
- Software
- Hand held terminal presentation
- Calibration procedures
- Parameters and signals handling
- Trouble shooting
- Alarm indicators and alarm system

Maintenance

- Daily, weekly and monthly on board maintenance
- Maintenance carried out on board by crew or together with base support team, with ship afloat.
- Onboard or depot special tools and test equipment
- Onboard or depot spare parts, assemblies and subassemblies
- Planned preventive maintenance
- Protection against corrosion
- Preservation measures

Key information

Location	Rolls-Royce Product Centre, Kristinehamn, Sweden.
Duration	5 days.
Target group	Technical and maintenance personnel surveyors, dock engineers.
Group size	Maximum 7 participants.
Teaching method	Classroom and hands-on training.
Course code	PRAA6005-01.

Reduction gear, type AGSC/AGHC

Maintenance training

Objective

After completing the course the participants should be able to identify and define the design and functionality of the reduction gear type AGSC and AGHC in order to utilise the system to an optimum.

The participants will be introduced to a detailed programme for preventive maintenance to promote reliable and efficient operation of the equipment.

Course content

System description

General description of the Reduction Gear system covering the system operation, design, functionality, emergency procedures, oil types and sampling.

System operation

Overview of the Reduction gear systems including reliable operation and long life of the equipment. The instruction will focus on and improve understanding and promote best practice. Focusing on specific functions related to the delivered control system; basic theory, system layout and components, external interfaces. Propeller control functions e.g. pitch control and load control.

Practical training exercises on how to:

- Perform maintenance and service
- Fault finding
- Troubleshoot

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	3 days.
Target group	Technical personnel shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	PRAA6006-01.

Steering gear, type SR/SV

Operation and maintenance training

Objective

After completing the course the participants should be able to identify and define the design and functionality of the steering gear.

The participants will be introduced to the hydraulic system and the electric control system, maintenance procedures and how to do faultfinding in order to promote reliable and efficient operation of the equipment.

Course content

System description

General description of the Steering Gear equipment including design information of the system and scope of supply. Hydraulic system including frequency controlled pumps or solenoid operated pumps. The electric system with control system, indication system and motor controllers/frequency drives.

System operation

Covering the function and mode of operation of the system.
Troubleshooting on electrical and hydraulic system.

Practical training exercises on how to:

- Operate the steering gear in normal conditions
- Emergency steering from bridge and steering gear room
- Hydraulic and electric maintenance
- Faultfinding and adjustment

Maintenance

- Daily, weekly and monthly on board maintenance
- Tools
- Spares, inspection and maintenance

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	2-4 days.
Target group	Technical personnel shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	PRAA6007-01.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Rolls-Royce

Product courses

Seismic and subsea

Observer
Hydraulic
Hydraulic and electric
Launch and recovery system

Seismic - observer

Operator training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the seismic deck machinery.

The participants will be introduced to the IMMACS system, maintenance procedures and how to do faultfinding in order to promote a reliable and efficient operation of the equipment.

Course content

System description

General description of the seismic handling equipment including customer specific design information of the system, scope of supply, IMMACS system, profibus network and streamer winches.

System operation

The participants will receive instruction on the basic principles of profibus network before focusing on specific functions related to the delivered control system that include basic theory, system layout and components and introduction to the streamer winch hydraulic system.

Practical training exercises on how to:

- Adjust cable parameters
- Access information
- Backup routines
- Adjustment on the VB30 streamer valve block

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares, inspection and maintenance

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	2 days.
Target group	Observer and technical personnel shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	SSAA7000-01.

Seismic - hydraulic

Maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the seismic deck machinery.

The participants will be introduced to the hydraulic system, maintenance procedures and how to do adjustments in order to promote reliable and efficient operation of the equipment.

Course content

System description

General description of the seismic handling equipment including customer specific design information of the system, scope of supply, piping diagrams, hydraulic power packs (HPP-Unit), streamer winches, Gun winches, towing points, spooling devices and wide tow winches.

System operation

The instruction will focus on and improve understanding and promote best practice related to hydraulic system design, functionality, oil types, sampling routines and system operation.
The participants will receive basic hydraulic theory, system layout and components, inspection and maintenance routines for the various equipments.

Practical training exercises on how to:

- Adjust HPU and streamer winch hydraulic
- Fault-find
- Maintenance

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares, inspection and maintenance

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	3 days.
Target group	Technical personnel shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	SSAA7001-01.

Seismic - hydraulic and electric

Maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the seismic deck machinery.

The participants will be introduced to the hydraulic system and the IMMACS control system, maintenance procedures and how to do faultfinding in order to promote reliable and efficient operation of the equipment.

Course content

System description

General description of the seismic handling equipment including customer specific design information of the system and scope of supply. Hydraulic system including HPP units, streamer winch hydraulics and wide tow winch hydraulics. Profibus network and IMMACS control system.

System operation

Covering the function and mode of operation of the system.
Faultfinding on electrical and hydraulic system.

The participants will receive instruction on the basic principles of hydraulic system used on a streamer vessel, profibus network and specific functions related to the delivered control system that include basic theory, system layout and components.

Practical training exercises on how to:

- Adjust cable parameters
- Access information
- Backup routines
- Hydraulic maintenance, faultfinding and adjustment.

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares, inspection and maintenance

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	5 days.
Target group	Technical personnel shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	SSAA7002-01.

Launch and recovery system

Operation and maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the launch and recovery system for ROV`s (Remote Operated Vehicles).

The participants will acquire necessary knowledge of the functionality of the system, and be able to perform simple faultfinding and mandatory maintenance in order to promote reliable and safe operation of the equipment.

Course content

Introduction to hydraulics

BS ISO 1219:1995 Graphic symbols and circuit diagrams. Familiarisation of mechanical and hydraulic components used in the launch and recovery system.
Safety working with hydraulic systems.

Hydraulic Power Unit (HPU)

Familiarisation of mechanical and hydraulic components used.
Hydraulic circuit diagrams and how to do faultfinding on the system.

ROV-winch

Familiarisation of mechanical and hydraulic components used.
Operational modes of the winch (Standby, Normal, Latch, AHC).
Hydraulic circuit diagrams and how to do faultfinding on the system.

A-Frame

Familiarisation of mechanical and hydraulic components used.
Operating the A-frame.
Hydraulic circuit diagrams and how to do faultfinding on the system.

Electrical and control system

Familiarisation of electrical components used on the HPU, ROV winch and A-frame.
Electrical circuit diagrams and how to do faultfinding on the electrical system.

Maintenance

Daily, weekly and monthly on board maintenance.

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	3 days.
Target group	ROV operators, Chief and technical personnel, shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	SSAA7003-01.

Launch and recovery system

Operation and maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the launch and recovery system for ROV`s (Remote Operated Vehicles).

The participants will acquire necessary knowledge of the functionality of the system, and be able to perform simple faultfinding and mandatory maintenance in order to promote reliable and safe operation of the equipment.

Course content

Introduction to hydraulics

BS ISO 1219:1995 Graphic symbols and circuit diagrams. Familiarisation of mechanical and hydraulic components used in the launch and recovery system.
Safety working with hydraulic systems.

Hydraulic Power Unit (HPU)

Familiarisation of mechanical and hydraulic components used.
Hydraulic circuit diagrams and how to do faultfinding on the system.

ROV-winch

Familiarisation of mechanical and hydraulic components used.
Operational modes of the winch (Standby, Normal, Latch, AHC)
Hydraulic circuit diagrams and how to do faultfinding on the system.

A-Frame

Familiarisation of mechanical and hydraulic components used.
Operating the A-frame.
Hydraulic circuit diagrams and how to do faultfinding on the system.

