QCF Unit and Assessment Specification

Unit title	Using and Communicating Technical Information
Ofqual Unit code	M/600/5790
SQA Unit code	FT2V 60
SSC Ref	Unit 80

History of changes

Publication date: March 2012

Version: completed by SQA

Version number	Date	Description	Authorised by

QCF Unit specification

Title	Using and Communicating Technical Information
Level	2
Credit value	4

Learning Outcomes **The learner will:**	**Assessment Criteria** **The learner can:**
1 Use and communicate technical information.	1.1 Use the approved source to obtain the required data, documentation or specifications. To include all of the following: ♦ check the currency and validity of the data and documentation used ♦ exercise care and control over the documents at all times ♦ correctly extract all necessary data in order to carry out the required tasks ♦ seek out additional information where there are gaps or deficiencies in the information obtained ♦ deal with or report any problems found with the data ♦ make valid decisions based on the evaluation of the engineering information ♦ return all documentation to the approved location on completion of the work ♦ complete all necessary production documentation. 1.2 Extract and interpret information from engineering drawings and other related documentation.

Learning Outcomes **The learner will:**	**Assessment Criteria** **The learner can:**
	1.3 Use information extracted from engineering documentation, to include one or more of the following: ♦ detailed component drawings ♦ general assembly drawings ♦ repair drawings ♦ fluid power drawings ♦ wiring/circuit diagrams ♦ installation drawings ♦ approved sketches ♦ illustrations ♦ visual display screens ♦ modification drawings ♦ sub-assembly drawings ♦ schematic diagrams ♦ fabrication drawings ♦ pattern drawings ♦ welding drawings ♦ casting drawings ♦ operational diagrams ♦ physical layouts ♦ manufacturers' manuals/drawings ♦ photographic representations ♦ contractual specifications. 1.4 Use information extracted from related documentation, to include two from the following: ♦ job instructions ♦ drawing instructions ♦ test schedules ♦ manufacturers' instructions ♦ welding procedure specifications ♦ material specifications ♦ finishing specifications ♦ reference tables/charts ♦ national, international and organisational standards ♦ planning documentation ♦ quality control documents ♦ operation sheets ♦ process specifications.

Learning Outcomes **The learner will:**	**Assessment Criteria** **The learner can:**
	1.5 Extract information that includes three of the following: ♦ materials or components required ♦ dimensions ♦ tolerances ♦ build quality ♦ installation requirements ♦ connections to be made ♦ surface texture requirements ♦ location/orientation of parts ♦ process or treatments required ♦ assembly sequence ♦ inspection requirements ♦ part numbers for replacement parts ♦ surface finish required ♦ weld type and size ♦ operations required ♦ shape or profiles ♦ test points to be used ♦ circuit characteristics (such as pressure, flow, current, voltage, speed).
2 Use and communicate further technical information.	2.1 Report any inaccuracies or discrepancies in the drawings and specifications. 2.2 Use the information obtained to establish work requirements. 2.3 Record and communicate the technical information by appropriate means to include three of the following methods: ♦ producing fully detailed sketches of work/circuits completed or required ♦ preparing work planning documentation ♦ recording data from testing activities ♦ producing technical reports on activities they have completed ♦ completing material and tool requisition documentation

Learning Outcomes The learner will:	Assessment Criteria The learner can:
	♦ producing a list of replacement parts required for a maintenance activity ♦ completing training records or portfolio references. 2.4 Deal promptly and effectively with problems within their control, and seek help and guidance from the relevant people if they have problems that they cannot resolve.
3 Know how to use and communicate technical information.	3.1 Describe the information sources used for the data and documentation that they use in their work activities (such as verbal, written, electronic). 3.2 Explain why technical information is presented in different forms (such as drawings, data sheets, and national and international standards). 3.3 Explain how and where to obtain the various documents that they will be using (such as safety handouts, drawings, planning documentation, work instructions, maintenance records, technical manuals and reference tables/charts), and how to check that they are current and valid. 3.4 Describe the types of engineering drawings used, and how they interrelate (such as isometric and orthographic drawings; assembly, sub-assembly and general arrangement drawings; circuit and wiring diagrams, block and schematic diagrams; fluid power and instrumentation and control diagrams).

