Guidance relating to all centre devised units for this qualification
The following guidance applies to all of the centre devised units listed. Where individual units require specific guidance, this is provided in the next section; Unit specific guidance.

Generic guidance for units:

Task Setting:
Each task will consist of
- planning and preparation
- carry out an appropriate risk assessment
- execution of the activity complying with current Health & Safety requirements and legislation
- inspection of the finished work
- recording and reporting on the completed task.

Specific guidance for each unit is given below.

In order to ensure all the knowledge requirements are covered, additional underpinning knowledge questions will need to be completed by the candidate.

City & Guilds has produced a set of questions for each unit. These should be treated as a separate assessment task and the standard forms used (i.e. fronted by GF2/3 if written of GF1 or alternative if oral).

Forms of Evidence:
It is expected that the following forms of evidence will be produced for these units:
- Candidate report (fronted by GF2/3) and discussion with assessor (recorded on GF1).
- Inspection report form including marked up diagrams (centre devised form or GF1).
- Report, either on pre-prepared pro forma supplied by the assessor, or a written report and assessor checklist (fronted by GF2/3).
- Written report to include planning of the task, annotated illustrations of the process (e.g. drawings, photographs). (Any illustrations must clearly state what the candidate is doing/did) and completed job card and/or inspection report (fronted by GF2/3).
- Photographic evidence or actual work piece (fronted by GF2/3).
All candidate produced material should be fronted by GF2/3 and any evidence recorded by the assessor should be on GF1, or where appropriate a centre devised alternative, or media recording. Audio or video (media) recordings must be securely saved as evidence, clearly identified as relating to the candidate in question and accessible to the I&EV).

**Conditions:**

**Practical tasks**
The assignment should take place in the workshops and classrooms of a centre with full facilities for boat-building and/or marine engineering activities, with all the appropriate equipment, relevant tools and consumables for working with boat-building and/or marine engineering materials.

**Underpinning knowledge questions**
The short answer underpinning knowledge questions must all be taken under supervised conditions as closed-book tests and must not be completed as homework.

This means that all the activities will be completed with the assessor, or other designated supervisor, present.

Strict exam regulations (e.g. JCQ ICE) do not apply; it is envisaged that most candidates will take the short answer questions in their normal learning environment with their own tutor present. Alternatively, assessors may ask the questions orally and record individual candidate’s responses on the assignment evidence recording form. In the event of a candidate failing the knowledge task, the whole task does not need to be re-taken. The assessor will need to make a judgement on the specific areas of knowledge/understanding that the candidate is weak and devise suitable alternative questions or tasks. It is expected that some feedback or reflection, further teaching or practice will be required so immediate resit is not appropriate.

Please note that the mark scheme is given for guidance purposes, and is not prescriptive. Assessor’s discretion as to the quality of answer is required, and alternative, recognised and acceptable answers can be considered if they fall within the scope of the question.

**Marking and grading criteria to be applied**
Please refer to the Generic Grading Criteria (GM2) for the detailed descriptors for pass, merit and distinction.

The following will apply for the below units:
Performance of techniques/methods/skills (PT)
Practical application of knowledge and understanding (AKU)
Knowledge (K)
Understanding (U)
Unit specific guidance
This guidance relates to the individual unit only and is in addition to any generic guidance specified for it above.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>204</td>
<td><strong>Title: Yacht &amp; Boatbuilding Assembly &amp; sub-assembly</strong></td>
</tr>
</tbody>
</table>

**Task Setting:**
The equipment to be worked on during the assignment should include the following:
- An actual or simulated yacht & boatbuilding assembly and sub assembly arrangement.
- Suitable material of sufficient size and quality to demonstrate marine industry standards and specifications required to produce yacht and boatbuilding assembly & sub assembly components.
- Suitable tools and equipment of sufficient quality to demonstrate marine industry standards and specifications required to produce yacht & boatbuilding assembly and sub assembly components.