Maintenance

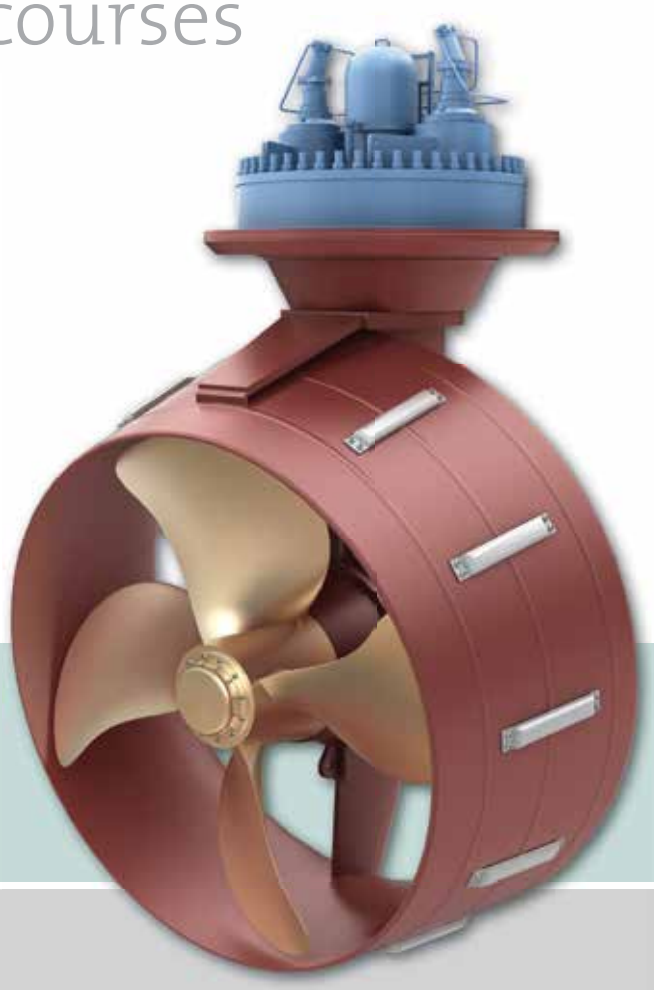
Daily, weekly and monthly on board maintenance.

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	2 days.
Target group	ROV operators, Chief and technical personnel, shore or vessel based.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	SSAA7004-01.

Rolls-Royce

Product courses



Thrusters

Azimuth thrusters
Azipull
Tunnel thruster
Podded propulsor, Mermaid pod

Azimuth thruster, type TCNS/TCNC

Maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the azimuth thrusters type TCNS/TCNC in order to utilise the system to an optimum.

The participants will be introduced to a detailed programme for preventive maintenance to promote reliable and efficient operation of the equipment.

Course content

System description

General description of the TCNS/TCNC thruster systems including application and installation of the delivered propulsion unit; system design, functionality, operation and emergency procedures.

System operation

Overview of the TCNS thruster systems including reliable operation and long life of the equipment. The instruction will focus on and improve understanding and promote best practice related to hydraulic system design, functionality, oil types, sampling routines, system operation.

The participants will receive instruction on the basic principles of remote control before focusing on specific functions related to the delivered control system that include basic theory, system layout and components, external interfaces, propeller control functions (e.g. pitch control) and load control.

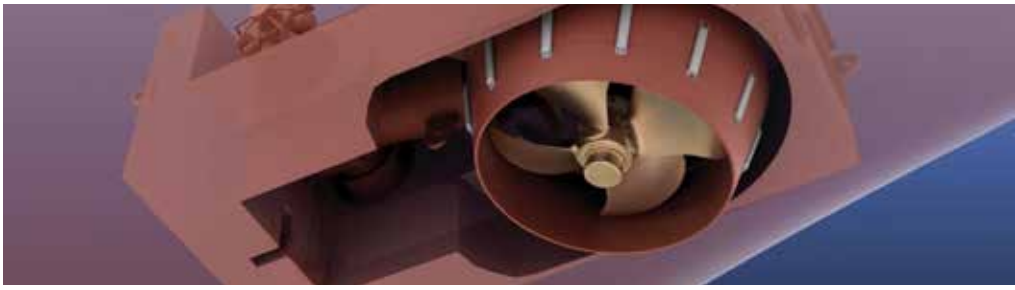
Practical training exercises on how to:

- Perform maintenance and service
- Fault finding
- Troubleshoot

Maintenance

- Daily, weekly and monthly onboard maintenance
- Utilising test equipment and proper tools
- Spares

Key information



Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	1-2 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 8 participants.
Teaching method	Classroom.
Course code	THAA8000-01.

Azimuth thruster, type UL/US/UUC/UUS

Maintenance training

Objective

After completing the course, the participants will gain a basic understanding of the design and function of Rolls-Royce azimuth thrusters in order to fully utilise their system.

The participants will be introduced to a detailed programme of preventive maintenance to promote reliable and efficient operation of their equipment. Training course is tailor made according to specific project.

Course content

Introduction

- General description of azimuth thrusters
- Guided tour of the factory

Mechanical layout

- General application and installation of the propulsion unit
- Upper part construction
- Intermediate part construction
- Lower part construction
- Shaft, coupling and seals

Basic principle training for:

- Maintenance of shaft line seals and bearings
- Maintenance of other shaft line components
- Maintenance of propeller seals, including nozzle propellers

Hydraulic and lubrication oil system

Covering the design, function and mode of operation:

- Principle function of steering hydraulics (closed loop)
- Principle function of clutch and lubrication hydraulics (Open loop)
- Principle function of lifting hydraulics

Practical application on service and maintenance of hydraulic components will be carried out on training and test equipment in the training centre.

Remote control system

General description of the control system:

- Principle function of turning controller
- Principle function of Aquapilot and control panels
- Circuit diagrams

Practical training on:

- Steering control following circuit diagrams
- Maintenance and service
- Troubleshooting

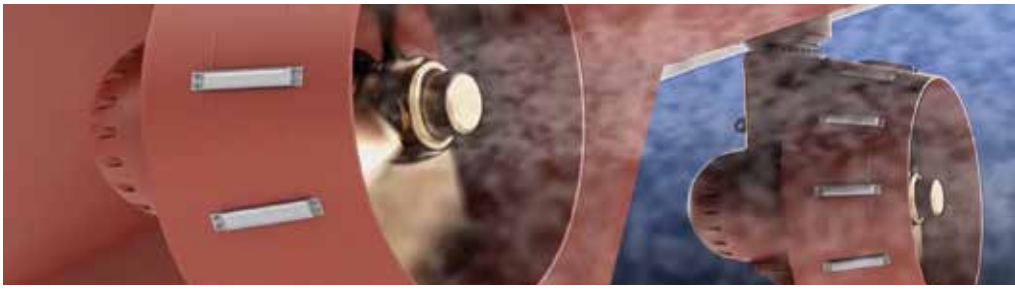
Complete remote control system connected to upper part will be available to trainees for minor adjusting and trimming of the control system as well as for basic troubleshooting.

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares
- Planned preventive maintenance
- Protection against corrosion
- Preservation measures

Essential thrusters components will be available to trainees for maintenance.

Key information



Location	Rolls-Royce Product Centre, Rauma, Finland.
Duration	2-3 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 10 participants.
Teaching method	Classroom and hands-on training in technical room.
Course code	THRA8001-01.

Azimuth thruster, Captains training

Operator training

Objective

After completing the course, the participants will gain a basic understanding of ASD ship handling.