Learning Outcomes The learner will:	Assessment Criteria The learner can:
	3.5 Describe the meaning of the different symbols and abbreviations found on the documents that they use (such as surface finish to be achieved, linear and geometric tolerances, electronic components, weld symbols and profiles, pressure and flow characteristics, torque values, imperial and metric systems of measurement, tolerancing and fixed reference points). 3.6 Explain how to use other sources of information to support the data (such as electronic component pin configuration specifications, standard reference charts for limits and fits, tapping drill reference charts, bend allowances required for material thickness, electrical conditions required for specific welding rods, mixing ratios for bonding and finishing materials, metal finishing specifications and inspection requirements). 3.7 Describe the procedures for reporting discrepancies in the data or documents, and for reporting lost or damaged drawings and documents.
4 Know how to use and communicate further technical information.	4.1 Describe the care and control procedures for the documents, how damage or graffiti on drawings can lead to scrapped work and the importance of returning them to the designated location on completion of the work activities. 4.2 Describe the typical ways of communicating technical information (such as sketches, test and inspection reports, work planning documents), and the amount of detail that should be included. 4.3 Describe the need to ensure that sketches are of a suitable size, use appropriate drawing conventions, are in proportion and are legible to others.

Learning Outcomes The learner will:	Assessment Criteria The learner can:
	4.4 Explain why it is important to use a fixed common reference point for dimensioning of drawings and sketches. 4.5 Explain when to act on their own initiative to find, clarify and evaluate information, and when to seek help and advice from others. 4.6 Explain why they should always seek clarification if they are in any doubt as to the validity or suitability of the information they have gathered. 4.7 Explain to whom they should report in the event of problems that they cannot resolve.

Additional information about the Unit

Unit purpose and aim(s)

To provide the learner with the practical communication skills and procedures required to undertake duties as an Electro-technical Officer on board a merchant vessel.

Unit expiry date

31 December 2014

Details of the relationship between the Unit and relevant national occupational standards (if appropriate)

Details of the relationship between the Unit and other standards or curricula (if appropriate)

CO1 — Monitor and operate engine room machinery, C11 — Prepare and operate vessel propulsion machinery and ancillary systems, C12 — Operate vessel auxiliaries and service machinery, C13 — Operate and adjust electrical equipment.

International Maritime Organisation (IMO) standards for training and certification for watchkeeping (stcw) requirements for an Electro-technical Officer at Operational Level.

Additional information about the Unit (cont)
Assessment requirements specified by a sector or regulatory body (if appropriate)
The performance evidence should be assessed in a workplace or simulated workplace environment. This Unit must be assessed in a work environment and must be assessed in accordance with the 'Common Requirements for National Vocational Qualifications (NVQ) in the QCF' which can be downloaded from Semta's website: **http://www.semta.org.uk/training_providers__awarding/national_occupational_standard/qca_assessment_requirements.aspx** Additional assessment requirements have been published by Semta. These additional assessment requirements are set down in Semta's Performing Engineering Operations Level 2 Unit assessment strategy which can be downloaded from Semta's website: **http://www.semta.org.uk/training_providers__awarding/national_occupational_standard/qca_assessment_requirements.aspx**
Endorsement of the Unit by a sector or other appropriate body (if required)
Maritime and Coastguard Agency (MCA)
Location of the Unit within the subject/sector classification system
4.1 Engineering
Name of the organisation submitting the Unit
EAL
Availability for use
Shared
Availability for delivery
September 2011
Guided Learning Hours
29

QCF Assessment specification

Assessment (evidence) Requirements
The following evidence is required to demonstrate that learners have the practical skills and procedures required to undertake duties as an Electro-technical Officer on board a merchant vessel. All Learning Outcomes and Assessment Criteria must be achieved. Written and/or recorded oral evidence is required for the following: ♦ Learning Outcomes 3 and 4 Performance evidence in the workplace or in an appropriate simulated environment is required for the following: ♦ Learning Outcomes 1 and 2 This could be achieved through the observation of learners undertaking practical exercises. An approved Maritime Skills Alliance (MSA) approved Training Record Book (TRB) should be used to record evidence of achievement.
Guidance on Instruments of Assessment
Performance evidence can be generated using an approved Maritime Skills Alliance (MSA) approved Training Record Book (TRB) and/or practical exercises. Short answer written questions and/or oral interview could be used for the other Outcomes and Assessment Criteria.