Appropriate tasks will include
- Interpret drawings, data and specifications.
- Utilise information from the specifications to create a production schedule.
- Carry out an appropriate risk assessment.
- Produce moulds and templates and/or a cutting list to necessary for the production of assembly and sub-assembly components.
- Select and use a range of marine materials/ fasteners/adhesives/bedding compounds as specified in the unit’s assessment criteria range.
- Produce assembly and sub-assembly boat components using appropriate hand/power & machine tools.
- Install assembly and sub-assembly components using appropriate bracing/securing techniques.
- Finish assembly and sub-assembly boat components to comply with the specification.
- Check the assembly and sub-assembly meet the assessment criteria.
- Reinstate the work area.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>205</td>
<td><strong>Title</strong>: Production of external boat components</td>
</tr>
</tbody>
</table>

**Task Setting:**
The equipment to be worked on during the assignment must include one item from each of the following:

- An actual or simulated boat interior.
- Representative marine industry material of sufficient size to demonstrate the techniques utilised to interpret marine industry drawings/data/specifications and from those produce interior sub-assembly and ‘fit-out’ components.

Appropriate tasks will include:

- Interpret drawings, data and specifications to produce joiner’s rod, moulds and templates and/or a cutting list.
- Utilise information from the specifications, joiner’s rod, moulds and templates and/or a cutting list to create a production schedule.
- Carry out an appropriate risk assessment.
- Select and use a range of marine materials/fasteners/adhesives/bedding compounds as specified in the unit’s assessment criteria range.
- Produce external boat components using appropriate hand/power/machine tools.
- Install external components using appropriate bracing/securing techniques.
- Finish external boat components to comply with the specification.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>206</td>
<td>Title: Interior installation and fitting out of boats</td>
</tr>
</tbody>
</table>

**Task Setting:**
The equipment to be worked on during the assignment should include the following:
- Actual or simulated interior of a boat.
- Representative marine industry material of sufficient size and quality to demonstrate the techniques utilised to interpret marine industry drawings, data and specifications as required for the Interior installation and fitting out of boats.
- Appropriate hand tools power tools and woodworking machinery for the interior installation and fitting out of boats.

Appropriate tasks will include:
- Interpret drawings, data and specifications.
- Utilise information from the specifications to create a production schedule.
- Carry out an appropriate risk assessment.
- Produce moulds and templates and/or a cutting list to necessary for the production of internal boat components.
- Select and use a range of marine materials/fasteners/adhesives/bedding compounds as specified in the unit’s assessment criteria range.
- Produce components for the installation and fitting out of a boat using appropriate hand/power or machine tools.
- Install and finish interior boat components to comply with the specification.
- Check the installation of interior boat components meet the assessment criteria.
- Reinstate the work area.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>207</td>
<td>Title: Composite manufacture for marine construction.</td>
</tr>
</tbody>
</table>

**Sample assessment:**

**Task Setting:**
The equipment to be worked on during the assignment should include the following:
- Moulds and formers necessary for the manufacture of marine related composite components.
- Representative resins, reinforcements and ancillary materials used in the marine industry to demonstrate the techniques utilised to interpret marine industry drawings/data and specifications as required for the production marine related composite components.
- Appropriate hand tools, power tools and equipment for the working and production of marine related composites.

Appropriate tasks will include:
- Interpret drawings, data and specifications.
- Utilise information from the specifications to create a production schedule.
- Carry out an appropriate risk assessment.
- Produce moulds and templates necessary for marine composite manufacture.
- Select and use a range of resins, reinforcements, marine materials/fasteners/adhesives bedding compounds as specified in the unit’s assessment criteria range.
- Select and use a range of tools and equipment necessary for the application and consolidation of resins & reinforcements.
- Produce boat components using composite manufacturing techniques.
- Apply releasing techniques to remove component from mould.
- Test and check the component meet the assessment criteria.
- Reinstall the work area.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>208</td>
<td><strong>Title: Servicing and Maintenance of Marine Engines</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Task Setting:</strong></td>
</tr>
<tr>
<td></td>
<td>The equipment/facilities to be available during the assignment should include the following:</td>
</tr>
<tr>
<td></td>
<td>• Appropriate tools and testing equipment.</td>
</tr>
<tr>
<td></td>
<td>• Suitable working examples of a range of marine engines.</td>
</tr>
<tr>
<td></td>
<td>• A range of appropriate manufacturers specifications and data.</td>
</tr>
<tr>
<td></td>
<td>• A selection of appropriate consumable products (oils, oil/air filters, coolants).</td>
</tr>
</tbody>
</table>

