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| MSQ Unit 84 | QCF Ref: R/504/4250 |
| Title: | **Marine heat engine calculations** |
| QCF Level: | **3** |
| Credit value: | **4** |
| Learning outcomes - The learner will: | Assessment criteria - The learner can: |
| 1. Be able to calculate the power output from an internal combustion engine
 | * 1. Describe the heat flow into and out of an IC engine
	2. Explain how to obtain the mean effective pressure from an engine using indicator cards
	3. Explain the formulae for indicated power assembled for 2 and 4 stroke single acting engines
	4. Calculate the indicated and the brake, mean effective pressure for a given engine
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| 1. Be able to calculate the efficiency of an engine
 | * 1. Calculate the following:
* Mechanical efficiency of an engine
* Indicated thermal efficiency of an engine
* Brake thermal efficiency of an engine
	1. Calculate specific fuel consumption of an engine
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| **Additional information about the unit** |  |
| Unit aim(s) | To provide the knowledge and understanding of engineering thermodynamics applied to marine heat engines. |
| Unit expiry date |  |
| Details of the relationship between the unit and relevant national occupational standards (if appropriate) | MNTB NOS (Jan 2006) – C11 Prepare and operate vessel propulsion machinery and ancillary systems. C12 Operate vessel auxiliaries and service machineryC34 Carry out maintenance of vessel mechanical machinery and systems |
| Details of the relationship between the unit and other standards or curricula (if appropriate) | Maritime and Coastguard Agency Marine Guidance Notice regarding Certificates of Competency – Engine Department,  |
| Assessment requirements specified by a sector or regulatory body (if appropriate) | Maritime Skills Alliance Assessment StrategyMCA certification requirements |
| Endorsement of the unit by a sector or other appropriate body (if required) | MCA…. |
| Location of the unit within the subject/sector classification system | Transportation |
| Name of the organisation submitting the unit | Scottish Qualifications Authority |
| Availability for delivery |  |
| Guided Learning Hours | 36 |