DYNAMIC POSITIONING TRAINING

NTPRO 5000

NTPRO 5000
Wärtsila Navigational Simulator
Navi-Trainer Professional

- 5th generation of the Navigational Simulation Platform for conventional STCW training, advanced operation specific training and R&D applications.
- Windows based network/client software package using COTS hardware infrastructure.
- Fully scalable solutions from online STCW training from the cloud up to full mission systems interconnected to other types of our and/or 3rd party simulators.
- The optimal simulation solution whether it is for generic or type specific ship's bridge operations.

NTPRO 5000		
STCW training	Operation specific training	Research & Development

COMPLIANCE WITH INTERNATIONAL STANDARDS AND REGULATIONS

- International Convention of Training, Certification and Watch keeping for Seafarers (STCW 2010 including the Manila Amendments)
- IMO model courses
- International SOLAS Conventions
- Close cooperation with ClassNK on training and simulator development
- The Nautical Institute's and OSVDPA requirements for Dynamic Positioning Simulators
- Approved with class notations: INTEGRATED SIMULATOR SYSTEM, NAUT-AW(SIM), DYNPOS-AUT(SIM), HSC, TUG, ICE, AHTS to the Class A Standard for Certification of Maritime Simulators No. DNVGL-ST-0033 April 2018
- Regulations concerning 'special' training: fishing operations, VTS operator training, etc.

TRAINING OBJECTIVE DEFINES THE SIMULATOR CONFIGURATION

COMPUTER-BASED TRAINING

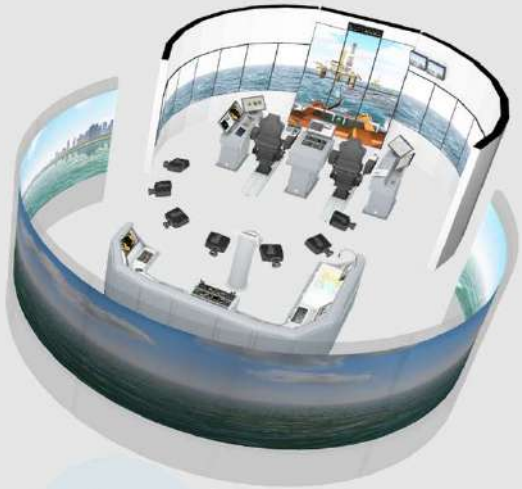
- Individual in-house or distance learning from the cloud
- Equipment familiarisation
- Self-examination and competence assessment
- Onboard training and assessment

NETWORKED CLASSES

- Interactive group exercises under instructor supervision

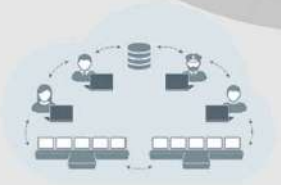
FULL MISSION SIMULATOR

- Final training, assessment and certification
- Bridge Resource Management
- Pilot training
- Task rehearsals



INTERCONNECTED SIMULATORS

- Crew resource management: **WHOLE SHIP** evolution training; Exercising communications between the bridge and engineering departments
- Operation resource management: interconnecting different types of Wärtsilä or 3rd party simulators to simulate a full operation, e.g. Oil Spill Response, Naval warfare, etc.



Cloud Based Simulation Solution

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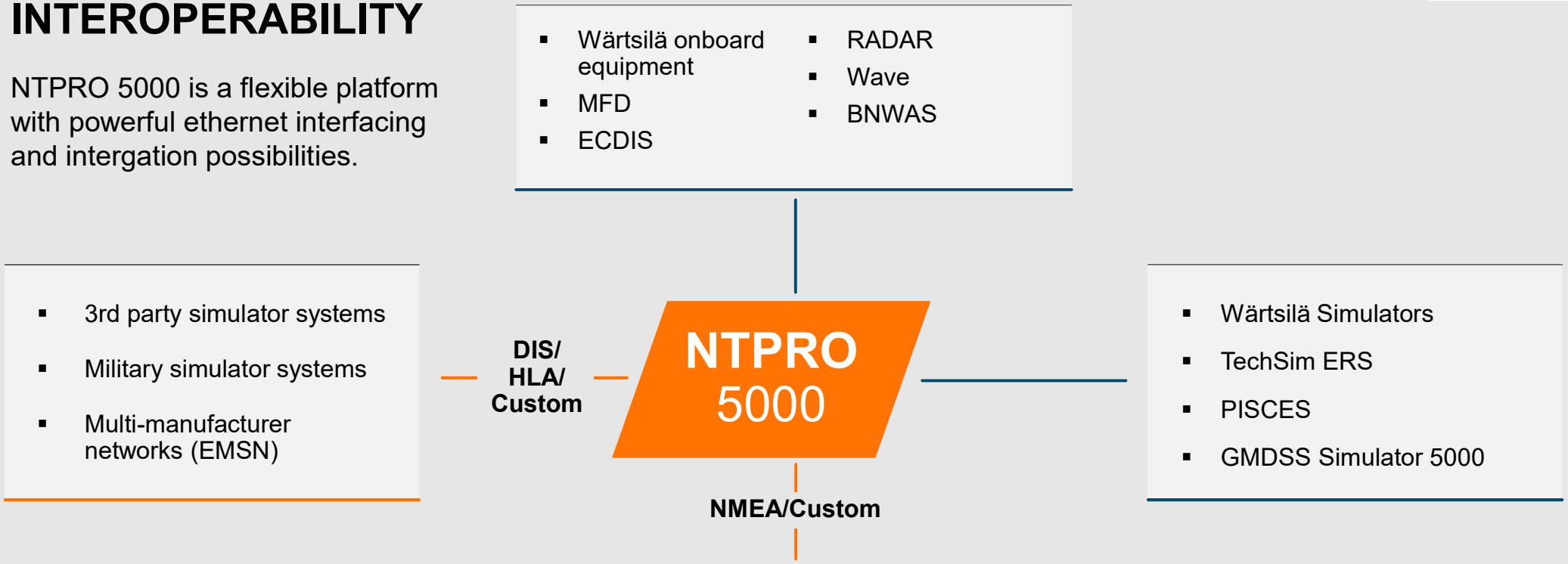
INTEROPERABILITY

