



Australian Government

MARB049 Use internal communication systems, operate computers and computer networks on ships

Release: 1

MARB049 Use internal communication systems, operate computers and computer networks on ships

Modification History

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package

Application

This unit involves the skills and knowledge required to use internal communication systems, operate computers and computer networks on the ship.

It includes reviewing internal communication systems and computer networks, installing and maintaining the networks and systems on board a ship.

This unit applies to people working in the maritime industry in the capacity of:

- Electro-Technical Officer (STCW Electro-Technical Officer Unlimited)
- Engineer Class 1 (STCW Chief Engineer Unlimited)
- Engineer Class 2 (STCW Second Engineer Unlimited).

Licensing/Regulatory Information

Legislative and regulatory requirements are applicable to this unit.

- This unit is one of the requirements to obtain Australian Maritime Safety Authority (AMSA) certification as Electro-Technical Officer (STCW Electro-Technical Officer Unlimited), Engineer Class 1 (STCW Chief Engineer Unlimited) or Engineer Class 2 (STCW Second Engineer Unlimited) and to meet regulatory requirements this unit must be delivered consistent with Marine Orders and with the relevant sections of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).
- Those regulatory requirements include STCW International Maritime Organization (IMO) model course competencies and areas of knowledge, understanding and proficiency, together with the estimated total hours required for lectures and practical exercises. Teaching staff should note that timings are suggestions only and should be adapted to suit individual groups of trainees depending on their experience, ability, equipment and staff available for training.

Pre-requisite Unit

Not applicable.

Competency Field

B – Equipment Checking and Maintenance

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Review ship information technology devices

2. Manage maintenance of the computer network and internal communication systems

3. Maintain computer

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|------------|--|
| 1.1 | Current network requirements are determined from ship requirements and specifications |
| 1.2 | Ensure network is compatible with current shipboard work practices |
| 1.3 | Shipboard information technology devices are checked and handled in accordance with manufacturer specifications |
| 1.4 | Network data processing is evaluated in accordance with ship requirements and network capability |
| 2.1 | Computer network hardware and software control and security records are maintained in accordance with procedures |
| 2.2 | Network and internal communication faults are responded to and rectified in accordance with ship requirements |
| 2.3 | Major problems are reported in accordance with procedures |
| 2.4 | Software is filed and stored in accordance with procedures |
| 2.5 | Measured and testing devices are used to verify correct operation of network and systems |
| 3.1 | Information technology equipment is obtained and installed in accordance with ship requirements and |

networks on the ship	manufacturer specifications
	3.2 Proportional-integral-derivative (PID) controller, personal computer (PC)-based control systems and programmable logic controller (PLC) are adjusted in accordance manufacturer specifications
	3.3 New and updated software is installed in accordance with network requirements
	3.4 User network access is established effectively and efficiently
	3.5 Bridge and engine room information technology devices are maintained in accordance with industrial standards and manufacturer specifications
4. Transmit and receive messages	4.1 Transmission of messages are consistently undertaken in accordance with required internal communication protocols
	4.2 Reception of internal messages are acknowledged and actioned in accordance with internal communication protocols
	4.3 Clear and concise communication is used when using internal communication systems
5. Complete records	5.1 User and security records are maintained in accordance with shipboard confidentiality requirements
	5.2 Documentation and drawings are updated and processed in accordance with ship requirements

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume implementation guide can be found in VetNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>

Assessment Requirements for MARB049 Use internal communication systems, operate computers and computer networks on ships

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least four separate occasions and include:

- adjusting proportional-integral-derivative (PID) controller systems
- applying fault-finding methods to rectify faults in the following systems:
 - computer network systems
 - internal communication
- applying work health and safety (WHS)/occupational health and safety (OHS) requirements and electronic safe work practices
- checking and handling shipboard information technology devices in accordance with manufacturer specifications
- operating internal communication systems onboard a ship in accordance with required protocols.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- bridge-based, engine-room-based and commercial computer use, including:
 - construction and function of integrated navigation systems
 - purpose, construction and operation of ship fuel consumption optimising systems
 - purpose, structure and function of computer systems for critical equipment condition monitoring
 - purpose, structure and function of electronic alarm recorder
 - purpose, structure and function of programmable logic controller (PLC) or PLC-based power management systems
 - purpose, structure and function of PLC or PLC-based refrigeration systems
 - purpose, structure and function of PLC or PLC-based systems for fuel storage, transport and preparation
 - purpose, structure and function of voyage data recorder (VDR) system

- purpose, structure and functions of dynamic positioning system
- construction and use of computer networks on a ship, including:
 - internet and ethernet protocols
 - medium access methods, including master-slave, master-slave with cyclical polling, token ring, token ring with master-slave polling, carrier-sense multiple access/collision detection (CSMA/CD), carrier-sense multiple access/collision avoidance (CSMA/CA)
 - Profibus decentralised peripherals (DP) network, characterises nodes, structures, objects of configuration, programming of data exchange
- software licensing rights and responsibilities
- fault-finding methods and techniques
- features of computer networking
- hardware and software of digital enhanced cordless telecommunications (DECT) cordless phone system used on ships with advanced private automatic branch exchange (PABX)
- hardware, software and functions of pager system
- internal communication systems, including:
 - alarm systems
 - public address (PA) systems
 - talkback and intercom system
 - telephones:
 - automatic telephone system
 - sound powered telephone system
- main features of data processing
- metering and measuring equipment suitable for internal communication and computer networks systems
- operation of internal communication systems on board a ship
- personal computer (PC)-based control systems
- PID controller
- relevant industry standards and legislative requirements
- shipboard information technology, including:
 - computer networks
 - computers
 - electronic device capable of receiving information
- typical sound powered telephone network on ship
- typical talkback network on ship and its components for various environmental conditions
- WHS/OHS requirements, including electronic safe work practices.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the

time of assessment.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Practical assessment must occur in a workplace, or realistic simulated workplace, under the normal range of workplace conditions.

Simulations and scenarios may be used where situations cannot be provided in the workplace or may occur only rarely, in particular for situations relating to emergency procedures and adverse weather conditions where assessment would be unsafe, impractical or may lead to environmental damage

Resources for assessment must include access to:

- applicable documentation, such as legislation, regulations, codes of practice, safety management system (SMS), workplace procedures and operational manuals
- computer network with PID and PLC controllers
- tools, technology equipment, machinery, materials and personal protective equipment (PPE) currently used in industry.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>