

## ASSESSMENT MAPPING

<b>STCW Table:</b>	<b>Table A – III / 4</b>
<b>Title:</b>	<b>Specification of minimum standard of competence for ratings forming part of an engineering watch</b>

### Guidance Notes (Scoring)

Terms	Description
<b>Award</b>	<b>Bonus points, an integer within the range of 0 to 100. The default value is 0.</b>
<b>Penalty</b>	<b>Penalty points, an integer within the range of 0 to 100. The default value is 0.</b>
<b>Single</b>	<b>A rule is triggered in the scenario only once: the first time the conditions occur.</b>
<b>Circular</b>	<b>A rule is triggered every time the conditions occur.</b>
<b>Time</b>	<b>Time dependency ruling</b>
<b>Weight</b>	<b>Multiplier of a trainee's level of competency</b>

### Levels of Simulation

<b>Familiarization</b>	Familiar with the equipment, layout procedures, and routine task.
<b>Operational</b>	The task relates to the inputs and outputs and their relationship and has to do with the performance of a function.
<b>Functional</b>	The task relates to the functions or activities performed by the system without reference to which of the elements of the system perform those functions.
<b>Management</b>	Relates to the management of the combination of systems to perform a given job.
<b>Communication</b>	Relates to effective communication between human resources to report, get feedback, or to execute a task.
<b>Emergency</b>	Task performed in circumstances where there is variation or deviation from an expected scenario or situation.
<b>Crisis</b>	Task performed when the emergency has developed into a crisis.



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Competence	KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
<b>Function: Marine Engineering at the support level</b>							
<p><b>C1</b> Carry out a watch routine appropriate to the duties of a rating forming part of an engineering watch</p> <p><b>C2</b> Understand orders and be understood in matters relevant to watch relevant to watchkeeping duties</p>	<ul style="list-style-type: none"> <li>Terms used in machinery spaces and names of machinery and equipment</li> <li>Engine-room watchkeeping procedures</li> <li>Safe working practices as related to engine-room operations</li> <li>Basic environmental protection procedures</li> <li>Use of appropriate internal communication system</li> </ul>	Carry out watch routine, understand orders and be understood in matters relevant to watchkeeping duties in accordance with established watchkeeping procedures	<p><b>C1.1</b> Communications are clear and concise, and advice or clarification is sought from the officer of the watch where watch information or instructions are not clearly understood in doing the tasks or performing orders</p>	<ul style="list-style-type: none"> <li>The two-way radio or other internal communication system is utilized during the assessment</li> <li>The task is performed according to the instructions/order given by the assessor</li> <li>If in doubt, the candidates clarified the information from the assessor that is not clearly understood</li> <li>The task is based in carrying out relief, maintenance and hand over of the watch or other tasks in the assessment</li> </ul> <p>Equipment / Tools to be used:</p> <ol style="list-style-type: none"> <li>Two-way radio or telephone</li> </ol>	Award / Penalty Checklist	Familiarization Communication Operational	Actual laboratory equipment <b>and/or</b> approved simulator of steam boiler system



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	<ul style="list-style-type: none"> <li>• Engine-room alarm systems and ability to distinguish between the various alarms, with special reference to fire-extinguishing gas alarms</li> </ul>		<p><b>C1.2</b> Maintenance, hand over and relief of the watch is in conformity with accepted principles and procedures including familiarity with engine-room alarm systems</p>	<ul style="list-style-type: none"> <li>• The candidate shall carry out the following in accordance with shipboard engine room watchkeeping procedure:                             <ul style="list-style-type: none"> <li>* <b>Check level of important tanks</b></li> <li>* <b>Check and transfer bilges level if necessary</b></li> <li>* <b>Take note special job orders related to maintenance work or ship's operation</b></li> <li>* <b>Take note standing order from the chief engineer or company</b></li> </ul> </li> <li>• Recognize and report various engine room alarms with special reference to fire extinguishing gas alarms                             <ul style="list-style-type: none"> <li>* Common engine room alarms</li> <li>* Dead-man alarm</li> </ul> </li> </ul>			



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				* Fire alarm * CO2 Alarm * Abandon-ship alarm  Equipment / Tools to be used: 1. Pressure, temperature, and level gauges <u>or</u> similar equipment in approved 3D Simulator 2. Sample job order 3. Sample Chief Engr. standing order 4. Actual alarm system with buzzer and corresponding light or indication of that particular alarm similar onboard or simulator with such installations			
For keeping a boiler watch:  <b>C3</b> Maintain the correct water levels and steam pressures	Safe operation of boilers	Maintain the correct water levels and steam pressures	<b>C3.1</b> Assessment of boiler condition and parameters are accurate and based on relevant information available from local and remote indicators and physical inspections	The candidates shall monitor and read correctly the reading from either local, remote or physical indicators: <ul style="list-style-type: none"> <li>• Cascade tank Temperature</li> <li>• Feedwater Temperature</li> <li>• Cascade tank water Level</li> </ul>	Award / Penalty Checklist	Familiarization Communication	Actual laboratory equipment <u>and/or</u> approved simulator of steam boiler system