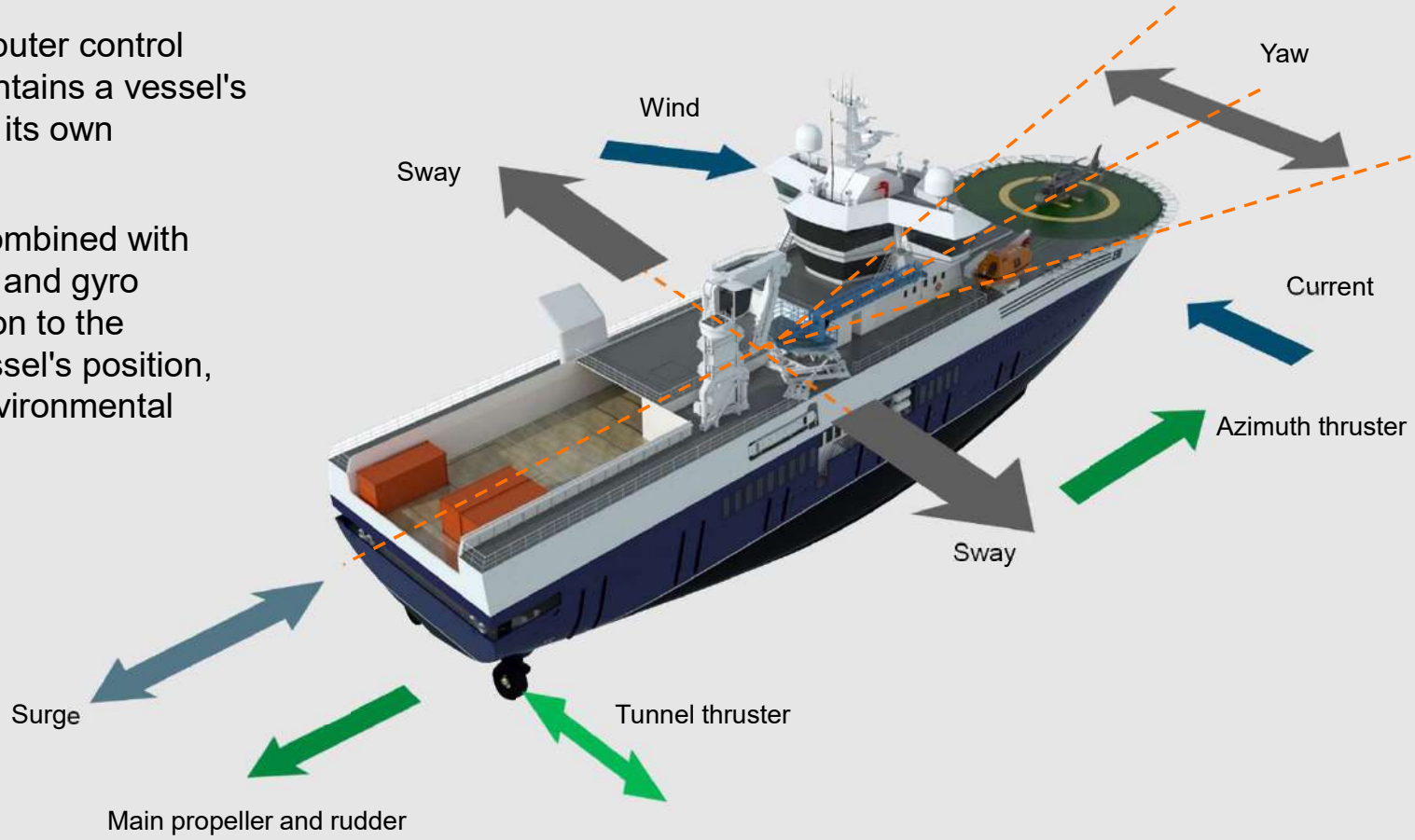
NTPRO 5000 is a flexible platform with powerful ethernet interfacing and intergation possibilities.



DYNAMIC POSITIONING

Dynamic Positioning is a computer control system that automatically maintains a vessel's position and heading by using its own propellers and thrusters.

Position reference sensors, combined with wind sensors, motion sensors and gyro compasses, provide information to the computer pertaining to the vessel's position, magnitude and direction of environmental forces affecting its position.



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CLASS REQUIREMENTS

Equipment Class 1 (DP1)

- No redundancy.
  - Loss of position may occur in the event of a single fault.

Equipment Class 2 (DP2)

- Redundancy: no single fault in active system might cause the system failure.
  - Loss of position should not occur from a single fault of an active component or system such as generators, thruster, switchboards, remote controlled valves, etc. But it may occur after failure of a static component such as cables, pipes, manual valves, etc.

Equipment Class 3 (DP3)

- Must withstand the fire or flood in any compartment without a system failure.
  - Loss of position should not occur from any single failure including a completely burnt fire subdivision or flooded watertight compartment.




NAUTICAL INSTITUTE

The Nautical Institute (NI) DP training scheme

- The main industry-recognised learning route to becoming a qualified Dynamic Positioning Operator (DPO).
- NI administers the certification of DPO's together with accreditation of the training providers.
- DPTEG (DP Training Executive Group) reviews and develops the Nautical Institute DP Operator training scheme and evaluates its effectiveness in providing the DP industry with competent DP Operators.
- 84 accredited training centres
- More than 10 000 DP certificates issued

NAUTICAL INSTITUTE SCHEME

OFFSHORE INDUSTRY		
TRAINING MODEL	**OLD SCHEME**	**NEW SCHEME**
	▪ 30 days DP sea time + ▪ Induction course + ▪ 30 days DP sea time familarisation + ▪ Simulator course + ▪ 180 days DP sea time with STR + ▪ Section F declaration + ▪ Company confirmation letter STR - maximum reduction of 30 days DP sea time Total number of days: 210	▪ Induction course + online assessment ▪ Minimum 60 days DP sea time + completion of task book ▪ Simulator course + practical assessment + online examination ▪ 60 days DP sea time (where 30 days can be reduced with STR) ▪ Company confirmation letter ▪ Statement of suitability signed off by master of last DP vessel Total number of days: 120

All elements of the DP training scheme shall be completed within 4 years.