Appropriate tasks will include:

• Interpret drawings, data and specifications.
• Utilise information from the specifications to create a servicing/maintenance schedule.
• Carry out an appropriate risk assessment.
• Select and use a range of tools and testing equipment necessary for servicing and maintenance of marine engines.
• Carry out servicing and maintenance tasks as appropriate.
• Check tasks completed meet required specifications.
• Identify and record results of task carried out.
• Reinstall the work area.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>209</td>
<td><strong>Title: Servicing and maintenance of marine propulsion systems</strong></td>
</tr>
</tbody>
</table>

**Graded:** pass/merit/distinction

**Sample assessment:**

**Task Setting:**
The equipment/facilities to be available during the assignment should include the following:

- Appropriate tools and testing equipment.
- Suitable working examples of a range of marine propulsion systems.
- A range of appropriate manufacturers specifications and data.
- A selection of appropriate consumable products.

Appropriate tasks will include:

- Interpret drawings, data and specifications.
- Utilise information from the specifications to create a servicing/maintenance schedule.
- Carry out an appropriate risk assessment.
- Select and use a range of tools and testing equipment necessary for servicing and maintenance of marine propulsion systems.
- Carry out servicing and maintenance tasks as appropriate.
- Check tasks completed meet required specifications.
- Identify and record results of task carried out.
- Reinstate the work area.
### Unit Details

<table>
<thead>
<tr>
<th>Unit</th>
<th>Title: Maintaining electrical marine engineering equipment and systems</th>
<th>Graded: pass/merit/distinction</th>
<th>Sample assessment:</th>
</tr>
</thead>
</table>

**Task Setting:**
The equipment/facilities to be available during the assignment should include the following:
- Appropriate tools and testing equipment required for maintaining electrical marine engineering equipment and systems.
- Suitable working examples of a range of electrical marine engineering equipment and systems.
- A range of appropriate manufacturers specifications and data.
- A selection of appropriate replacement/maintenance components (for example pumps, lighting, fuses, batteries, switches).

Appropriate tasks will include:
- Interpret drawings, data and specifications.
- Utilise information from the specifications to create a marine electrical maintenance schedule.
- Carry out an appropriate risk assessment.
- Select and use a range of tools and testing equipment necessary for servicing and maintenance of electrical marine engineering equipment and systems.
- Carry out maintenance tasks as appropriate.
- Check tasks completed meet required specifications.
- Identify and record results of task carried out.
- Reinstall the work area.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>211</td>
<td><strong>Title: Principles of marine electrical systems</strong></td>
</tr>
</tbody>
</table>

**Task Setting:**

The equipment/facilities to be available during the assignment should include the following:

- Appropriate tools and testing equipment required to demonstrate the function of basic electrical circuits and resistors.
- Suitable working examples of a range of electrical marine circuitry.
- A range of appropriate manufacturers specifications and data.
- A selection of appropriate components (for example breakers, fuses, resistors, capacitors, batteries, pcb’s).