Course content

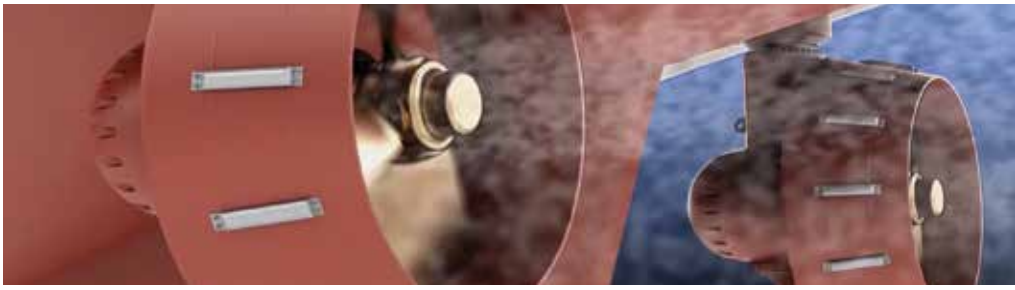
- Basic ship handling – steering on a fixed point
- Coming alongside / berthing
- Departing the dock / getting underway

- Practical side stepping (fwd and aft)
- Coming alongside a vessel for pushing
- Making fast to a vessel and putting tension on the line
- Steaming full ahead and turning 180 degrees to steaming full astern in the same direction / losing minimun speed during manoeuvring.
- Learning and practicing techniques to operate the tractor during escort and/or harbor operations.
- Comparison of tractor and conventional tug capabilities
- Importance of pivot-point

- Proper tethering techniques
- Working the stern of a ship underway
- How to safely manoeuvre in indirect and powered indirect towing modes.

- When to use Transverse Arrest mode vs. Direct Pull
- Required safety maneuvers
- Review of tractor design (Z-drive), capabilities and limitations

Key information



Location	On board.
Duration	3-5 days.
Target group	Bridge personnel.
Group size	Maximum 6 participants.
Teaching method	On board.
Course code	THRA8002-02.

Azimuth thruster, type Azipull

Maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of the azimuth thrusters type Azipull in order to utilise the system to an optimum.

The participants will be introduced to a detailed programme for preventive maintenance to promote a reliable and efficient operation of the equipment.

Course content

System description

General description of the Azipull Thruster systems including application, and installation of the delivered propulsion unit; system design, functionality, operation and emergency procedures.

System operation

Overview of the Azipull Thruster systems including reliable operation, and long life of the equipment. The instruction will focus on and improve understanding and promote best practice related to hydraulic system design, functionality, oil types, sampling routines, system operation.

General description of the remote control system, focusing on specific functions related to the delivered control system that include basic theory, system layout, and components. External interfaces, propeller control functions (e.g. pitch control) and load control.

Practical training exercises on how to:

- Perform maintenance and service
- Fault finding
- Troubleshoot

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares

Key information

Location	Rolls-Royce Training Centre, Aalesund, Norway.
Duration	2 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	THAA8003-01.

Tunnel thruster, type TT

Maintenance training

Objective

After completing the course, the participants should be able to identify and define the design and functionality of tunnel thrusters type TT in order to utilise the system to an optimum.

The participants will be introduced to a detailed programme for preventive maintenance to promote reliable and efficient operation of the equipment.

Course content

System description

General description of the Tunnel Thruster systems including application and installation of the delivered propulsion unit; system design, functionality, operation and emergency procedures.

System operation

Overview of the Tunnel Thrusters systems including reliable operation and long life of the equipment. The instruction will focus on and improve understanding and promote best practice related to hydraulic system design, functionality, oil types, sampling routines and system operation.

The participants will receive instruction in the basic principles of remote control before focusing on specific functions related to the delivered control system that include basic theory, system layout and components, external interfaces, propeller control functions (e.g. pitch control) and load control.

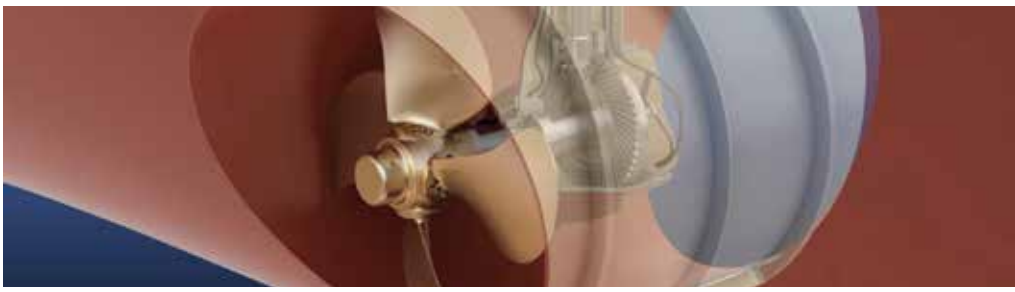
Practical training exercises on how to:

- Perform maintenance and service
- Fault finding
- Troubleshoot

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares

Key information



Location	Rolls-Royce Training Centre, Aalesund, Norway / Rolls-Royce Training Centre, Singapore.
Duration	1-2 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	THAA8004-01.

Podded propulsor, Mermaid pod

On board training

Objective

After completing the course, the participants will gain an introduction to the function, maintenance and operation of the Mermaid pod propulsion system from a mechanical point of view in order to promote reliable and efficient operation of their equipment.

The training is carried out on board the ship with real equipment.

Course content

Introduction

Summary of `Maintenance Level A´ training

General safety requirements

- Personnel safety
- Entering the pod

Mechanical layout

Covering the design, function and mode of operation and on board equipment:

- Propeller
- Shaft, bearings and seals
- Steering gear
- Breaks

Hydraulic and lubrication oil system

Covering the design, function and mode of operation on on board equipment:

- Hydraulic power packs
- Gravity tanks
- Pumps and filters
- Valves (valve block)

Practical hands on training will be carried out on board the ship.

Remote control system (closed loop)

General description of your on board installed equipment.

Complete system of closed loop:

- System assembly
- Central unit
- Function description

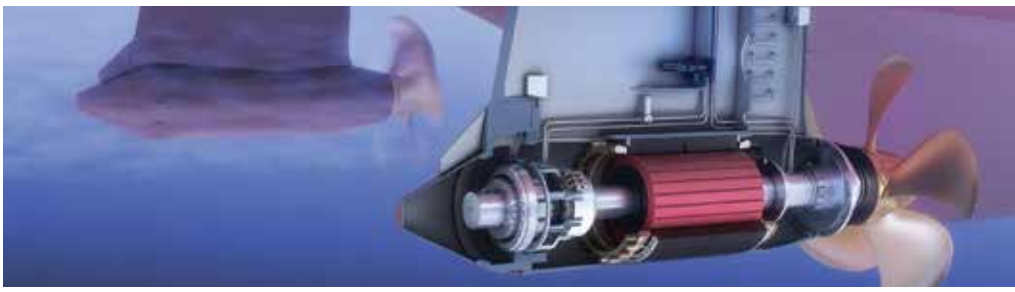
General description of the control system

- Hand held terminal presentation
- Alarm indicators and alarm system

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares
- Planned preventive maintenance
- Monitoring oil sample and vibration

Key information



Location	On board.
Duration	3 days.
Target group	Operational and maintenance personnel with experience from engine room duties.
Group size	Maximum 6 participants.
Teaching method	On board and classroom.
Course code	THAA8005-01.

Podded propulsor, Mermaid pod

Operating and safety training

Objective

After completing the course, the participants will gain an introduction to the function and mode of operation of the electrical pod propulsion system in order to promote reliable and efficient operation of your equipment.

Course content

Introduction

- General description

Mechanical layut

Covering the design, function and mode of operation:

- Propeller
- Shaft, bearings and seals

Hydraulic and lubrication oil systems

Covering the design, function and mode of operation:

- Hydraulic power pack
- Gravity tank
- Pumps and filters
- Separate valves (valve block)

Practical `hands on´ training will be carried out on board the ship.