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NAUTICAL INSTITUTE SCHEME

REVALIDATION OF UNLIMITED CERTIFICATES (EVERY 5th YEAR)	
DP experience the last five years	**Path for revalidation**
▪ More than 150 DP days sea service last five years	▪ Re-send documents to NI to recieve certificate with new validity date
▪ Less than 150 DP days sea service last five years	▪ Simulator course ▪ 30 days DP sea service
▪ No DP sea service last five years	▪ Simulator course ▪ 60 days DP sea service

▪ Engaged in an occupation that the NI considers as being equivalent to the sea service, i.e.:
  ▪ DP lecturer/instructor,
  ▪ DP surveyor,
  ▪ DP consultant,
  ▪ DP auditor,
  ▪ DP superintendent,
  ▪ DP supervisor
	▪ Revalidation requires 150 days in the activity claimed during the last five years

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NAUTICAL INSTITUTE COURSES

DP COURSES	
COURSE	**COURSE AIMS**
INTDUCTION COURSE (min 28 h) ▪ Min 28 h ▪ Max. 8 students ▪ 1 student/DP station recommended, 2 is allowed. ▪ Class C classroom simulator	At the end of the course the student should: ▪ Have acquired knowledge of the principles of DP ▪ Have acquired a basic understanding of how to set up a DP system ▪ Have an understanding of the practical operation of associated equipment, including position reference systems ▪ Be able to recognise the various alarm, warning and information messages ▪ Be able to relate the DP installation to the ship system, including (but not limited to) power supply, maneuvering facility, available position reference systems and nature of work ▪ Be able to relate DP operations to the existing environmental conditions of wind, sea state, current/tidal stream and vessel movement

DYNAMIC POSITIONING TRAINING – NAUTICAL INSTITUTE COURSES

DP COURSES	
COURSE	**COURSE AIMS**
SIMULATOR COURSE ▪ Min 28 h ▪ Max. 4 (6) students ▪ Class B simulator	On completion of the simulator course the student should be able to: ▪ Carry out operational planning, risk assessment and hazard identification tasks ▪ Set up the DP system for a particular task ▪ Operate the communications ▪ Analyse the trends ▪ Discuss systems failures ▪ Decide on courses of action because of systems failures ▪ React to alarms and printer readout ▪ Initiate DP Alert status alarms ▪ React to all events occurring ▪ Operate the desk under normal and pressured conditions ▪ Practice effective teamwork ▪ Apply the lessons learned to date

DYNAMIC POSITIONING TRAINING – NAUTICAL INSTITUTE COURSES

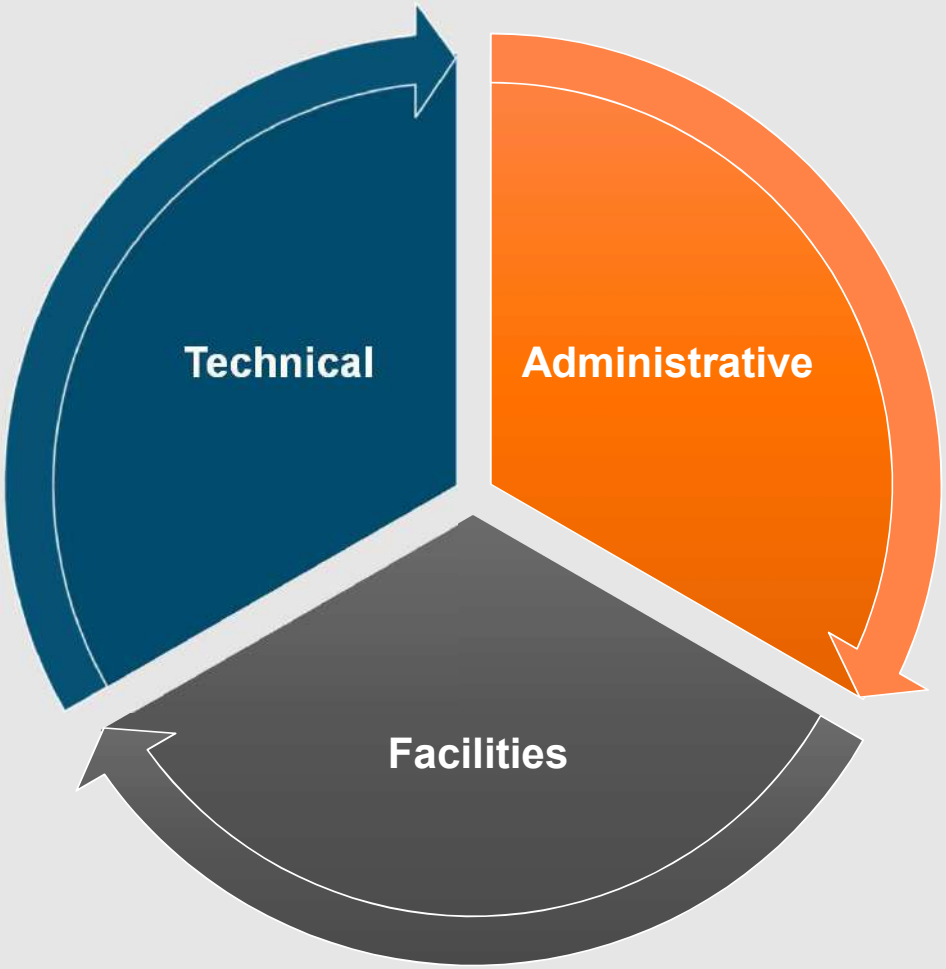
DP COURSES	
COURSE	**COURSE AIMS**
SEA TIME REDUCTION COURSE • Min 37.5 h • Max. 3 students • Class A simulator	The Sea Time Reduction course should be an opportunity for the trainee to spend extended and intense periods of time on DP station keeping and should challenge the trainee to enhance, consolidate and demonstrate: • their knowledge of the DP system and additional equipment and instruments • their situational awareness • their communication and teamwork skills • their ability to analyse trends and pre-empt problems before they arise • their ability to evaluate and respond to alarms, faults and emergencies with calm, reason and confidence • their ability to complete such administrative and safety-related procedures as completing checklists, filling in logs and performing thorough watch handovers The following are examples of the typical operational areas that should be considered: • Saturation and air dive support • Sub-sea construction and heavy lift • ROV operations • OSV operations • Cable and pipe laying operations • Drilling operations • Offshore loading operations • Shuttle tanker