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				<ul style="list-style-type: none"> <li>• Water Drum Level</li> <li>• Steam Drum Pressure</li> <li>• Feedwater Pressure</li> <li>• Boiler Fuel Oil Pressure</li> <li>• Boiler Fuel Oil Temperature</li> <li>• Atomizing air/steam pressure</li> </ul> <p><b><u>(values and indicators depends on the type of equipment or simulator used)</u></b></p> <p>Equipment / Tools to be used:</p> <ol style="list-style-type: none"> <li>1. Steam boiler system</li> <li>2. Boiler pressure, temperature and level gauges <b>or</b> similar equipment in 3D Simulator</li> </ol>			
			<b>C3.2</b> Maintain correct steam drum pressure and water level	The candidate shall: <ul style="list-style-type: none"> <li>• Make sure feed pumps are in AUTO mode</li> <li>• Ensure Feedwater tank and cascade tank water supply are sufficient</li> <li>• Fuel valves are open</li> </ul>	Award / Penalty Checklist	Familiarization Functional Operational	Actual laboratory equipment <b>and/or</b> approved simulator of steam boiler



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				<ul style="list-style-type: none"> <li>Fuel temperature and pressure are maintained</li> <li>Burner in AUTO mode</li> </ul> <p><b><u>(procedure depends on the type of equipment or simulator used)</u></b></p>			system
			<p><b>C3.3</b> Observe correct sequence and timing of adjustments to maintain safety and optimum efficiency when starting the boiler</p>	<p>The candidate shall observe the following starting sequence of the boiler:</p> <ol style="list-style-type: none"> <li>Visually inspect boiler waterside and steamside. Handholes and manholes are closed</li> <li>Check feedwater tank, cascade tank level and water drum level are within normal range</li> <li>Open the forced draft damper. Start the force draft fan and purge the furnace for a few minutes</li> <li>Lines up fuel-oil system and start circulation to maintain firing temperature.</li> <li>Start boiler and place all in AUTO mode.</li> </ol>	Award / Penalty Checklist	Familiarization Functional Operational	Actual laboratory equipment <b><u>and/or</u></b> approved simulator of steam boiler system



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Operate emergency equipment and apply emergency procedures (C4)	<ul style="list-style-type: none"> <li>Knowledge of emergency duties</li> <li>Escape routes from machinery spaces</li> <li>Familiarity with the location and use of fire-fighting equipment in the machinery spaces</li> </ul>	Operate emergency equipment and apply emergency procedure	<b>C4.1</b> Initial action on becoming aware of an emergency or abnormal situation conforms with established procedures through knowledge of fire-fighting and emergency equipment and escape routes in machinery spaces and their location	<p><u>(procedure depends on the type of equipment or simulator used)</u></p> <p>Given the ship's fire plan, the candidate shall:</p> <p><b>1.1</b> The candidate shall at least identify 5 examples of fire-fighting or emergency equipment in the machinery spaces:</p> <ul style="list-style-type: none"> <li><b>Fire doors</b></li> <li><b>Fire Dampers</b></li> <li><b>Fire Pumps</b></li> <li><b>Fire Main Piping and Valves</b></li> <li><b>Fire Hose and Nozzles</b></li> <li><b>Fire Hydrants</b></li> <li><b>Portable Fire Extinguishers</b></li> <li><b>Fixed Fire extinguishing system</b></li> <li><b>Fire Detectors and Alarms</b></li> <li><b>Remote Shut and Stop System</b></li> <li><b>EEBD</b></li> <li><b>Means of Escape</b></li> <li><b>Fire Fighter's Outfit</b></li> </ul>	Award / Penalty Checklist	Familiarization	<p>Actual equipment with standard IMO safety symbols:</p> <ul style="list-style-type: none"> <li>Sample ship's fire plan (clearly printed in 4x3 ft. tarpaulin)</li> </ul>



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				<p>1.2 Locate engine-room escape routes and sketch the shortest open route or use an escape trunk, if so equipped, from a location as per assessor's discretion. from a location</p>			
			<p><b>C4.2</b> Communications are clear and concise at all times and orders are acknowledge in a seamanlike manner in donning the EEBD and putting the main or emergency pump in service</p>	<p>The candidate shall:</p> <p><b>2.1</b> Don correctly emergency escape breathing device (EEBD) or Emergency Life Saving Apparatus (ELSA) (<b><u>may differ depending on the model and type</u></b>):</p> <ol style="list-style-type: none"> <li>1. Read the instruction on the EEBD or ELSA bottle.</li> <li>2. Wear the hood or face mask provided with the EEBD</li> <li>3. Tighten the hood from bottom to avoid smoke or gases entering the face mask</li> </ol>	<p>Award / Penalty Checklist</p>	<p>Familiarization                      Functional                      Operational</p>	<p>Actual Equipment                      * EEBD or ELSA</p>





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				4. Ensure the face mask is clear and the visibility from the mask is good 5. Hang the portable cylinder onto your neck or as described in the instruction 6. Open the fresh air valve and check the pressure 7. Ensure the mask is properly fitted on the face and no smoke or gases are coming inside.  2.2 put main or emergency fire-pump in service  1. Checks or open all required suction and discharge valves; 2. Starts the pump; 3. Ensures the fire-pump discharge pressure rises to proper operating pressure;		Familiarization Operational	Actual equipment or an approved simulator of main or emergency fire pump



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				4. Checks the running condition of the pump and motor; 5. Properly secures the pump after using; <u>(procedure depends on the type of equipment or simulator used)</u>			