Remote control system (closed loop)

General description of your on-board installation depending on the delivery:

- System assembly
- Cabling
- Central unit
- Control panels
- Function description
- Alarm indicators

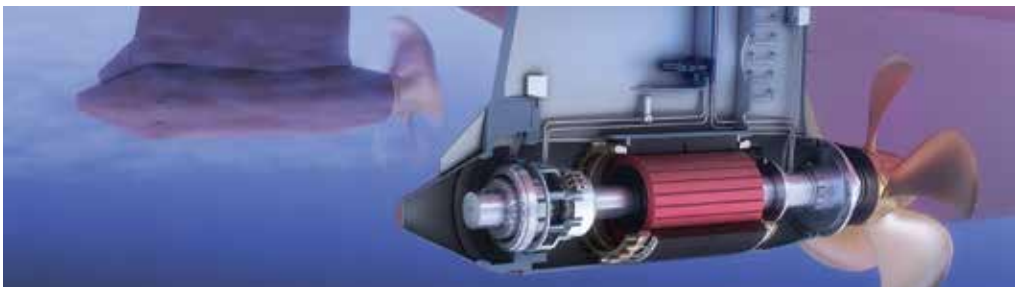
Safety

- Personal safety
- Electrical safety
- Entering the POD

Maintenance

- Daily, weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares
- Planned preventive maintenance

Key information



Location	On site.
Duration	3 days.
Target group	Operational and maintenance personnel.
Group size	Maximum 6 participants.
Teaching method	Classroom and hands-on training.
Course code	THAA8006-01.

Podded propulsor, Mermaid pod

Maintenance - level A training

Objective

After completing the course, the participants will gain an introduction to the function and operation of the Mermaid pod propulsion system from a mechanical point of view in order to utilise the system to an optimum and introduce a programme for preventive maintenance to promote reliable and efficient operation of their equipment.

Course content

Introduction

- Basic Mermaid knowledge and understanding. (Joint activity with GE)
- General description of pod propulsion
- Hydrodynamic aspects of pod propulsion
- Highly skewed propellers
- Fuel economy

Mechanical layout

Covering the design, function and mode of operation:

- Propeller
- Shaft, bearings and seals
- Steering gear
- Brakes

Hydraulic and lubrication oil system

Covering the design, function and mode of operation:

- Hydraulic power packs
- Gravity tanks
- Pumps and filters
- Valves (valve block)

Practical hands-on training will be carried out in the training centre.

Remote control system (closed loop)

General description of on board installed equipment.

Complete system of closed loop:

- System assembly
- Cabling
- Central unit
- Control panels
- Function description

General description of the control system

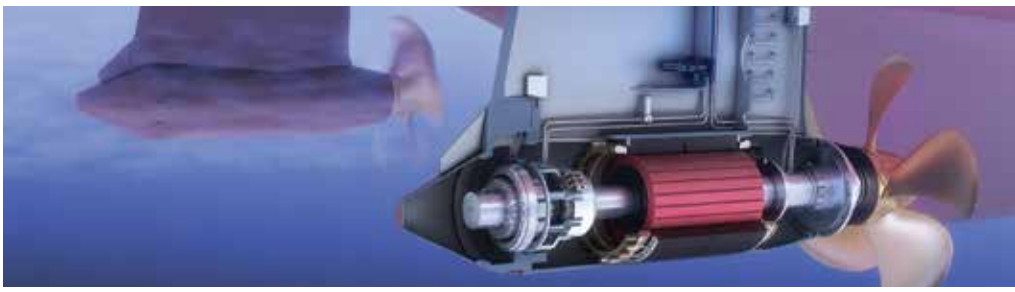
- Hand held terminal presentation
- Alarm indicators and alarm system

Practical hands-on training will be carried out on simulators and test equipment in the training centre.

Maintenance

- Daily,weekly and monthly on board maintenance
- Utilising test equipment and proper tools
- Spares
- Planned preventive maintenance
- Monitoring oil sample and vibration

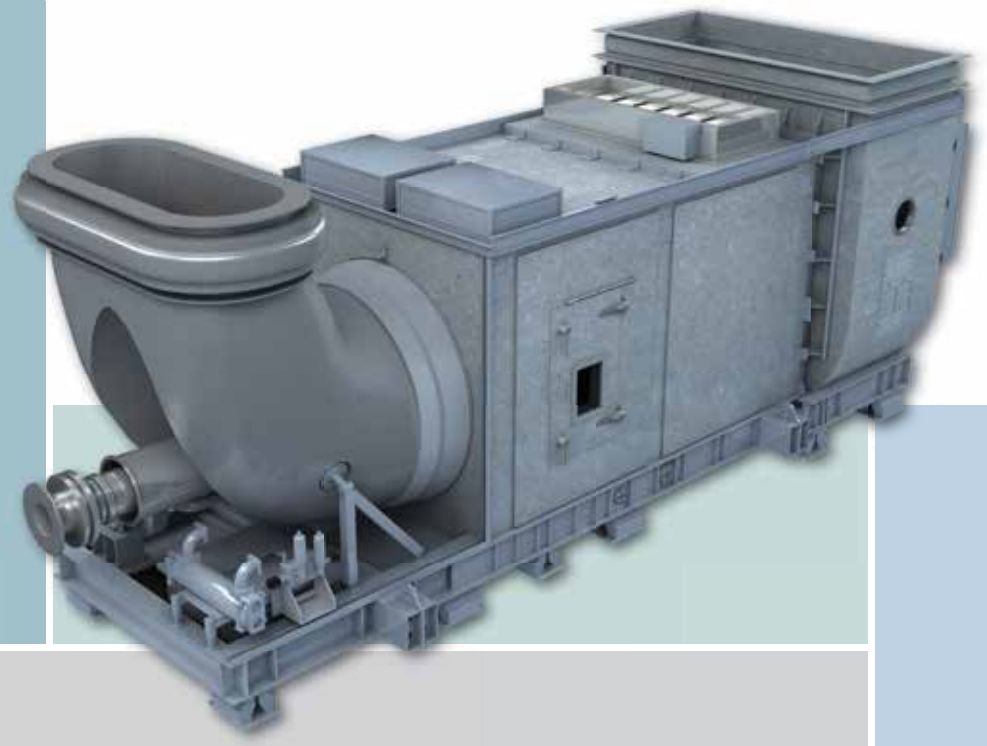
Key information



Location	Rolls-Royce Product Centre, Kristinehamn, Sweden.
Duration	5 days.
Target group	Technical and maintenance personnel on board.
Group size	Maximum 6 participants.
Teaching method	Classroom and hands-on training.
Course code	THAA8007-01.

Rolls-Royce

Product courses



Naval marine products

Product familiarisation
Waterjets
CPP system
MT30 gas turbine engine
LCS-1 main propulsion gas turbine module
DDG-1000 main turbine generator
Gas turbines

Product familiarisation

Naval marine products appreciation

Objective

This course introduces the student to the range of marine products supplied globally by Rolls-Royce to it's customers, globally. Additionally, the major variants of each product type are discussed, along with location of each manufacturing site.

Course content

- **Prime movers** Gas turbines and diesel engines.
- **Propulsors** Propellers, waterjets, thrusters, and `podded drives´.
- **Motion control** Traditional and innovative ship stabilisation, and steering systems.
- **Electrical supplies** Generators and associated electrical distribution systems.
- **Shaft line equipment** Shafts, bearings, seals, and couplings.
- **Deck machinery** Winches, hoists, cranes, and refueling systems.
- **Integrated propulsion systems** Integrated GT / diesel / electrical ship propulsion.
- **Nuclear** Submarine propulsion and power.
- **Syncrolift** Cost-effective docking solutions.
- **Automation** Control systems.
- **Ship design** The design of ships and boats for the commercial market.