DYNAMIC POSITIONING TRAINING – NAUTICAL INSTITUTE COURSES

INSTRUCTOR REQUIERMENTS

- NI DP Certificate
- Minimum 1 year experience onboard a DP vessel as a certified DPO
- Teaching certificate from training course focusing on methodology and assessment (IMO 6.09 and 6.10 are accepted)
- Passed NI training programme:
  - Partcipate in one induction and one simulator course
  - Be part of delivery of one induction and one simulator course (under supervision of an experienced training instructor)
  - Pass assessment of the training instructor
  - Deliver one simulator course independently under observation of the training instructor
  - Pass assessment of the training instructor
- The training instructor is considered a person who has been previously approved by the Nautical Institute and has taught a minimum of 4 Inductions courses and 4 Simulator courses within one year before being able to undertake the training of a new trainee instructor.
- The training of the new trainee instructor shall be undertaken in the same simulator equipment installed at the training centre where the trainee instructor will eventually conduct courses.

AUDIT ASSESSMENT AND CRITICAL POINTS



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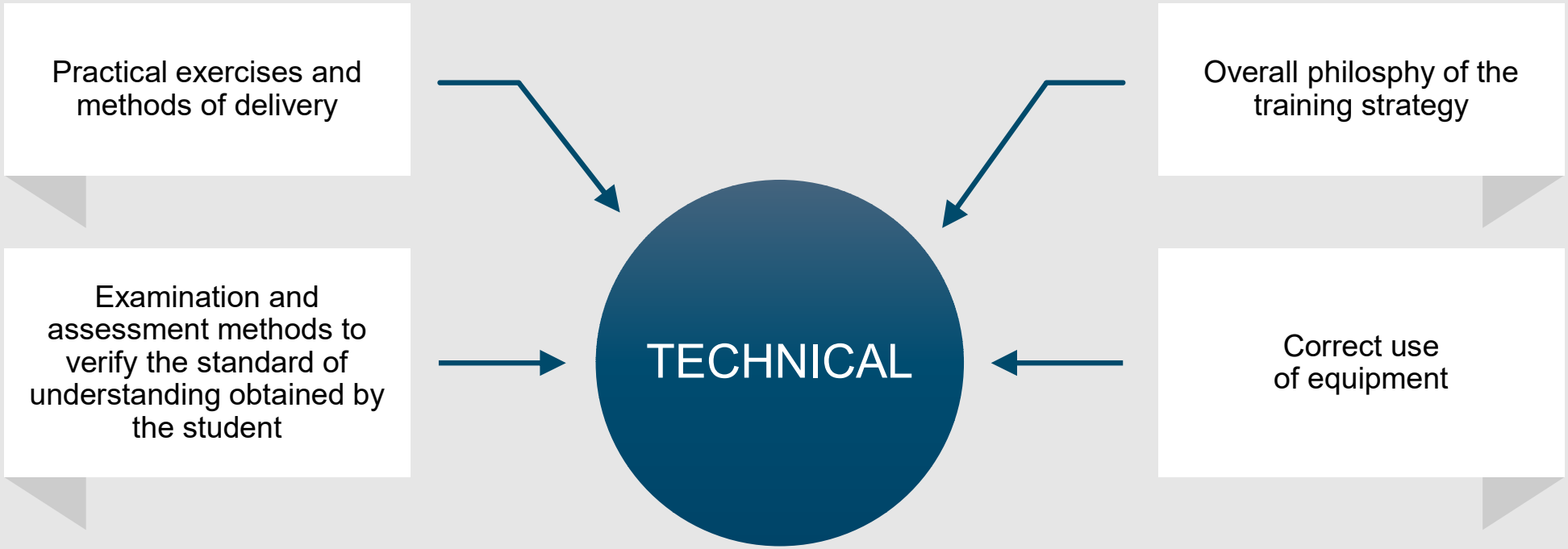

