The PC-based Engine Room Simulator

# Medium Speed Engine Room MED3D

The Medium Speed Engine Room Simulator MED3D has been based on typical solutions, being presently used in medium-sized engine rooms (one four-stroke type main engines with reduction gear and controllable pitch propeller).
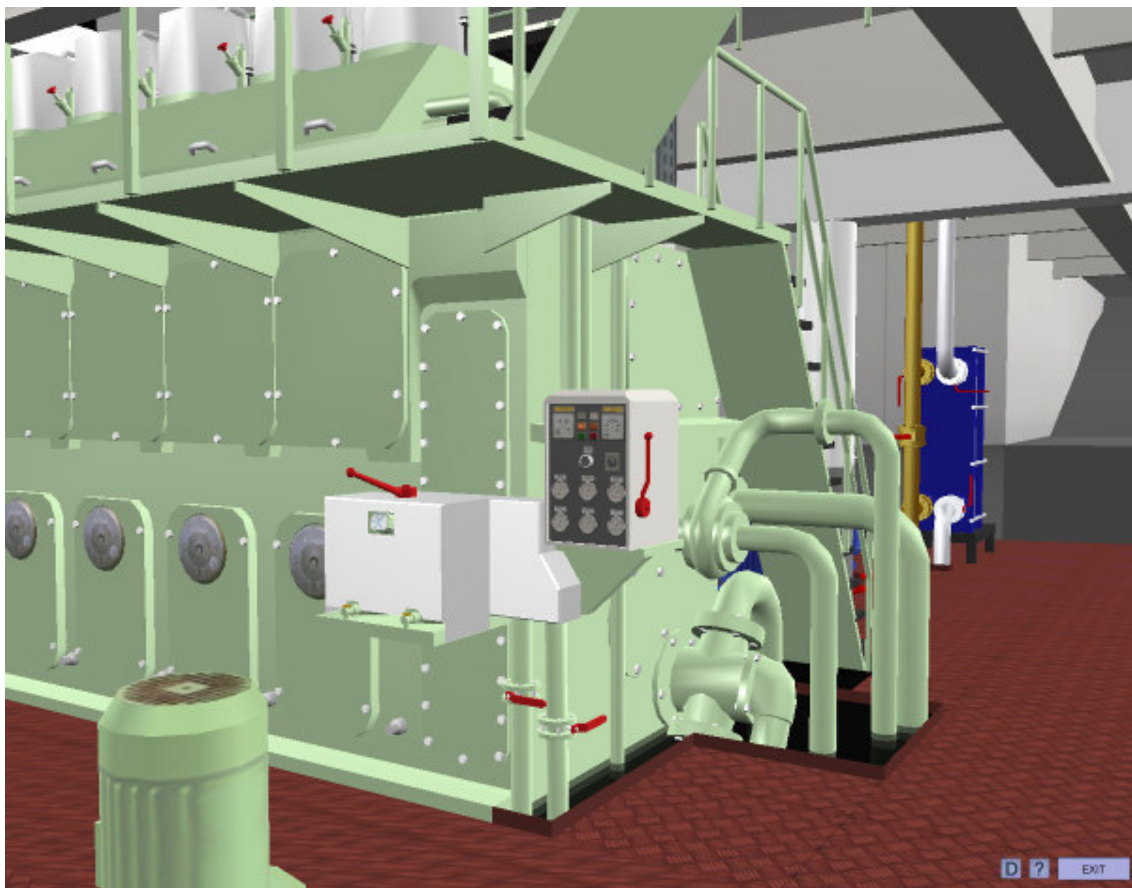