Appropriate tasks will include:

- Interpret drawings, data and specifications.
- Utilise information from the specifications to create a marine electrical circuit.
- Carry out an appropriate risk assessment.
- Select and use a range of tools and testing equipment necessary for demonstrating the function of basic electrical circuits and resistors.
- Carry out relevant tasks associated with the principles of marine electrical systems.
- Check tasks completed meet required specifications.
- Identify and record results of task carried out.
- Reinstate the work area.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>212</td>
<td><strong>Title: Prepare surfaces and marine coatings</strong></td>
</tr>
</tbody>
</table>

**Task Setting:**

The equipment to be worked on during the assignment should include the following:

- Actual or simulated surfaces. Painted and unpainted of (wood, metals of ferrous and non ferrous composition, composite/FRP, ferrocement).
- Representative data and specifications used in the marine industry as required for the preparation of surfaces and marine coatings.
- Representative degreasing solvents, chemicals and ancillary materials used in the marine industry as required for the preparation of surfaces and marine coatings.
- Appropriate hand tools power tools and equipment for the working on and preparation of marine surfaces.

Appropriate tasks will include:

- Interpret instructions, data and specifications.
- Utilise information from the instructions, data and specifications to create a working schedule.
- Carry out an appropriate risk assessment.
- Select and use a range of preparation materials as specified in the unit’s assessment criteria range.
- Select and use a range of tools and equipment necessary for the preparation of surfaces to take marine coatings.
- Select, mix and prepare marine coatings as specified in the assessment criteria range.
- Test and check that the surface preparation of substrates and the mixing of marine coatings meet the assessment criteria.
- Reinstate the work area.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>213</td>
<td><strong>Title:</strong> Apply Marine Coatings</td>
</tr>
</tbody>
</table>

**Task Setting:**
The equipment to be worked on during the assignment should include the following:
- Actual or simulated surfaces. Painted and unpainted of (wood, metals of ferrous and non-ferrous composition, composite/FRP, ferro-cement).
- Representative data and specifications used in the marine industry as required for the application of marine coatings.
- Representative range of marine coatings and ancillary materials used in the marine industry as required for the application of marine coatings.
- Appropriate application equipment for marine coatings.

Appropriate tasks will include:
- Interpret instructions, data and specifications.
- Utilise information from the instructions, data and specifications to create a working schedule.
- Carry out an appropriate risk assessment.
- Select, mix and prepare marine coatings as specified in the assessment criteria range.
- Select and use a range of application tools and equipment required for marine coating operations.
- Apply marine coatings as specified in the unit’s assessment criteria range.
- Test and check the marine coatings meet the assessment criteria.
- Reinstate the work area.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>304</td>
<td>Title: Construction and repair of hulls and boat structures</td>
</tr>
</tbody>
</table>

**Task Setting:**
The equipment to be worked on during the assignment must include one item from each of the following:
- An actual or simulated hull/boat structure.
- Representative marine industry material of sufficient size to demonstrate the techniques utilised to interpret marine industry drawings/data/specifications and from those produce structural hull/boat components.

Appropriate tasks will include:
- Interpret drawings, data and specifications to determine materials required and produce a cutting list.
- Utilise information from the drawings, data, specifications and/or a cutting list to create a production schedule.
- Carry out an appropriate risk assessment.
- Transfer interpreted data onto materials to produce moulds, templates or jigs as required.
- Produce structural hull/boat components using appropriate hand/power/machine tools.
- Select and use a range of marine fasteners/adhesives/bedding compounds as specified in the unit’s assessment criteria range.
- Install structural hull/boat components using appropriate bracing/securing techniques.
- Finish structural hull/boat components to comply with the drawings/data/specification.
- Reinstate the work area.
### Unit Details

<table>
<thead>
<tr>
<th>Unit</th>
<th>Title: Producing and fitting structural boat components</th>
<th>Graded: pass/merit/distinction</th>
<th>Sample assessment:</th>
</tr>
</thead>
</table>

#### Task Setting:

The equipment to be worked on during the assignment should include the following:

- An actual or simulated structural boat component.
- Representative marine industry material of sufficient size to demonstrate the techniques utilised to interpret marine industry drawings/data/specifications required for the production and fitting of structural boat components.