Key information

Location	Rolls-Royce Training Centre, North America / On board.
Duration	1 day.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 20 participants.
Teaching method	Classroom.
Course code	NPUS1609-01.

LCS 172S AWJ and 172B AWJLCS waterjet

172 axial waterjet - familiarisation

Objective

This course introduces the student to key features, system and components of the 172 axial waterjjet steering and boost waterjet, covering the following subjects.

Course content

- **Waterjet theory** How the waterjet generates thrust and is constructed.
- **Waterjet components** Identifies the waterjet components and their functions.
- **Hydraulic power pack** Explains the function of the hydraulics and identifies the components for steering and reversing.
- **Thrust bearing** Details components and functions of the thrust bearing in the shaft line and the shaft line bearings and lubrication system.
- **Shaft couplings** Details the shaft components and the installation of them onto the shaft.
- **Waterjet maintenance** Recommended maintenance items and training in troubleshooting of components.
- **Controls system** Explains the controls system works and interfaces with the ships controls system.
- **Roplan seal** Identifies components of the shaft seal and how it functions.

Key information

Location	Rolls-Royce Training Centre, North America / On board.
Duration	3 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 15 participants.
Teaching method	Classroom.
Course code	NPUS1601-01.

LCS 153SII and 153B LCS waterjet

153 waterjet - familiarisation

Objective

This course introduces the student to key features, system and components of the 153 steering and boost waterjet, covering the following subjects.

Course content

- **Waterjet theory** How the waterjet generates thrust and is constructed.
- **Waterjet components** Identifies the waterjet components and their functions.
- **Hydraulic power pack** Explains the function of the hydraulics and identifies the components for steering and reversing.
- **Thrust bearing** Details components and functions of the thrust bearing in the waterjet.
- **Lube oil pack** Details the system components and the operation and flow of the lube oil to and from the thrust bearing.
- **Waterjet maintenance** Recommended maintenance items and training in troubleshooting of components.
- **Controls system** Explains the controls system works and interfaces with the ships controls system.
- **Roplan seal** Identifies components of the shaft seal and how it functions.

Key information

Location	Rolls-Royce Training Centre, North America / On board.
Duration	3 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 15 participants.
Teaching method	Classroom.
Course code	NPUS1600-01.

Bird-Johnson CPP system

Familiarisation

Objective

This course introduces the student to key features, system and components of the newer style CPP system, covering the following subjects.

Course content

- **Propeller design** Identification of propeller types and propeller terms. Basic difference of fixed pitch and CPP propellers.
- **Hydraulic system** The components and function of the major components of the CPP hydraulic system.
- **CPP pumps** Type of pumps, pump operation and strainer operation and maintenance.
- **Shaft components** Details components and functions of each in the main propulsion shaft line.
- **OD box** Details the types and the operational theory of the OD box and valve rod.
- **HOPM** Major components on the Hydraulic Oil Power module and their functions.
- **Controls system** Explain how the CPP controls system operates and interfaces with the ships controls system.

Key information

Location	Rolls-Royce Training Centre, North America / On board.
Duration	3 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 15 participants.
Teaching method	Classroom.
Course code	NPUS1606-01.

Bird-Johnson new CPP 156

Familiarisation

Objective

This course introduces the student to key features, system and components of the newer style CPP system, covering the following subjects.

Course content

- **156 Hub components** — How the 156 hub is constructed, key components and how it operates.
- **Hydraulic oil power module** — The components, settings, operation and function of the hydraulic oil power module.
- **CPP pumps and suction strainers** — Type of pumps, pump operation and strainer operation and maintenance.
- **OD box components, design and functions** — Details components and functions of the components in the OD box.
- **CPP system and sub-systems** — Details the system components and the operation and flow of the hydraulics and associated theory.
- **CPP system maintenance and recommended repairs** — Breaks down the maintenance schedules, troubleshooting and recommended repairs.
- **Emergency pitch lock** — Identifies when it is necessary to do emergency pitch lock and how to properly perform pitch lock.
- **Controls/feedback system** — Understand how the CPP controls system interfaces with the ships controls system.

Key information

Location	Rolls-Royce Training Centre, North America / On board.
Duration	3 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 15 participants.
Teaching method	Classroom.
Course code	NPUS1603-01.

Bird-Johnson legacy CPP 156

Familiarisation

Objective

This course introduces the student to key features, system and components of the newer style CPP system, covering the following subjects.

Course content

- **156 Hub components** — How the 156 hub is constructed, key components and how it operates.
- **Hydraulic oil power module** — The components, settings, operation and function of the hydraulic oil power module.
- **CPP pumps and suction strainers** — Type of pumps, pump operation and strainer operation and maintenance.
- **OD box components, design and functions** — Details components and functions of the components in the OD box.
- **CPP system and sub-systems** — Details the system components and the operation and flow of the hydraulics and associated theory.
- **CPP system maintenance and recommended repairs** — Breaks down the maintenance schedules, troubleshooting and recommended repairs.
- **Emergency pitch lock** — Identifies when it is necessary to do emergency pitch lock and how to properly perform pitch lock.
- **Controls system** — Explains how the CPP controls system works and interfaces with the ships controls system.

Key information

Location	Rolls-Royce Training Centre, North America / On board.
Duration	3 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 15 participants.
Teaching method	Classroom.
Course code	NPUS1602-01.

MT30 gas turbine engine

Familiarisation

Objective

The course introduces the student to the key features of the engine, and covers the following systems.

Course content

- **Engine parameters** Dimensions, weights, speeds, temperatures, pressures and interfaces.
- **Engine construction** Compressors, combustion system, turbines, accessory gearbox, casings, bearings and mount.
- **Fuel system** Fuel pump, filters, manifold, fuel spray nozzles and off-engine control.
- **Oil system** Pump, filtration, distribution, cooling and venting.
- **Air systems** Airflow control (variable stator vanes / bleed valves), internal sealing, pressurising and cooling and air distribution.
- **Electrical components** Actuators, harnesses and ignition system.
- **Control equipment** Control sensor location and operation.

Key information

Location	Rolls-Royce Training Centre, North America / On board.
Duration	5 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 15 participants.
Teaching method	Classroom.
Course code	NPUS1610-01.

LCS-1 main propulsion gas turbine module

Familiarisation

Objective

This course introduces the student to the key features, systems and components of the LCS-1 main propulsion gas turbine module, covering the following subjects.

Course content

- **Gas turbine module structure** — How the gas turbine module is constructed, includes the MPGTM and engine mount systems and the engine intake and exhaust.
- **Gas turbine module oil system** — The storage, filtration and temperature control of the engine oil system, as managed by the gas turbine module.
- **Gas turbine module fuel system** — How the fuel is supplied from the ship system to the engine, including flow management and cooling systems.
- **Gas turbine module bleed air system** — The control of bleed air from the engine to the engine exhaust, and the provision of ships anti-icing air.
- **Gas turbine module ventilation system** — The provision and control of cooling air to the gas turbine module and engine tail bearing.
- **Hydraulic start system** — The location, components and purpose of the engine start system.
- **Engine ignition system** — The location and purpose of the engine ignition system and components.
- **Gas turbine module fire protection system** — The location and purpose of the key components used in the protection of the gas turbine module from fire.
- **MPGTM control system** — The location and operation of the key components and of the control system.

Key information

Location	Rolls-Royce Training Centre, North America / On board.
Duration	5 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 15 participants.
Teaching method	Classroom.
Course code	NPUS1608-01.