The simulator introduces 3D model of the Engine Room, based on the real equipment. In order to create the impression of working in the real environment, it provides 3D sound which can be listened on 2, 4 or more speakers.
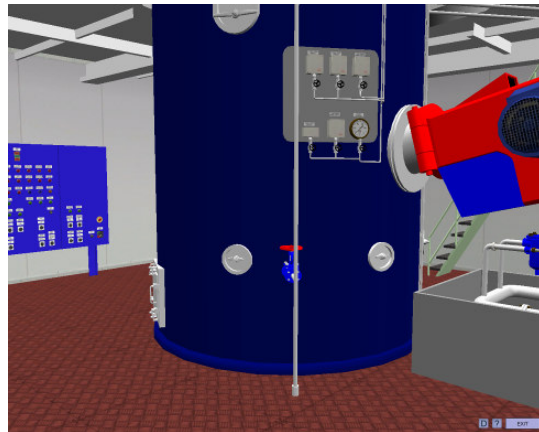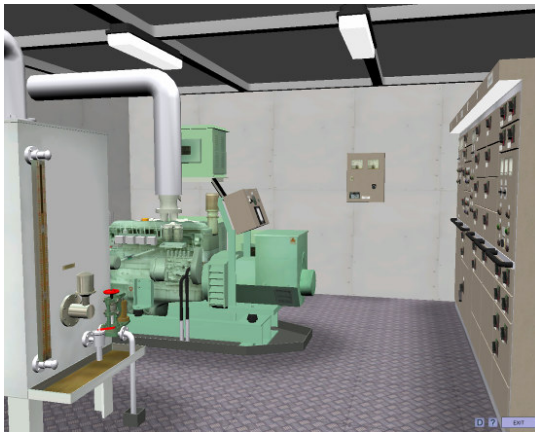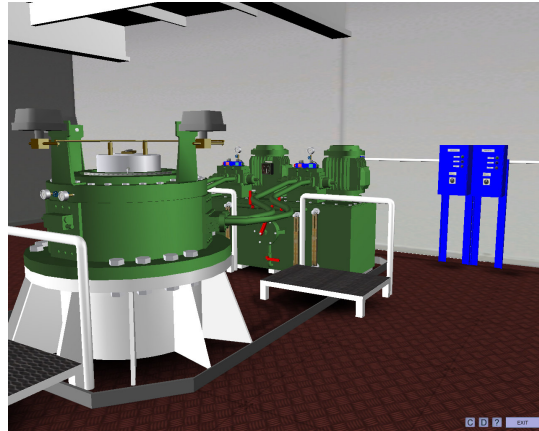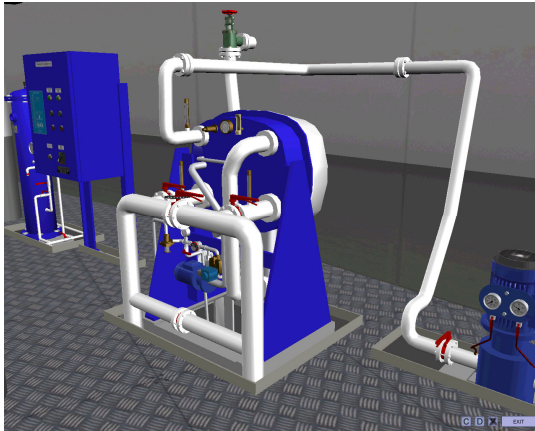
**MED3D** has been developed to comply with:
- STCW Code: Section A-1/12 and Section B-1/12.
- ISM Code: Section 6 and Section 8.

**MED3D** is based on an engine room composed of one medium-speed diesel engine, three diesel engine generators and one shaft generator. The propulsion system includes Main Engine, the controllable pitch propeller and reduction gear. Propeller's revolutions and pitch are controlled simultaneously.