Appropriate tasks will include:

- Interpret drawings, data and specifications to produce joiner’s rod and/or a cutting list.
- Utilise information from the specifications, joiner’s rod and/or a cutting list to create a production schedule.
- Carry out an appropriate risk assessment.
- Produce structural sub-assembly and/or fit-out boat components using appropriate hand/power/machine tools.
- Select and use a range of marine materials/fasteners/adhesives/bedding compounds as specified in the unit’s assessment criteria range.
- Install structural sub-assembly and/or fit-out boat components using appropriate bracing/securing techniques.
- Finish structural sub-assembly and/or fit-out boat components to comply with the specification.
- Reinstate the work area.
### Task Setting:

The equipment to be worked on during the assignment should include one item from each of the following:

- An actual or simulated vessel.
- Representative marine industry materials required to establish reinstatement requirements when servicing, repairing and maintaining boats.

Appropriate tasks will include:

- Utilise appropriate sources of information, inspections and tests to establish the reinstatement options available.
- Produce a reinstatement schedule taking into account the variables of time, materials, equipment costs and human resources.
- Carry out an appropriate risk assessment.
- Carry out reinstatement procedures while ensuring that minimal damage is caused to the surrounding area and the structural integrity of the hull is not compromised.
- Disposal of any waste products taking into account current applicable legislation.
- Carry out any pre/post reinstatement recording procedures to comply with the requirements laid down by manufacturers, regulating authorities or government bodies.
## Unit Details

<table>
<thead>
<tr>
<th>Task Setting:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The equipment to be worked on during this assignment should include the following:</td>
</tr>
<tr>
<td>• Plugs, moulds and formers necessary for the production of fibre reinforced plastic marine components.</td>
</tr>
<tr>
<td>• Representative drawings specifications and data used in the marine industry for the production marine related fibre reinforced components.</td>
</tr>
<tr>
<td>• Representative resins, catalysts, pigments, reinforcements, fillers and ancillary materials used in the marine industry for the production marine related fibre reinforced components.</td>
</tr>
<tr>
<td>• Appropriate hand tools power tools and equipment for the working and production of fibre reinforced plastic marine components.</td>
</tr>
</tbody>
</table>

### Appropriate tasks will include:

- Interpret drawings, data and specifications.
- Utilise information from the specifications to create a production schedule.
- Carry out an appropriate risk assessment.
- Produce plugs, moulds and templates necessary for the production of marine fibre reinforced plastic components.
- Select, measure weigh, mix and use a range of resins, catalysts, pigments fillers and reinforcements.
- Select and use a range of tools and equipment necessary for the application, consolidation forming and trimming of resins & reinforcements.
- Produce boat components using fibre reinforced plastics techniques.
- Apply releasing techniques to remove FRP components from moulds.
- Test and check that the components meet the assessment criteria.
- Reinstall the work area.
### Unit details

<table>
<thead>
<tr>
<th>Unit</th>
<th>Title: Installation and repair of vessel services</th>
<th>Graded: pass/merit/distinction</th>
<th>Sample assessment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Task Setting:**
The equipment/facilities to be available during the assignment should include the following:
- Appropriate tools and testing equipment.
- A range of appropriate manufacturers specifications and data.
- Suitable working examples of service equipment (black water system, grey water system, air conditioning).
- A selection of appropriate service/consumable components.

Appropriate tasks will include:
- Interpret drawings, data and specifications.
- Utilise information from the specifications to create an installation/repair schedule.
- Carry out an appropriate risk assessment.
- Select and use a range of tools and testing equipment necessary for the installation and repair of vessel services.
- Carry out installation and repair of vessel services in accordance with manufacturer’s specifications.
- Check tasks completed meet required specifications.
- Identify and record results of task carried out.
### Unit details

<table>
<thead>
<tr>
<th>Unit</th>
<th>Title: Installation and repair of marine engines</th>
<th>Graded: pass/merit/distinction</th>
<th>Sample assessment:</th>
</tr>
</thead>
</table>

#### Task Setting:

The equipment/facilities to be available during the assignment should include the following:
- Appropriate tools and testing equipment.
- Suitable working examples of a range of marine engines.
- A range of appropriate manufacturers specifications and data.
- A selection of appropriate installation and repair components.

