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| **MSQ Unit 95** | **QCF Ref: A/505/9342** |
| Title:  | **Introduction to Navigation**  |
| QCF Level: | **2** |
| Credit value: | **4** |
| **Learning outcomes - The learner will:** | **Assessment criteria - The learner can:** |
| 1. Know the effect of tides on navigation
 | 1.1 Describe the causes of spring and neap tides1.2 Explain how to use tide tables  |
| 1. Be able to calculate the effect of tides on navigation
 | 2.1 Calculate tide height 2.2 Describe the relevance of depth and air draft clearances2.3 Discuss the effects of tidal streams on vessels |
| 1. Know how to plot a course
 | 3.1 Describe types of chart projection3.2 Explain the uses of a gyro compass3.4 Describe the causes of compass variation and deviation |
| 1. Be able to plot a course
 | 4.1 Measure distances using the latitude scale4.2 Calculate a true course from a compass course |
| 1. Know the requirements for passage planning
 | 5.1 Describe the mandatory requirements for passage planning under ‘The International Convention for the Safety of Life at Sea’ (SOLAS) and contained within the ‘Safety of Navigation’ Chapter as amended5.2 Identify the sources of information to consult when passage planning. |
| 1. Be able to produce a passage plan
 | 6.1 For a given passage plan, describe the following influences to a safe passage :* under keel clearance
* air draft
* use of Vessel Traffic Services (VTS) and Trip Support Services (TSS)
* marine environmental protection areas
* appropriate speed

6.2 Describe which navigational aids would be used to assist in the execution of the passage plan, including position fixing and parallel indexing. |
| 1. Know how to calculate a course to steer
 | 7.1 Explain how to calculate an estimated position7.2 Describe how to improve on a dead reckoning position7.4 Describe the main functions of Electronic Chart Display Information Systems (ECDIS)7.5 Describe the uses of an Automatic Indication System (AIS)7.6 Describe the effect of weather forecasts on a planned course |
| 1. Know the functions and uses of electronic navigation aids
 | 8.1 Describe the functions of a Global Positioning System (GPS) 8.2 Identify the main potential GPS sources of error8.3 Describe the principles of radar operation8.4 Describe factors that influence radar accuracy8.6 Describe the functions of an Automatic Radio Plotting Aid (ARPA) 8.7 Describe the functions of a Mini Automatic Radar Plotting Aid (MARPA)8.8 Describe the functions of the Global Maritime Distress and Safety System (GMDSS) |
| **Additional information**  |
| Unit aim(s) | To enable learners to acquire underpinning knowledge relevant to the navigation of a vessel, which will provide a valuable basis for a career at sea in a variety of roles |
| Unit expiry date | February 2018 |
| Details of the relationship between the unit and relevant national occupational standards | Maritime NOS 2012: BO3 – plan a navigational voyage |
| Details of the relationship between the unit and other appropriate standards or curricula | MNTB/SFIA Underpinning Knowledge Library Documents |
| Assessment requirements specified by a sector or regulatory body | Assessment will be by a combination of the following methods – assignment; knowledge based testing; project work; presentation; practical demonstration; other, - as agreed by the external verifier |
| Endorsement of the unit by a sector or other appropriate body | Skills for Logistics, for the Maritime Skills Alliance |
| Location of the unit within the subject/sector classification system | Transportation operations and maintenance |
| Name of the organisation submitting the unit | SQA |
| Availability for use | unrestricted |
| Availability for delivery |  |
| Guided Learning Hours | 40 |