



# Electro-Technical Officer Practical Assessment

This MARINA-approved assessment package is a competency-based practical assessment provided to candidates for certification as Electro-Technical Officer on seagoing ships powered by main propulsion machinery of 750 kW propulsion power. It covers the standard of competence specified in Section A-III/6 of the STCW Code following the rules and mandatory minimum requirements in the assessment of competence of Electro-Technical Officers as stated in the MARINA STCW Circular No. 2018-09.

## Training Outcomes

- Monitor the parameters of the following systems.
  - Prime movers, including main propulsion plant.
  - Engine-room auxiliary machinery.
  - Steering systems.
  - Cargo handling systems.
  - Deck machinery.
  - Hotel system.
  - Heat transmission, mechanics and hydromechanics.
  - Electro-technology and electrical machines;
  - Electronics and power electronics;
  - Electrical power distribution boards and electrical equipment;
  - Automation, automatic control systems;
  - Instrumentation, alarm and monitoring systems;
  - Electrical drives;
  - Electrical materials;
  - Electro-hydraulic and electro-pneumatic control systems;
  - Cooling systems;
  - Lube oil systems;
  - Fuel oil systems;
  - Starting and control air systems; and
  - Heating systems;
- Operate computers and computer networks.
- Apply task and workload management.
- Apply decision-making techniques.
- Apply effective resource management;
- Couple an incoming generator to main switch board;
- Perform load sharing between two generators;
- Perform change over generators;
- Couple and break connection between a switch board and distribution panel;
- Use English in written and oral form;
- Operate all internal communication systems on board; and



- Test the function of monitoring systems, automatic control devices and protective devices
- Identify the hazards and precautions required for the operation of power systems above 1,000 volts.
- Carry-out safe operation of electrical equipment in excess of 1,000 volts AC.
- Carry-out safe maintenance of electrical equipment in excess of 1,000 volts AC.
- Fill-out a work permit.
- Apply the safe isolation procedures.
- Interpret electrical and electronic diagrams;
- Detect electrical malfunction, location of faults and measures to prevent damage;
- Operate electrical testing and measuring equipment; and
- Perform maintenance and repair of electrical system or equipment.
- Apply the safe isolation procedures.
- Demonstrate practical knowledge for testing, maintenance, fault finding and repair.
- Use of appropriate electrical and mechanical knowledge and skills;
- Test, detect faults and maintain and restore electrical and electronic control equipment to operating condition;
- Apply anti-pollution procedures and all associated equipment; and
- Employ proactive measures to protect the marine environment.
- Carry out safe maintenance and repair procedures.
- Detect machinery malfunction, locate faults and actions to prevent damage.
- Apply the safe isolation procedures.
- Demonstrate practical knowledge for testing, maintenance, fault finding and repair.
- Use of appropriate electrical and mechanical knowledge and skills; and
- Test, detect faults and maintain and restore electrical and electronic control equipment to operating condition.
- Carry out safe maintenance and repair procedures.
- Detect machinery malfunction, locate faults and actions to prevent damage.

## Qualifications

ETO Candidates by MARINA