Appropriate tasks will include:
- Interpret drawings, data and specifications.
- Utilise information from the specifications to create a servicing/maintenance schedule.
- Carry out an appropriate risk assessment.
- Select and use a range of tools and testing equipment necessary for installation and repair of marine engines.
- Carry out installation and repair tasks as appropriate.
- Check tasks completed meet required specifications.
- Identify and record results of task carried out.
## Task Setting:
The equipment/facilities to be available during the assignment should include the following:
- Appropriate tools and testing equipment.
- Suitable working examples of a range of marine propulsion systems.
- A range of appropriate manufacturers specifications and data.
- A selection of appropriate consumable products.

Appropriate tasks will include:
- Interpret drawings, data and specifications.
- Utilise information from the specifications to create a schedule for the installation and repair of marine propulsion systems.
- Carry out an appropriate risk assessment.
- Select and use a range of tools and testing equipment necessary for the installation and repair of marine propulsion systems.
- Carry out installation and repair tasks as appropriate.
- Check tasks completed meet required specifications.
- Identify and record results of the tasks carried out.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>311</td>
<td><strong>Title:</strong> Installing electrical wiring support systems on boats</td>
</tr>
</tbody>
</table>

**Sample assessment:**

<table>
<thead>
<tr>
<th>Task Setting:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The equipment/facilities to be available during the assignment should include the following:</td>
</tr>
<tr>
<td>• Appropriate tools and testing equipment required for installing electrical wiring support systems on boats.</td>
</tr>
<tr>
<td>• Suitable working examples of a range of electrical wiring support systems.</td>
</tr>
<tr>
<td>• A range of appropriate manufacturers specifications and data.</td>
</tr>
<tr>
<td>• A selection of appropriate components for the installation of electrical wiring and support systems (for example terminal blocks, crimp connectors, earthing devices, cable connectors).</td>
</tr>
</tbody>
</table>

Appropriate tasks will include:

| • Interpret drawings, data and specifications. |
| • Utilise information from the specifications to create a schedule for the installation of electrical wiring support systems. |
| • Carry out an appropriate risk assessment. |
| • Select and use a range of tools and testing equipment necessary for the installation of electrical wiring support systems. |
| • Carry out the installation of electrical wiring support systems as appropriate. |
| • Check that installation tasks completed meet required specifications. |
| • Identify and record results of tasks carried out. |
| • Reinstate the work area. |
### Unit 312: Principles of marine electrical engineering

**Graded:** pass/merit/distinction

**Sample assessment:**

<table>
<thead>
<tr>
<th>Task Setting:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The equipment/facilities to be available during the assignment should include the following:</td>
<td></td>
</tr>
<tr>
<td>• Appropriate tools and testing equipment required to demonstrate the principles of marine electrical engineering.</td>
<td></td>
</tr>
<tr>
<td>• Suitable working examples of a range of electrical distribution, supply and storage systems.</td>
<td></td>
</tr>
<tr>
<td>• A range of appropriate manufacturers specifications and data.</td>
<td></td>
</tr>
<tr>
<td>• A selection of appropriate components (for example shore cables, consumer units, engine driven alternators, split charge relays, battery demand operated plant, high energy LED luminaries).</td>
<td></td>
</tr>
</tbody>
</table>

**Appropriate tasks will include:**

- Interpret drawings, data and specifications.
- Utilise information from the specifications to demonstrate the principles of marine electrical engineering.
- Carry out an appropriate risk assessment.
- Select and use a range of tools and testing equipment necessary for demonstrating the principles of marine electrical engineering.
- Carry out relevant tasks associated with the principles of marine electrical engineering.
- Check tasks completed meet required specifications.
- Identify and record results of task carried out.
- Reinstate the work area.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>313</td>
<td>Title: Principles of integrated marine electronic navigation systems</td>
</tr>
</tbody>
</table>

**Task Setting:**
The equipment/facilities to be available during the assignment should include the following:
- Appropriate tools and testing equipment required to demonstrate the principles of integrated marine electronic navigation systems.
- Suitable working examples of integrated marine electronic navigation systems.
- A range of appropriate manufacturers specifications and data.
- A selection of appropriate integrated marine electronic navigation system components (for example bulkhead mounted instruments, chart plotters, depth instruments and fish finders, position finding systems, autopilots, satellite communications).