DDG-1000 main turbine generator

Familiarisation

Objective

This course introduces the student to the key features, systems and components of the LCS-1 main propulsion gas turbine module, covering the following subjects.

Course content

- **Gas turbine module structure** — How the gas turbine module is constructed, includes the MTG and engine mount systems and the engine intake and exhaust.
- **Gas turbine module oil system** — The storage, filtration and temperature control of the engine oil system, as managed by the gas turbine module.
- **Gas turbine module fuel system** — How the fuel is supplied from the ship system to the engine, including flow management and cooling systems.
- **Gas turbine module bleed air system** — The control of bleed air from the engine to the engine exhaust, and the provision of ships anti-icing air.
- **Gas turbine module ventilation system** — The provision and control of cooling air to the gas turbine module and engine tail bearing, and control of the module temperature.
- **Electric start system** — The location and purpose of the engine start system.
- **Gas turbine wash system** — The location and purpose of the engine wash system and components.
- **Gas turbine module drainage system** — How waste fluids are managed inside the gas turbine module and removed to the ship systems.
- **Gas turbine module fire protection system** — The location and purpose of the key components used in the protection of the gas turbine module from fire.

Key information

Location	Rolls-Royce Training Centre, North America / On board.
Duration	2 days.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 15 participants.
Teaching method	Classroom.
Course code	NPUS1604-01.

DDG-1000 main turbine generator

Familiarisation

Objective

This course introduces the student to key features, systems and components of the generator section of the DDG-1000 main turbine generator, covering the following subjects.

Course content

• **Generator structure**	How the generator housing is constructed, includes the mounting system for the generator housing and stator assembly.
• **Electrical generation**	The location of the key components and features of the electrical generation system.
• **Generator oil system**	How the generator bearings are lubricated and cooled, and the system vented.
• **Generator air cooling system**	The system and components used to control the temperature of the air within the generator housing.
• **High speed coupling shaft**	The mechanical connection between the gas turbine and the generator, including the key components of the shaft.
• **Electric start system**	The location and purpose of the engine start system.
• **Gas turbine wash system**	The location and purpose of the engine wash system and components.
• **Gas turbine module drainage system**	How waste fluids are managed inside the gas turbine module and removed to the ship systems.
• **Gas turbine module fire protection system**	The location and purpose of the key components used in the protection of the gas turbine module from fire.

Key information

Location	Rolls-Royce Training Centre, North America / On board.
Duration	1 day.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 15 participants.
Teaching method	Classroom.
Course code	NPUS1605-01.

Gas turbines

General theory

Objective

The course introduces the student to the development of gas turbine propulsion and theory of operation, and continues to discuss the key features of a gas turbine engine.

Course content

- **Principle of Operation** Jet propulsion through the ages, different types of gas turbine, engine marinisation and gas turbine operating cycle.
- **Engine construction** Compressors, combustion systems, turbines, accessory gearboxes, casings, bearings and mounts.
- **Fuel systems** Fuel pump, filters, manifold, fuel spray nozzles and off-engine control.
- **Oil systems** Pump, filtration, distribution, cooling and venting.
- **Air systems** Airflow control (variable stator vanes / bleed valves), internal sealing, pressurising and cooling and air distribution.

Key information

Location	Rolls-Royce Training Centre, North America / On board.
Duration	2 hours.
Target group	Technical and maintenance personnel working on board.
Group size	Maximum 15 participants.
Teaching method	Classroom.
Course code	NPUS1607-01.


Service Team

Rolls-Royce

Product courses

On board training

Product familiarisation

On board training

Familiarisation training

Objective

After completing the course, the participants should have an improved awareness of the general arrangement and system overview of the installed equipment, understand how the product manual is built up, and how this should be used. They should have a basic understanding of the operation of the installed product(s) and be able to provide maintenance on the product based on the product maintenance manual.

Course content

User Manual / as-built documentation

What type of documentation is supplied with the product, where to find information about spare parts, assembly drawings, sub assembly drawings, user manuals, technical description of the product and maintenance manuals/procedures.

System overview

Overview of the main components and how this is integrated with the rest of the system on board, how the product is operated, main features of the control system and what is the product relying on in order to operate safely.

Maintenance

Maintenance procedures as outlined in the user manual, maintenance manual or in general instruction for the product.

Operation

Product operation, daily use of the product, how is it operated, what does the operator have to pay attention to, control system, using radio remotes, manual control or emergency operation of the installed product.

Fault finding

Typical alarms, and what could be causing them. General fault finding processes.

HSE

Awareness of the risks towards personnel, the environment or other dangers that need to be taken special considerations to during operation or maintenance of the product.

Key information

Location	On board.
Duration	1-2 days.
Target group	Crew/technical personnel, shore or vessel based with operational and/or maintenance responsibility on the installed product(s).
Group size	Maximum 8 participants.
Teaching method	Classroom and hands-on training.
Course code	OBAA9000-01.


Rolls-Royce
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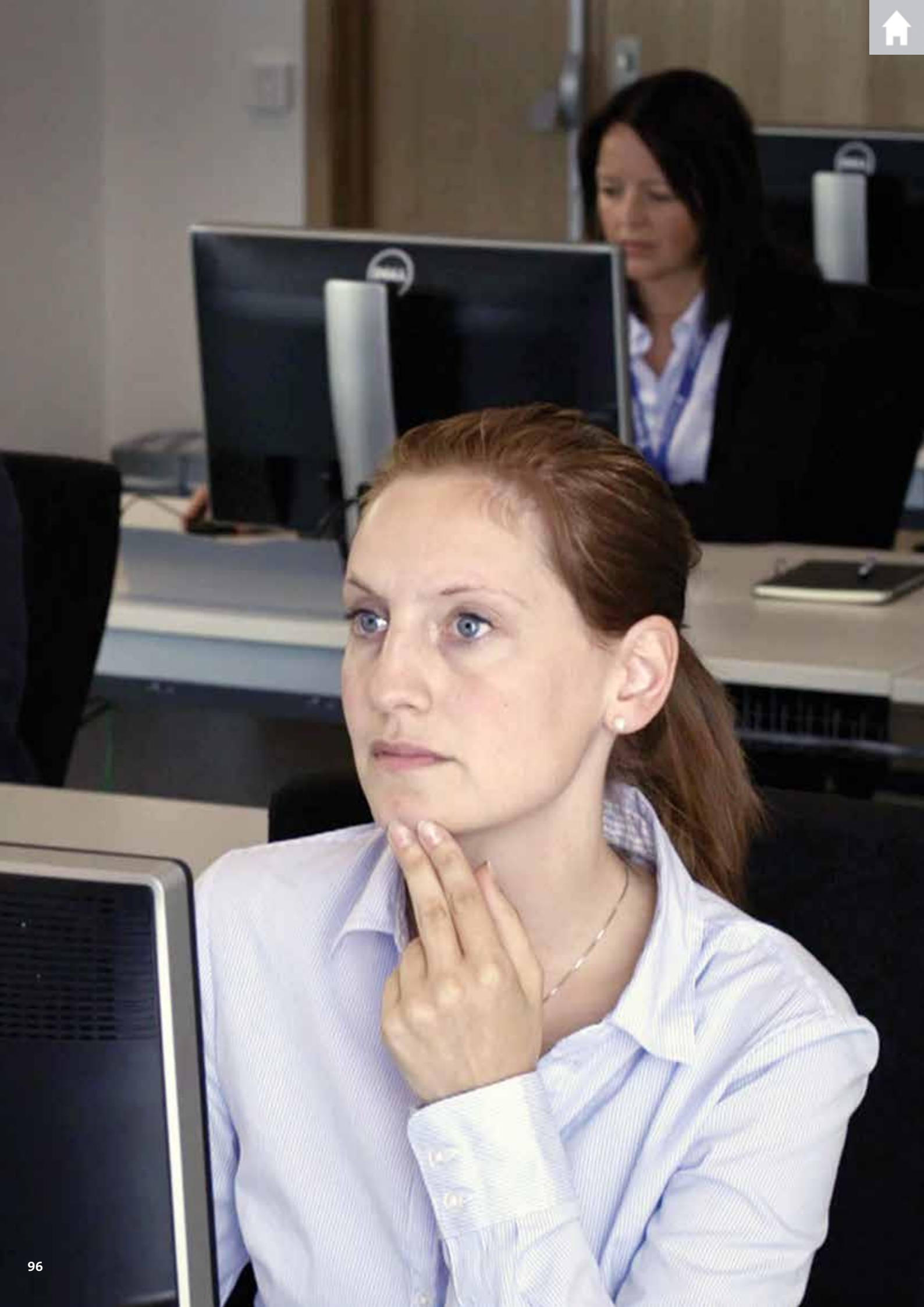


