NOVIKONTAS MARITIME COLLEGE

# ENGINE RT-FLEX BASIC COURSE

## TARGET GROUP

Wartsila Rt-Flex training course is intended for ship engineers, electrical engineers and technical superintendents involved into daily operation of vessels with 2-stroke Wartsila Rt-Flex engine systems.

## OBJECTIVES OF THE COURSE

In this course is that the participants should gain basic knowledge of RT-flex Engine Components, Engine Control Systems (hydraulic & pneumatic) and WECS 9520 Control System and use of engine simulator. Course meets the objectives listed in STCW Code sections A-III/1; A-III/2

## COURSE CONTENTS

**The RT-flex basic course covers the following topics:**

- Introduction of RT-flex design
- Mechanical flex components
- Hydraulic and pneumatic system
- WECS9520 control system
- flexView (Operator Level)
- Service Maintenance
- Cylinder Lubrication
- Assessment

## DURATION OF THE TRAINING COURSE

The duration of the engine training course is 3 working days.

## THE COURSE PROGRAM

### DAY 1

- Course introduction and objectives
- Design aspects of RT-flex engines
  - Differences RTA to RT-flex
  - Advantages of RT-flex engines
- Mechanical components & hydraulic systems
  - Overview
  - Supply unit drive
  - Supply unit (fuel, servo oil)
  - Control oil pumps
  - Rail units
  - Injection control unit
  - Fuel nozzles
  - Valve control unit
  - Rail valves
  - Crank angle sensors
  - TDC pick-ups
  - Local Control of RT-flex
  - Air supply

### DAY 2

- Reading of engine control diagrams (practice)
  - 5-8RT-flex50/50-B/50-D
  - RT-flex60C
  - 5-8RT-flex68B/68D
  - 8-12, 14RT-flex96C-B
- RT-flex control system
  - WECS overview
  - RT-flex concept
  - WECS-9520
  - Remote control systems
  - Electronic governor
  - Safety system
  - Alarm monitoring system
  - FCM-20 Module
  - Manual control panels
  - System redundancy

### DAY 3 Practice and Examination day

- FlexView (using RT-flex simulator)
  - Basic information
  - Flex view cards
  - Creating the trends
- Operational aspects (using RT-flex simulator)
- Troubleshooting practical exercises (using RT-flex simulator, as well as wiring diagrams)
- Practical examination
  - Control diagrams reading
  - Service aspects
  - Troubleshooting

**Note:** during training course theoretical lessons are given using Digital Platforms of effective communication among course participants, practical tasks are conducted on RT-flex simulation equipment.

P: +371 67399999 E: training@novikontas.eu www.novikontas.eu
A: Duntes st. 17 a, Riga, Latvia LV-1005