**MED3D** simulator model includes following systems:
- Fuel System
- Cooling System
- Lubricating System
- Compressed Air System
- Power Plant
- Steam System
- Sanitary Water System
- Bilge System
- Steering Gear
- Sewage Treatment Plant
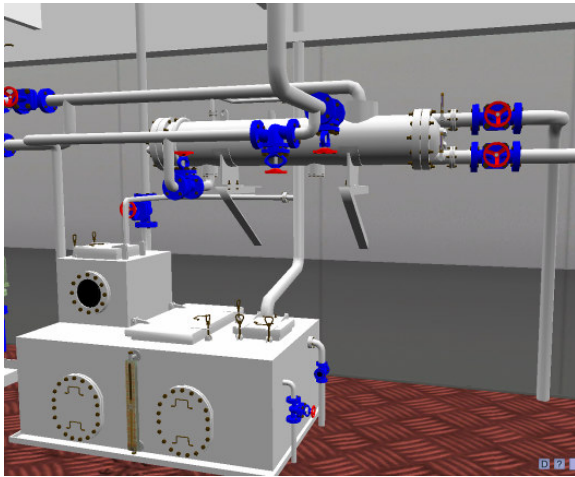
The simulator introduces 3D model of the Engine Room, based on the real equipment.
The 3D model includes very realistic, animated, virtual controls like switches, gauges and lamps.



The control panels have to imitate the most important parts of the control room equipment.
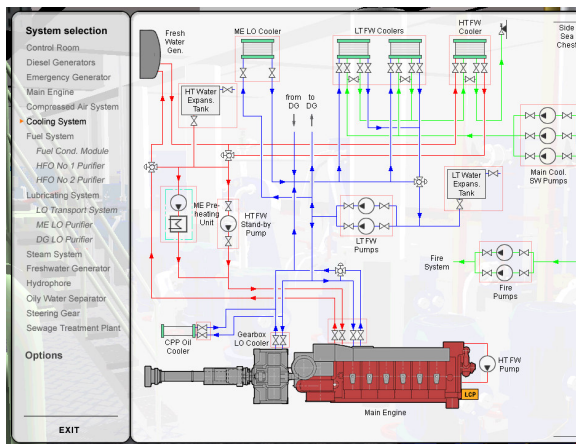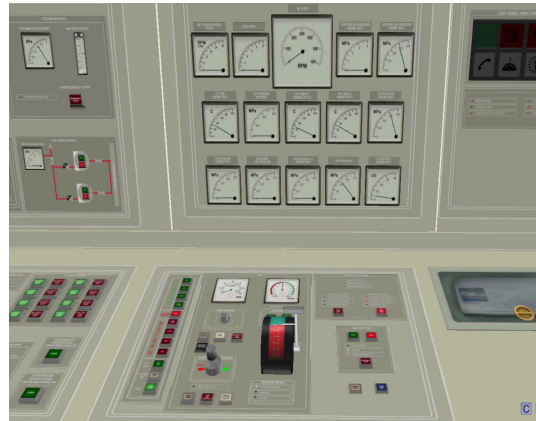


The mimic diagram provides possibility to zoom in the selected part of the engine room.

Zoom technique allows navigation in 3D environment and easy access to details.
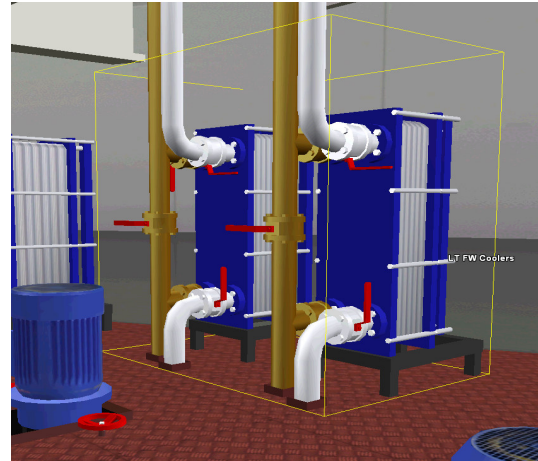


Electric Power Plant is equipped with modern Power Management System which enables automatic control of generators according to actual power demand.

Control room allows remote control of engine room equipment from computers.