Rolls-Royce

Online learning courses

E-learning

Online learning courses

Familiarisation training

Rolls-Royce offers customers the opportunity to access customer and product training e-learning courses via MyLearning. See our MyLearning site and browse our catalogue for further information.

E-learning modules are designed as a first step, a basic introduction to a system or product and are normally a precursor to attending a classroom, webinar or on board training. Once completed, it ensures all participants are at a similar knowledge level and can interact fully with the instructor during classroom training. Courses are available for core products.

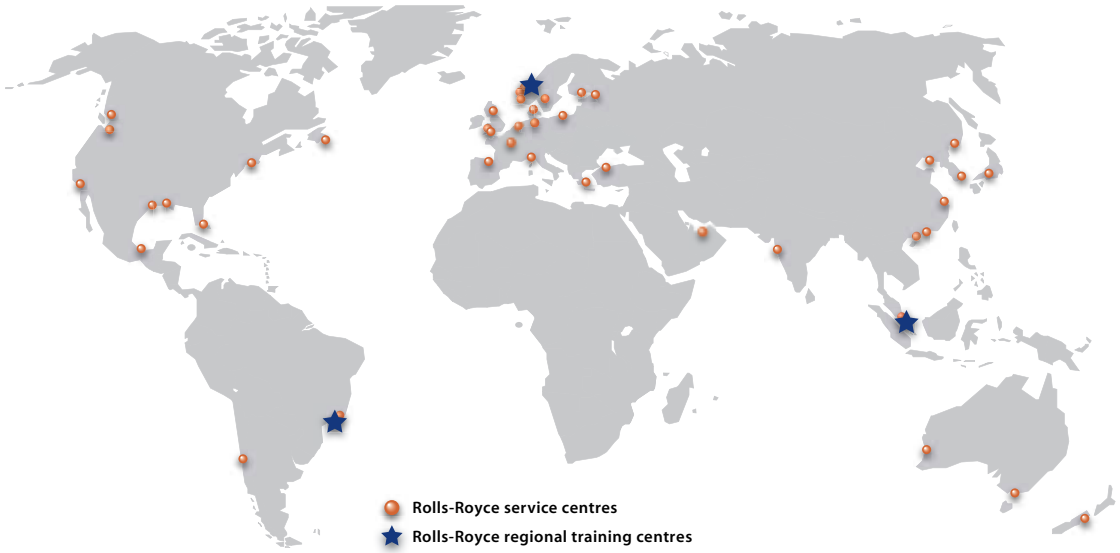
Benefits

- Provides fundamental knowledge of the product or system
- Ideal course preparation
- Individuals work at their own pace
- 24/7 access
- Minimal disruption

Product course	Online		Course code
Acon familiarisation	request access at	training.marine@rolls-royce.com	ELAA1100-01
Anchor-handling and tow winch system familiarisation	request access at	training.marine@rolls-royce.com	ELAA1101-01
Azimuth thruster (Azipull) familiarisation	request access at	training.marine@rolls-royce.com	ELAA1102-01
Tunnel thruster (TT) familiarisation	request access at	training.marine@rolls-royce.com	ELAA1103-01
Azimuth thruster (US) familiarisation	request access at	training.marine@rolls-royce.com	ELAA1104-01
Common control platform familiarisation	request access at	training.marine@rolls-royce.com	ELAA1105-01
Engine B familiarisation	request access at	training.marine@rolls-royce.com	ELAA1106-01
Helicon X3 familiarisation	request access at	training.marine@rolls-royce.com	ELAA1107-01
Icon DP familiarisation	request access at	training.marine@rolls-royce.com	ELAA1108-01
Mermaid Pod familiarisation	request access at	training.marine@rolls-royce.com	ELAA1109-01
Propellers (XF5) familiarisation	request access at	training.marine@rolls-royce.com	ELAA1110-01
Waterjet (Kamewa FF- and A-series) familiarisation	request access at	training.marine@rolls-royce.com	ELAA1111-01
Waterjet (Kamewa S3- Series) familiarisation	request access at	training.marine@rolls-royce.com	ELAA1112-01
Reduction gears familiarisation	request access at	training.marine@rolls-royce.com	ELAA1113-01
Stabilisers familiarisation	request access at	training.marine@rolls-royce.com	ELAA1114-01
Steering gear and rudders familiarisation	request access at	training.marine@rolls-royce.com	ELAA1115-01


Rolls-Royce
24/7 Technical Su

Regional training centres



Europe
Norway, Aalesund

South America
Brazil, Niterói

Asia
Singapore

Regional Training Centre - Europe

World class training facility located in Aalesund
Rolls-Royce product training and equipment management excellence

The regional training centre in Europe is located at the Rolls-Royce Technology and Training Centre in Aalesund - the heart of the Norwegian maritime cluster.

The state-of-the-art training centre caters to the training needs of regional customers as part of the global network of Rolls-Royce training centres that provides customers with access to world class facilities and internationally accredited qualifications.

Supported by a team of experienced training specialists and advanced training facilities, the centre is well equipped to provide a suite of standard and tailored training courses, based on bespoke customer requirements.

As technology advances, your personnel need to be equipped to meet the challenges of operating and maintaining your systems safely and efficiently. The Regional Training Centre is the ideal location for crew training to ensure you get the best economic and environmental value out of your equipment and systems.

Capabilities available at the Regional Training Centre

- Dynamic Positioning Operator `DPO´ Basic / Simulator courses certified by the Nautical Institute leading up to DPO certification.
- Training courses compliant with NWEA, NMD and IMCA recommended training requirements.
- Customised training available to be tailored to meet your specific requirements.

Full scale 360⁰ bridge simulator

Multi product training in simulator domes

Training equipment

Actual sized training equipment including advanced simulators and various components are available to enable practical training. Hands-on training will help equip your crew members and technical team with latest updates and knowledge on maintenance and operational skills.

Hands-on training in workshop

Hands-on training in technical rooms

Training courses

The training courses available will focus on improving understanding and hands-on experience on equipment maintenance and operation.

Thrusters
- Azimuth
- Azipull
- Tunnel thruster
- POD

Propulsion and steering systems
- CPP system
- Waterjet
- Reduction gear
- Steering gear

Engines and electric power systems
- Bergen diesel engine
- Bergen LNG engine (gas)
- Main switchboard
- AFE drives

Deck machinery
- Anchor handling
- Rig winch
- Safer deck operation
- Seismic & subsea
- Crane

Automation and control
- ACON & UMAS V systems
- Icon DP / Poscon
- Helicon
- Aquapilot
- Canman

Training facilities
- Classroom, simulator and workshop setting ideal for multi-product training at one convenient location.
- State-of-the-art equipment and training aids to enhance training experience.