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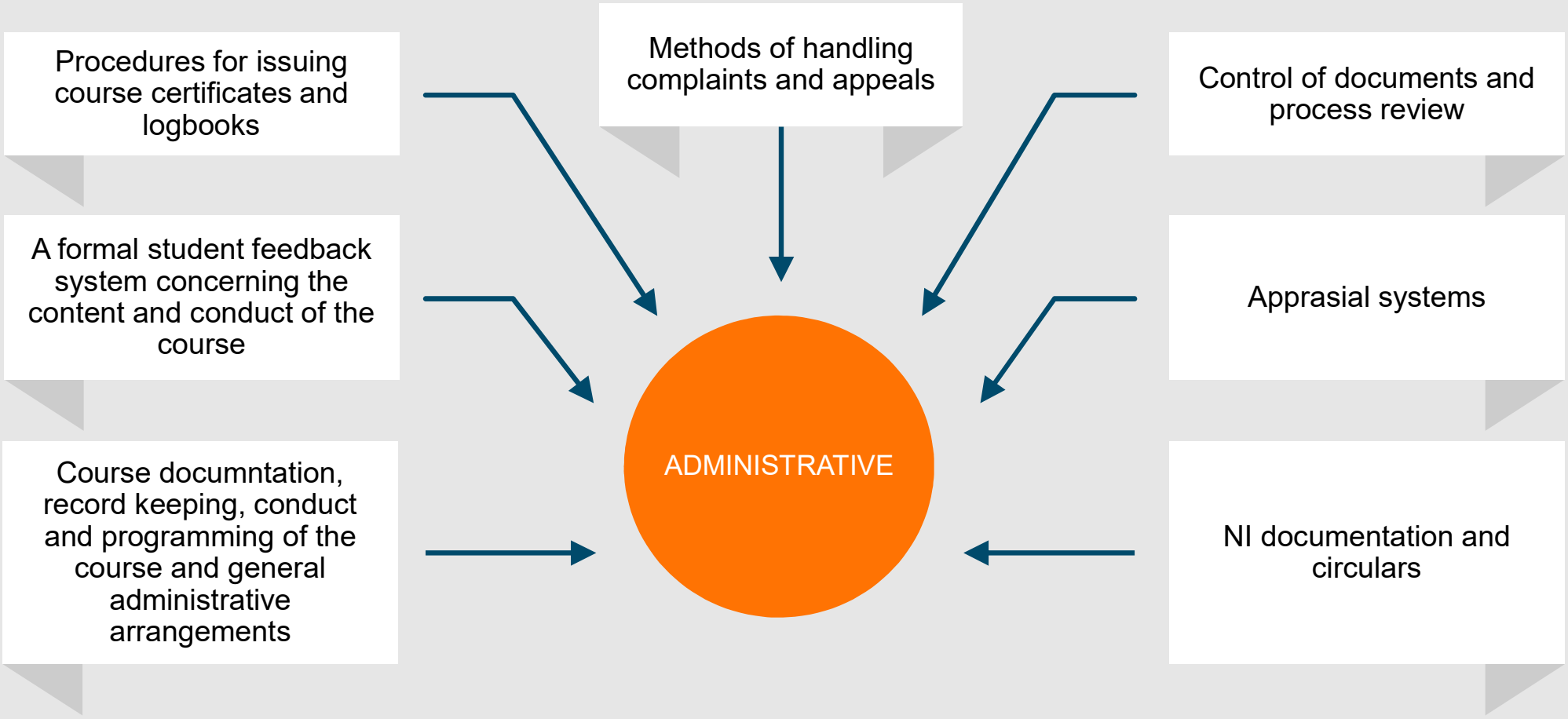

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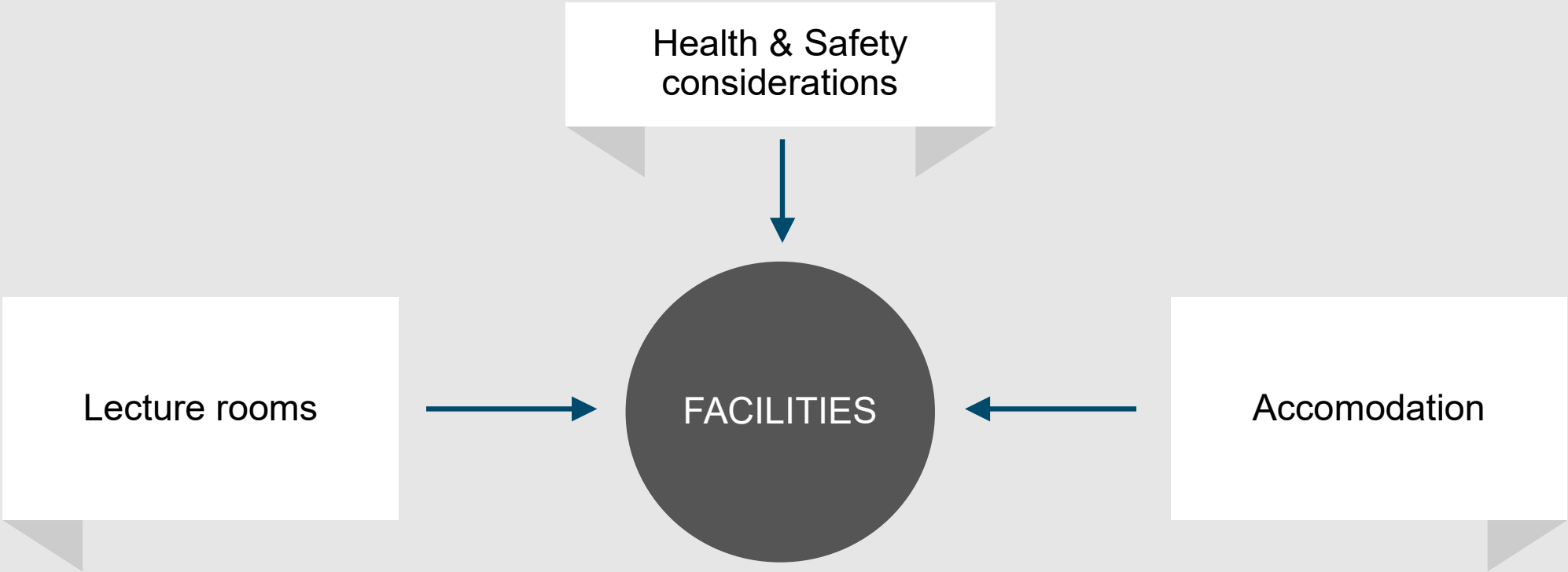