Here is a list of MED3D main features:
- MED3D is a highly realistic simulator for ship's engine room training which can also be used as a low cost introductory simulator.
- The mathematical model simulates a typical ship's engine room with one 4-stroke, medium speed engines, reduction gear and controllable pitch propeller.
- All vital auxiliary systems have been implemented.
- The user interface includes virtual controls and alarms and creates very realistic environment.
- The 3D virtual reality with active valves, tank level indicators and selected digital gauges enable comfortable engine room operation and monitoring.
- Multichannel digitised sound provides a very realistic ships' engine room feel. The sound effects include: engine sound correlated with engine speed, the sound of a diesel generator starting and running, open indicator valve sound, alarm and machine telegraph buzzers.
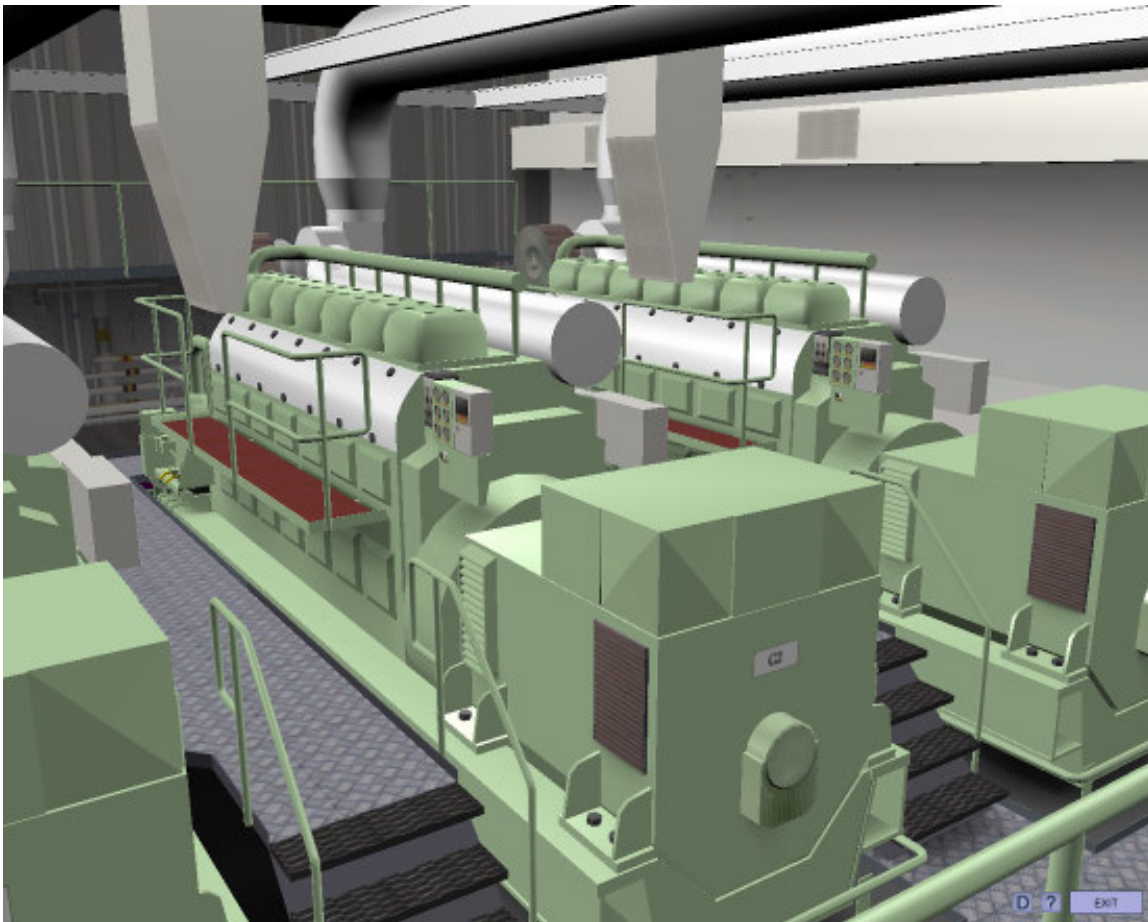


The main educational tasks which can be accomplished using MED have been listed below:
- Learning ship's engine room typical operating routines.
- Ship's engine room operation training. The user will have the possibility to accomplish any operational task starting from different setups, both pre-prepared and saved by a user.
- Corrective action learning when faults occur. Different faults can be simulated and mixed in the run-time or loaded from disk.