ROMANIAN NAUTICALCOLLEGE &
NAVAL TECHNOLOGY CENTRE LTD.

DP MAINTENANCE AND ENGINEERING

COURSE PRESENTATION

Authors:

Adrian Gaureanu, Chief Engineer, Head E/M Dept.
Stelian Cojocaru, Ph.D., P&CEO

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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 weighs to the following key elements:

1. DP vessels engine room special arrangements
   - Diesel Propulsion PSV
   - Diesel Electric Propulsion PSV
2. Operating the engine room equipment and practical treatment of alarms and critical situation:
   Emergency procedures for:
   ME , DG's, PMS, Azithruster, Retractable Thruster, Fi-Fi system, etc
3. DP vessels power management

The heart of the course is shaped on a **Medium Speed Engine Room Simulator PSV3D** and a **Diesel Electric Engine Room simulator DE3D.**
The 3D simulator of the Engine Room is based on the real equipment on board of a real ship. 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.
This training program is being held on 9+1 working stations.
Aditional trainig will be held on real **DP console Navis Transas**

The DP&Offshore Centre of 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.

Adrian Gaureanu
Stelian Cojocaru

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ROMANIAN NAUTICAL COLLEGE Address: Şos. ChitilaPădure nr.2 bis, 077135 Mogoşoaia; Tel/Fax: +4(0)213199988; Mobile: +4(0)753535353; Reg.No: 22PJ/2073/94/2010; RO VAT No: 26849221; IBAN Lei: RO22BTRL04801205T99389XX; IBAN Euro: RO94BTRL04804205T99389XX; BancaTransilvania/Chibrit; EU VAT No: RO32348411

Course outline

COURSE NAME: **DP MAINTENANCE AND ENGINEERING**

COURSE DURATION: 4 days / 30 hrs

COURSE VENUE: Romanian Nautical College, DP&Offshore Centre, 2 Lebedei str . Constanta, Romania, postal code 900534.

PRICE: 700 Euros

TARGET TRAINEES: Actual or future Engine and Electrotechnical officers, electronical 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

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, freshand sea water cooling system, lubricating and fuel oil system, gear and CPP hydraulicsystem, 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

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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 (8 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
- PSV - Diesel Propulsion -ER simulator practical session
- PSV – Diesel Electric Propulsion - ER simulator practical session

Day 2. DP BASIC. DP SYSTEM CLASSIFICATION AND TECHNICAL REQUIREMENTS. FMEA – FAILURE MODE AND EFFECTS ANALYSIS (8 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
- DP system technical requirements
- SDP principles

Failure mode and effects analysis (FMEA)

Day 3. DP&OFFSHORE SHIPS' POWER PLANT AND POWER MANAGEMENT SYSTEM (8 hrs)
– Dragoș 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

Day 4. DP SYSTEM IT SUPPORT MAINTENANCE (6 hrs)
– *Dragoș 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

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