SIMULATOR CONFIGURATIONS

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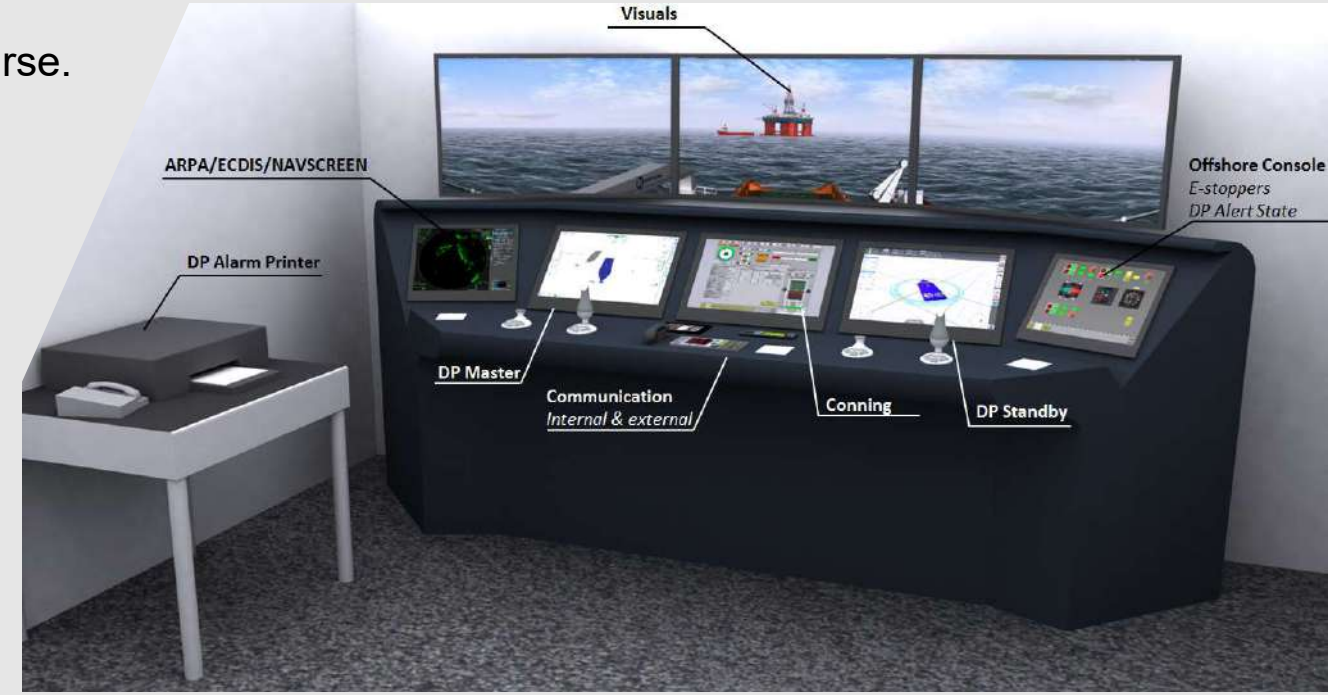
CLASS C

- A limited task simulator for instrumentation or blind DP manoeuvering, joystick manoeuvering and position keeping.
- Typically a multi-purpose classroom that could be used for STCW training, e.g. ECDIS, ARPA, Rules of the Road, etc.
- Required for NI Basic/Induction courses.

Maritime Professional Traning, USA

CLASS B

- A multi-task simulator capable of simulating DP operations in a realistic and fully DP2 equipped ship's bridge environment.
- Required for NI Advanced/Simulator course.



COMBINED CLASS B AND C

- A cost effective solution that can be used for both NI Basic/Induction and the Advanced/Simulator course.
- The DP workstations can be configured to be DP1 or DP2 stations.
- The classroom will be equipped with the typical Class B related equipment for the simulator course that then also can be used during the Basic course and by that create a more stimulating trainee environment.
- This solution can also be used for other STCW training, e.g. ECDIS, ARPA, Rules of the Road, etc.

Maritime Training Institute, USA

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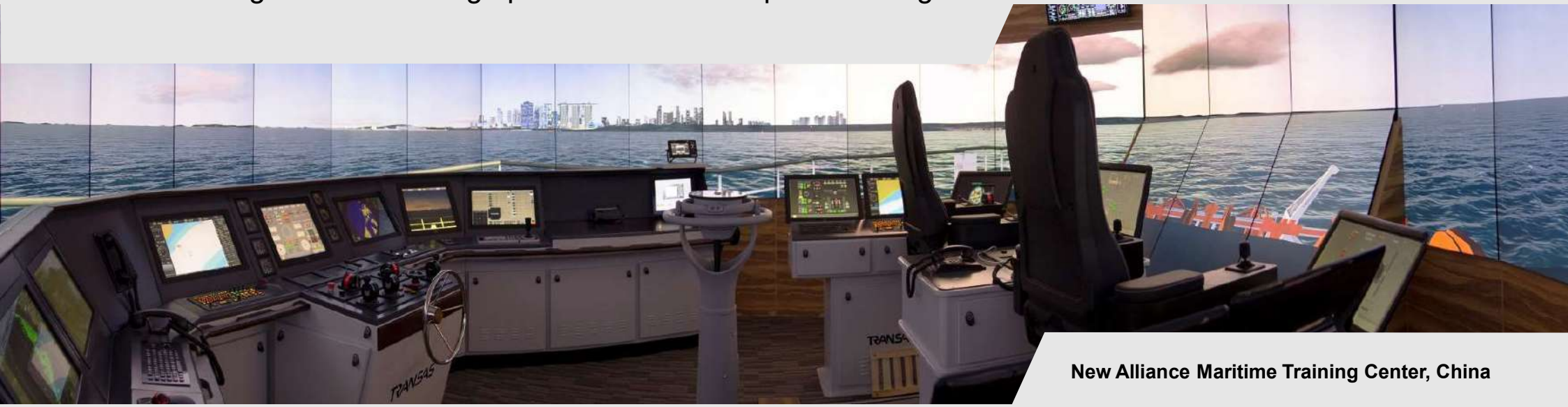
CLASS A

- A full mission simulator capable of simulating DP operations in a realistic and fully equipped DP2 ship's bridge environment, including the capability for visual presentation near offshore installations.
- Required for the Nautical Institute sea time reduction (STR) courses and DNV Test Centre for DPO competence assessment.
- The Class A configuration is also a suitable platform for adding anchor handling operations to the scope of training.



