

**ROMANIAN NAUTICAL COLLEGE &
NAVAL TECHNOLOGY CENTRE LTD.**



DP MAINTENANCE AND ENGINEERING

COURSE PRESENTATION



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Accredited by the
Nautical Institute
Since 2013



IMCA Training Establishment
Since 2013



Lloyd's Register Quality
Assurance ISO 9001:2008
Since 2010



Foreword

This leaflet aims to outline the main features of the newly created “DP Maintenance and Engineering Course”, underlining that new key elements have been introduced in the course structure, in order to facilitate a smoother transition of naval technicians (mostly engine officers and ETOs) from merchant ships to offshore ships equipped with Dynamic Positioning systems.

Comparing to other similar courses on the offshore training market, the proposed *DP Maintenance and Engineering Course* reshapes curricula adopted by most DP Centres and gives important weights to the following key elements:

1. DP vessels engine room special arrangements
2. Practical treatment of alarms in a typical DP vessel’s engine room
3. DP vessels power management

The heart of the course is shaped on a Medium Speed Engine Room Simulator-PSV3D and a Diesel Electric Propulsion Simulator-PSV3D. The 3D simulators of the Engine Rooms are based on the real equipment on board of a real DP vessel. The environment created in the 3-D simulator is highly realistic, supported by a high definition video card and a high quality 3D sound system.

The DP Maintenance and Engineering Course is hosted by the Naval Technology Centre, a newly created joint venture designed to develop highly-specialized naval products, including simulators and training courses.

The Romanian Nautical College is accredited by the Nautical Institute. Also, the Romanian Nautical College is an active member of IMCA-International Maritime Contractors Association. The Quality System’s compliance to the ISO 9000:2008 Standard is approved by Lloyd’s Register QA.

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Course outline

- COURSE NAME:** DP MAINTENANCE AND ENGINEERING
- COURSE DURATION:** 5 days.
- TARGET TRAINEES:** Actual or future Engine and Electrotechnical officers, electrical engineers and maintenance personnel responsible for the daily tasks in the engine room of a typical offshore vessel and for the technical maintenance of the on-board server, sensors and networking of the DP system.
- ADMISSION REQUIREMENT:** Basic knowledge of marine engineering systems and personal computers
- DOCUMENTS NEEDED:** National ID, Passport, Seaman's Book, Certificate of Competency, ¾ photo. Scanned copies of the above-mentioned documents must be sent to the Centre before arrival. Also, it is mandatory to have these documents with during the DP Maintenance Course training.
- NO. OF PARTICIPANTS:** Minimum 4.
- TEACHING MEDIUM:** The course documentation is written in English and the course will be held in the English language.
- SCOPES OF THE COURSE:**
1. To support transition of mechanical/electrotechnical officers from merchant ships to the DP & Offshore specialized ships.
 2. To support DP vessels engine room personnel to:
 - Understand the DP system history, philosophy, perspectives and limitations;
 - Get further knowledge of the engine room systems (compressed air system, fresh and sea water cooling system, lubricating and fuel oil system, gear and CPP hydraulic system, etc.) and their special arrangements on typical DP&Offshore vessels;
 - Apply DP vessels' main engines and auxiliary equipment operational procedures;
 - Practice on DP vessels' propulsion system maneuvering (main engines – reduction gear – CPP);
 - Further understand and operate practically the Power Management System (PMS)

- Get basic information on the DP computer system structure, networking with ship's sensors, its maintenance and service

COURSE OBJECTIVES: At the end of the course, trainees should:

- Be familiar with DP system philosophy
- Understand the DP vessels' engine room particular arrangements
- Be quickly reactive to typical alarms in the engine room of a typical DP vessel
- Be able to apply/supervise the regular maintenance of equipment and machineries in the engine room
- Be familiar with the DP system server structure and networking
- Be able to identify faulty units, change them with spares and bring the DP system back into operation.

DAILY COURSE CONTENT:

DAY 1. DP&OFFSHORE SHIPS' ENGINE ROOM EQUIPMENTS, ARRANGEMENTS, OPERATION AND MAINTENANCE (6 hrs)

- Adrian GAUREANU, Chief Engineer, Head of Engine Department, Romanian Nautical College

- Engine room general description and normal operation
- Cooling system. Fuel system
- Lubricating oil system. Compressed air system and BHS
- Power management System (PMS)
- Fi-Fi system. Water mist system
- Thrusters

DAY 2. DP BASIC. DP SYSTEM CLASSIFICATION AND TECHNICAL REQUIREMENTS. FMEA - FAILURE MODE AND EFFECTS ANALYSIS (6 hrs) - Iulian MOLODOVANU, Chief Engineer, DP Superintendent

- Introduction to "DP Maintenance & Engineering" Course
- Basic DP definitions, history and principle
- DP System block diagram and DP operational modes
- DP Environmental sensors
- DP Reference Systems
- Controlling the power, propulsion and thruster systems

DAY 3. DP SYSTEM CLASSIFICATION AND TECHNICAL REQUIREMENTS. FMEA - FAILURE MODE AND EFFECTS ANALYSIS (6 hrs) - Iulian MOLODOVANU, Chief Engineer, DP Superintendent

- DP system technical requirements
- SDP principles
- Failure mode and effects analysis (FMEA)

DAY 4. DP&OFFSHORE SHIPS' POWER PLANT AND POWER MANAGEMENT SYSTEM (6 hrs) - Dragoş FILIMON, DP Chief ETO

- Redundancy concept
- Power distribution system components
- Voltage distribution levels
- Emergency/Harbour generators
- Shore power
- Interlocks
- Power plant configurations
- Practical implementation
- Operational configuration
- Transferable and dual fed consumers
- Battery and UPS systems
- PSV ER simulator practical session (3 hrs)

DAY 5. DP SYSTEM IT SUPPORT MAINTENANCE (6 hrs) - Dragoş FILIMON, DP Chief ETO

- DP console: preventive and corrective maintenance
- DP computers
- DP computers fault finding
- DP computers preventive maintenance
- DP computers corrective maintenance
- Replaceable parts and consumables
- Basic software and networking settings