Please contact the training team for more information or to book a course, please visit:
www.rolls-royce.com/marine/services/customer_product_training
Aalesund Training Centre
E-mail: training.marine@rolls-royce.com

Training materials

Training materials are regularly revised to ensure our trainees are updated of latest developments.

Course duration and schedule

Training course duration and outline is defined to maximise knowledge sharing.
Tailored courses can be arranged for participants unable to attend scheduled courses. Contact us to get latest updates on the course schedule.

Certification

Certificates will be issued to all participants upon completion of training courses.

Regional Training Centre - South America

World class training facility located in Niterói
Rolls-Royce product training and equipment management excellence

The Regional Training Centre in Niterói will facilitate the increased marine business activities in Brazil - a key maritime market. The training centre will cater to the training needs of regional customers as part of the global network of Rolls-Royce training centres that provides customers with access to world-class facilities and internationally accredited qualifications.

The training centre is the first training facility for Rolls-Royce in South America and is located at the Rolls-Royce Niterói Service Centre, home to a 2100 square meter marine maintenance, repair and overhaul facility. Supported by a team of experienced training specialists and advanced training equipment, the centre will provide a suite of standard and tailored training courses, based on tailored customer requirements.

Qualified, experienced personnel deliver courses with a blend of classroom, simulator and workshop time. The latest equipment and training aids enhance the training experience, ensuring operators and maintenance crew gain crucial experience in circumstances that are difficult to replicate on-board. The Regional Training Centre is the ideal location for crew training on mission critical systems and equipment like deck machinery and dynamic positioning.

Capabilities available at the Regional Training Centre

- Conducive classroom, simulator and workshop settings ideal for hands-on training at one convenient location with instructions in Portuguese.
- Training courses compliant with NWEA, NMD and IMCA recommended training requirements.
- Customised training available to be tailored to meet your specific requirements.

Winch operator training in simulator domes

Crane operator training in simulator domes

Training equipment

Advanced training simulator domes will enable various operation scenarios to be replicated. Hands-on training will help equip your crew members and technical team with latest updates and knowledge on maintenance and operational skills.

Hands-on training on Icon DP

Hands-on training in technical rooms

Training courses

The training courses available will focus on improving understanding and hands-on experience on equipment maintenance and operation.

Deck machinery

- Towcon RT / winch technical training for AHTS - vessels
- Towcon RT / winch opertaion and maintenance training for AHTS vessels
- Crane operation training

Dynamic positioning

- Icon DP operator training
- Icon DP / Poscon maintenance training

Training facilities

- Classroom, simulator and workshop setting ideal for hands-on training at one convenient location.
- State-of-the-art equipment and training aids to enhance training experience.

Please contact the training team for more information or to book a course, please visit:
www.rolls-royce.com/marine/services/customer_product_training
E-mail: training.marine@rolls-royce.com
Tel: +47 70 23 51 00
E-mail: training.brazil@rolls-royce.com
Tel: +55 21 2707 59 00

Training materials

Training materials are regularly revised to ensure our trainees are updated of latest developments.

Course duration and schedule

Training course duration and outline is defined to maximise knowledge sharing.
Tailored courses can be arranged for participants unable to attend scheduled courses. Contact us to get latest updates on the course schedule.

Certification

Certificates will be issued to all participants upon completion of training courses.

Regional Training Centre - Asia

World class training facility located in Singapore
Rolls-Royce product training and equipment management excellence

The Regional Training Centre is established in Singapore - a key maritime market facilitiating the increased marine business activities in Asia. The training centre will cater to the training needs of regional customers as part of the global network of Rolls-Royce training centres that provides customers with access to world class facilities and internationally accredited qualifications.

The state-of-the-art training centre is the first training facility for Rolls-Royce in Asia, and is located at the Rolls-Royce Seletar campus, home to a new assembly, test and manufacturing site for wide chord fan blades as part of the Rolls-Royce aerospace business.

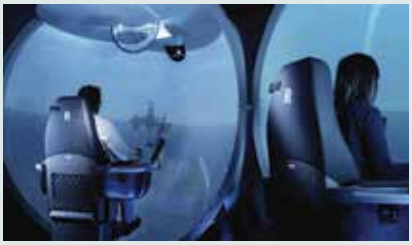
Supported by a team of experienced training specialists and advanced training facilities, the centre is well equipped to provide a suite of standard and tailored training courses, based on bespoke customer requirements.

Qualified and experienced personnel deliver courses with a blend of classroom, simulator and workshop time. The latest equipment and training aids enhances training experience, ensuring operators and maintainers gain crucial experience in circumstances that are difficult to replicate on-board.

The Regional Training Centre is the ideal location for crew training prior to new vessel deployment.

Capabilities and facilities available at the Regional Training Centre

- Conducive classroom, simulator and workshop setting ideal for multi-product training at one convenient location
- Customised training arrangement is available to tailor to your specific requirements
- State-of-the-art equipment and training aids to enhance training experience



Simulator dome

Multi product training in simulator domes

Training equipment

Actual sized training equipments that include advanced simulators and various components are available to enable practical training.

Hands-on training will help equip your crew members and technical team with latest updates and knowledge on maintenance and operational skill.

Hands-on training in workshop

ACON and UMAS V trainer

Training courses

The training courses available will focus on improving understanding and hands-on experience on equipment maintenance and operation.

Engines

- Bergen diesel and gas engine maintenance training

Deck machinery

- Anchor-handling operation

Propulsion and steering systems

- CPP system
- Waterjet
- Tunnel thrusters
- Steering gear

Automation and controls

- ACON and UMAS systems
- Icon DP operator
- Anchor-handling system
- Helicon X and Helicon X3 control system
- Canman control system

Training facilities

Conducive classroom, simulator and workshop setting ideal for multi-product training at one convenient location.

Please contact the training team for more information or to book a course, please visit:
www.rolls-royce.com/marine/services/customer_product_training
Singapore – Regional Training Centre
Tel: +65 6240 3333
Email: training.marine@rolls-royce.com

Training materials

Training materials are regularly revised to ensure our trainees are updated of latest developments.

Course duration and schedule

Training course duration and outline is defined to maximise knowledge sharing.

Tailored courses can be arranged for participants unable to attend scheduled courses. Contact us to get latest updates on the course schedule.

Certification

Certificates will be issued to all participants upon completion of training courses.

Our training centres

Rolls-Royce Training Centre, Aalesund, Norway

Rolls-Royce Product Centre, Bergen, Norway

Rolls-Royce Training Centre, Niterói, Brazil

Rolls-Royce Product Centre, Kristinehamn, Sweden

Rolls-Royce Training Centre, Singapore

Rolls-Royce Product Centre, Rauma, Finland

Contacts

Please contact the training team for more information or to book a course.

Website:
http://www.rolls-royce.com/marine/services/customer_product_training

Marine training
Ålesund, Norway:
Call +47 70 23 51 00 or email: training.marine@rolls-royce.com

Niterói, Brazil:
Call +55 21 2707 59 00 or email: training.brazil@rolls-royce.com

Naval training
Call +1 508 668 9610 or email: naval.training@rolls-royce.com

General information

Our training courses include:

- Preparation of the training schedule and materials.
- Training provided by a Rolls-Royce instructor.
- Training documentation.
- Certificate of attendance for each participant after course completion.
- Lunch and refreshments.
- Transportation from recommended hotel and to the training centre each course day.

Please contact our dedicated training team for more information and course recommendations.

We look forward to seeing you at one of our training centres.

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www.rolls-royce.com

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Scan here to find out more about Rolls-Royce customer and product training