Appropriate tasks will include:
- Interpret drawings, data and specifications.
- Utilise information from the specifications to demonstrate the principles of integrated marine electronic navigation systems.
- Carry out an appropriate risk assessment.
- Select and use a range of tools and testing equipment necessary for demonstrating the principles of integrated marine electronic navigation systems.
- Carry out relevant tasks associated with the principles of integrated marine electronic navigation systems.
- Check tasks completed meet required specifications.
- Identify and record results of task carried out.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit details</th>
</tr>
</thead>
<tbody>
<tr>
<td>314</td>
<td><strong>Title: Prepare surfaces and marine coatings</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Task Setting:</strong></td>
</tr>
<tr>
<td></td>
<td>The equipment to be worked on during this assignment should include the following:</td>
</tr>
<tr>
<td></td>
<td>- Actual or simulated surfaces. Painted and unpainted of (wood, metals ferrous and non ferrous, composite/FRP, ferro-cement).</td>
</tr>
<tr>
<td></td>
<td>- Representative data and specifications used in the marine industry as required for the preparation of surfaces and marine coatings.</td>
</tr>
<tr>
<td></td>
<td>- Representative degreasing solvent, chemicals and ancillary materials used in the marine industry as required for the preparation of surfaces and marine coatings.</td>
</tr>
<tr>
<td></td>
<td>- Appropriate hand tools power tools and equipment for the working on and preparation of marine surfaces.</td>
</tr>
<tr>
<td></td>
<td><strong>Appropriate tasks will include:</strong></td>
</tr>
<tr>
<td></td>
<td>- Interpret instructions, data and specifications.</td>
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<tr>
<td></td>
<td>- Utilise information from the instructions, data and specifications to create a working schedule.</td>
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<tr>
<td></td>
<td>- Carry out an appropriate risk assessment.</td>
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<td></td>
<td>- Select and use a range of materials as specified in the unit’s assessment criteria range.</td>
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<tr>
<td></td>
<td>- Select and use a range of tools and equipment necessary for the preparation of surfaces to take marine coatings.</td>
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<tr>
<td></td>
<td>- Select, mix and prepare marine coatings as specified in the assessment criteria range.</td>
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<td>- Test and check the surface preparation of surfaces and the mixing of marine coatings meet the assessment criteria.</td>
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<td></td>
<td>- Reinstate the work area.</td>
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</tbody>
</table>
### Unit details

<table>
<thead>
<tr>
<th>Unit</th>
<th>Title: Apply marine coatings</th>
<th>Graded: pass/merit/distinction</th>
<th>Sample assessment: yes</th>
</tr>
</thead>
</table>

#### Task Setting:
The equipment to be worked on during this assignment should include the following:
- Actual or simulated surfaces. Painted and unpainted of (wood, metals ferrous and non ferrous, composite/FRP, ferro-cement).
- Representative data and specifications used in the marine industry as required for the application of marine coatings.
- Representative range of marine coatings and ancillary materials used in the marine industry as required for the application of marine coatings.
- Appropriate hand or spray application equipment for marine coatings.

Appropriate tasks will include:
- Interpret instructions, data and specifications.
- Utilise information from the instructions, data and specifications to create a working schedule.
- Carry out an appropriate risk assessment.
- Select mix and prepare marine coatings as specified in the assessment criteria range.
- Select and use a range of tools and application equipment for marine coatings.
- Apply marine coatings as specified in the unit’s assessment criteria range.
- Test and check the marine coatings meet the assessment criteria.
- Reinstate the work area.