New Alliance Maritime Training Center, China

COMPLIANCY

- Meeting the Nautical Institutes requirements for all levels of DPO training for both Offshore and Shuttle tanker scheme.
- Meeting the OSVDPA's requirements for all levels of DPO training.
- Compliant and fully approved by DNV 2.14 Maritime Simulators Section 8. DP Simulators.
- Currently interfaced Dynamic Positioning systems:
  - Wärtsilä DP
  - General Electrics (former Converteam)
  - Marine Technologies
  - NAVIS
- DP Interface data exchange:
  - GNSS
  - Sensors
  - Thrusters
  - Position Reference Systems
  - Power Management System

Guangzhou Maritime Institute, China

NTPRO OFFSHORE

Instructor station

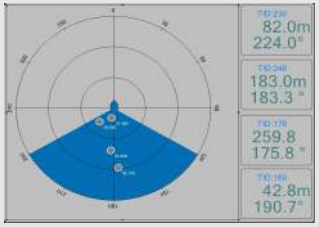
- Faults for all simulated signals (thrusters, generators, sensors, PRS, etc.)
  - Random noise, e.g. for PRS (Position-Reference system), jumps in meters in two axis (latitude/longitude)
  - Drift with drift speed and limit, e.g. for PRS, drift in two axis (latitude/longitude)
  - Bias, e.g. for PRS; bias in two axis (latitude/longitude)
  - Oscillation with value and period
  - Freeze signal to existing value
  - Delay of a signal, setting in seconds
  - Stop of communication
  - Fixed value (feedback and set point), e.g. thruster runaway with setting in percent

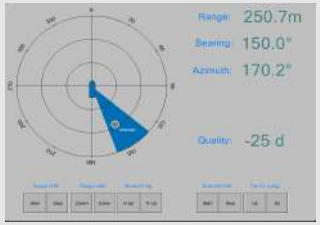
Advanced trainee monitoring from instructor workstation

- DP System and ECDIS monitoring
- Selective view (visual scene monitoring)
- CCTV and bridge audio monitoring

SHUTTLE TANKER

- Meeting the simulator requirements for NI Shuttle Tanker Scheme
- Full set of relevant Positioning Reference Systems:
  - GNSS
  - RadaScan/Radius
  - ARTEMIS
  - DARPS
  - Tension sensor





SERVICES

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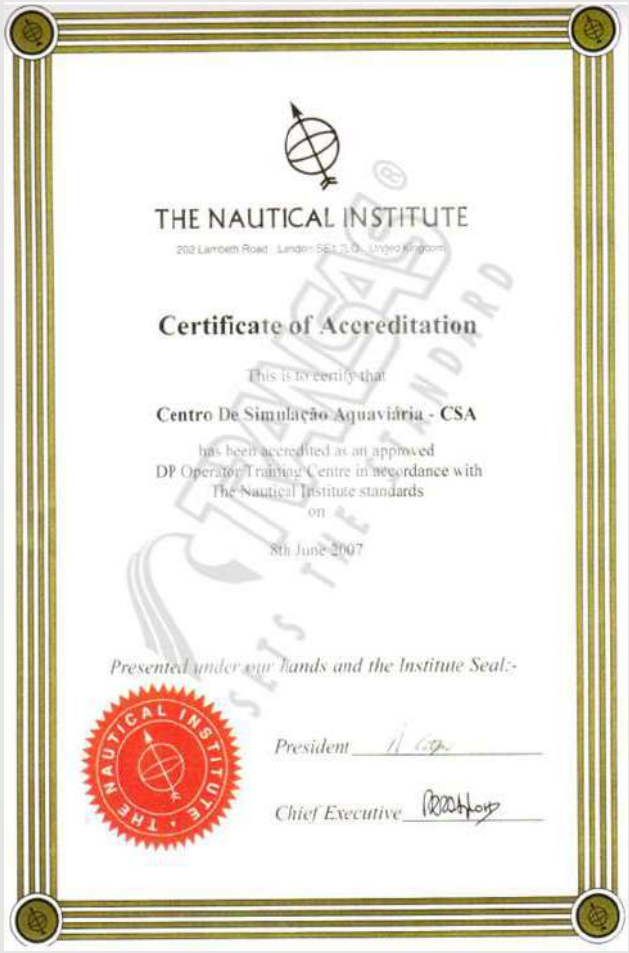
DP ACCREDITATION SUPPORT PACKAGE

- Assisting Wärtsilä DP simulator customers during the training centre accreditation process.
- Wärtsilä team has extensive experience from Dynamic Positioning operations, training, regulations and Nautical Institute technical auditing.
- A safe way to establish an approved and high quality training concept and get quick **Return on Investment**!


THE NAUTICAL INSTITUTE

202 Lambeth Road London SE1 7JY United Kingdom

Certificate of Accreditation

This is to certify that

Centro De Simulação Aquaviária - CSA

has been accredited as an approved
DP Operator Training Centre in accordance with
The Nautical Institute standards
on

8th June 2007

Presented under our hands and the Institute Seal:-

THE NAUTICAL INSTITUTE

President

Chief Executive

KM1

スライド 28

KM1 Needs to be updated
Kosukhina, Maria, 2018/09/28

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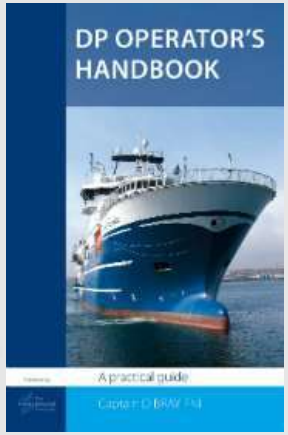
DP ACCREDITATION SUPPORT PACKAGE

Master Manual creation

- Theory book
- Course schedule (basic/advanced/sea time reduction)
- Lesson plans
- Exercises (theoretical and practical)
- PPT Slides for all lessons and exercises

Structure/documentation guidelines (quality system)

- Course booking
- Record keeping
- Documentation distribution for students
- Methods for handling feedback/complaints



DP ACCREDITATION SUPPORT PACKAGE

- Initial planning and informational visit
- Instructor training on site
  - DP Instructor training
  - Hands-on simulator training
  - DP system training
- Off site support throughout the process
- On site support during the accreditation by the Nautical Institute
- Updates and information related to regulatory changes
- Wärtsilä can also provide similar support for Class or local program approvals

MAJOR SIMULATION PROJECTS

PIRI REIS UNIVERSITY, TURKEY

Innovative PC infrastructure utilising virtual Nvidia Grid technology, dramatically reducing OPEX

- 360º full mission bridge
- 330º full mission bridge
- 360º tug/AH/DP bridge (NAVIS DP)
- 4 x part task bridges
- Full mission ERS
- Full mission LCHS
- Full mission Crane
- 5 x multifunctional classes
- VTS simulator
- Modelling station

EDISON CHOUEST OFFSHORE, USA

- DP basic classroom (8 x MT DP1+STCW workstations)
- 2 x DP advanced bridges (MT DP2)
- Video wall using NEC 46” bezel less displays for a seamless view
- Interface to MT Bridge Mate Integrated Navigation System (INS)
- Project included development of three new OSV models with DP functionality, U.S. Gulf exercise area, and new offshore training objects: TLP, SPAR and Drillship
- Upgraded in line with 2014 NI requirements under Global Service and Support programme

MARITIME PROFESSIONAL TRAINING, USA

- Full mission bridge 240o
- 2 x part task bridge 120o
- DP Induction/simulator classroom (6 x MT DP + STCW workstations)
- Multi-purpose classroom also utilised for ECDIS training
- 45,000 sq ft facility, most complete full service privately owned maritime training centre in the USA

CENTRO DE SIMULAÇÃO AQUAVIÁRIA (CSA), BRAZIL

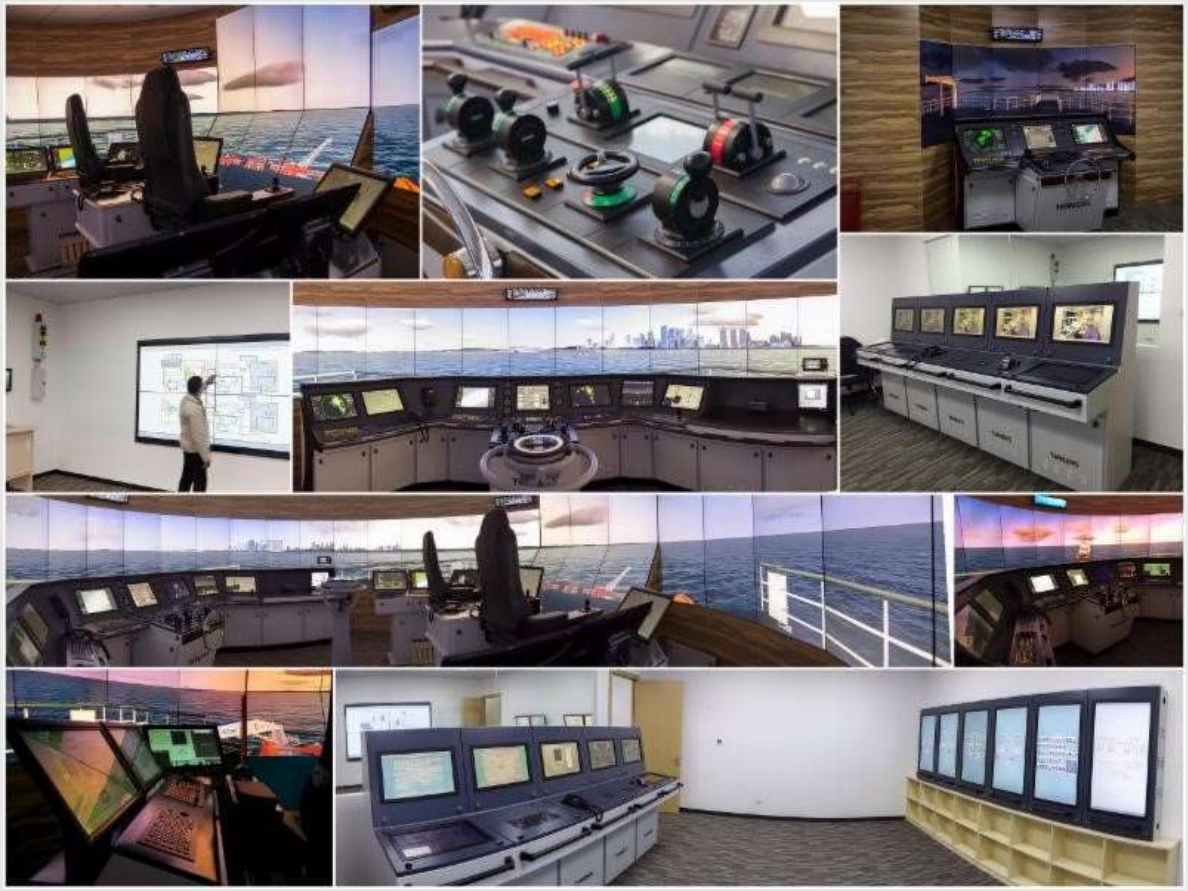
- DP basic classroom
  (6 x NAVIS DP1 + STCW workstations)
- Class A DP bridge (NAVIS DP 2)
- Class A DP bridge (Marine Technologies DP2)
- Integrated Pisces2 oil spill simulation software
- In-house visual modelling team for development of Brazilian database areas using Model Wizard
- In-house hydrodynamic modelling team for production of detailed ship models for use in offshore operations and research work

PAN ARAB E-NAVIGATION, EGYPT

- DP Induction and multi-use classroom (5 x NAVIS DP1+STCW workstations)
- DP simulator bridge (NAVIS DP2)
- Anchor Handling functionality

NEW ALLIANCE MARINE TRAINING CENTER, CHINA

- Full mission bridge simulator 360°
- 2 x mini bridge simulators
- Offshore simulator DP2
- Crane simulator
- LCHS and ERS 5000 TechSim
- GET-Net partner



NTPRO OFFSHORE

INCREASE THE UTILISATION OF YOUR SIMULATOR:

- Add Dynamic Positioning and Anchor Handling to your existing simulator
- Nautical Institute approved Dynamic Positioning training
- DNV approved Test Centre for Dynamic Positioning Operators and Anchor Handling Operator competence assessments
- Contact your local Wärtsilä representative for consulting!

THANK YOU

WWW.WARTSILA.COM