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| Module Title: | Project 2 (Mechanical) |
| Language of Instruction: | English |
| Credits: | 5 |
| NFQ Level: | 6 |
| Module Delivered In | 2 programme(s) |
| Teaching & Learning Strategies: | This module will be taught by mechanical workshop training sessions using approved materials and work practices. Exemplar manufacturing projects include a depth gauge, a toolmakers clamp, and a hand-held engine which runs on compressed air. And end-of-term practical will additionally measure the level of autonomous workshop ability. |
| Module Aim: | The aim of this module is to introduce a student to the mechanical workshop environment. On completion of this module, the student will have the required practical knowledge to read and understand basic 2D and 3D engineering mechanical drawings, to be able to recognise various engineering materials, to select the correct material for a particular purpose, to use hand and machine tools proficiently, to be competent in the use of measuring equipment, to know how to carry out a number of processes, such as Hand Fabrication, Turning, Milling, and Drilling, to be able to measure, assemble, and test the manufactured pieces, and to be aware of the need for a safe working environment at all times. |
| Learning Outcomes | |
| <i>On successful completion of this module the learner should be able to:</i> | |
| LO1 | Interpret mechanical drawings presented in 2D and 3D format |
| LO2 | Use hand and measuring tools to mark-up work-pieces within defined tolerances. |
| LO3 | Identify common engineering materials, know their individual properties, composition, uses, sustainability and ethical application. |
| LO4 | Set up and execute turning, milling, and drilling, and hand-machining operations, working to provided tolerances while adhering to safe working practices. |
| LO5 | Apply health and safety requirements in a workshop environment. |
| Pre-requisite learning | |
| Module Recommendations <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i> | |
| No recommendations listed | |
| Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i> | |
| No incompatible modules listed | |
| Co-requisite Modules | |
| No Co-requisite modules listed | |
| Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i> | |
| None | |

Module Content & Assessment
Indicative Content
Engineering Drawings

Interpretation of all dimensions and materials identified on a drawing Marking out all appropriate measurements on the work pieces
Manufacturing methods and materials used to complete each work piece

Health & Operational Safety

Maintenance of a neat and tidy workspace at all times Relevant safety procedures Personal protective equipment where necessary

Hand Tools

Safety and careful use of all hand tools as instructed Identification of damaged/unadjusted tools and appropriate actions Safety equipment and tool guards as necessary correct reset and storage of each tool after use

Power Tools

Safe and careful use of all power tools as instructed Identification of damaged/unadjusted machines and appropriate actions Safety equipment and machine guards as necessary Correct reset and cleaning of each machine after use

Preparation for manufacture

Facing, planing, punching, scribing and marking out of stock material to aid manufacture of assessed components.

Manufacture of metallic components for assessment.

Manufacture of project components using appropriate hand and power tools, lathes and milling machines in order to produce components with flat, angled surfaces with holes/slots and cylindrical components with concentric holes/bores. Examples may be the likes of a simple depth gauge, male to female cylindrical fittings, a toolmakers clamp and a compressed air engine.

Assembly & Test Procedures

Standard tools, fasteners and maintenance techniques Effective assembly of workpiece without using excessive force Manufacture and operational testing of completed components

Tasks Cards

Clear, concise written description of all steps taken during each task Completion of a project logbook and/or task cards as appropriate

| Assessment Breakdown | % |
|----------------------|--------|
| Project | 80.00% |
| Practical | 20.00% |

No Continuous Assessment

Project

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------|---|-------------------|------------|-----------------|
| Project | Project Assessments will be practical assignment / project based. Individual feedback will be provided throughout the semester. | 1,2,3,4,5 | 80.00 | Week 12 |

Practical

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------------------|---|-------------------|------------|-----------------|
| Practical/Skills Evaluation | Students must complete an in-workshop practical test. | 1,2,3,4,5 | 20.00 | End-of-Semester |

No End of Module Formal Examination

No Continuous Assessment

Project

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------|---|-------------------|------------|-----------------|
| Project | Project Assessments will be practical assignment / project based. | 1,2,3,4 | 80.00 | Week 12 |

Practical

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------------------|---|-------------------|------------|-----------------|
| Practical/Skills Evaluation | Students must complete an in-workshop practical test. | 1,2,3,4 | 20.00 | End-of-Semester |

No End of Module Formal Examination

Module Workload

| Workload: Full Time | | |
|----------------------------|--------------------|--|
| <i>Workload Type</i> | <i>Frequency</i> | <i>Average Weekly Learner Workload</i> |
| Practicals | 12 Weeks per Stage | 4.00 |
| Independent Learning | 15 Weeks per Stage | 5.13 |
| Total Hours | | 125.00 |

Module Delivered In

| Programme Code | Programme | Semester | Delivery |
|----------------|--|----------|-----------|
| CW_EEAER_B | Bachelor of Engineering (Honours) in Aerospace Engineering | 4 | Mandatory |
| CW_EEACS_D | Bachelor of Engineering in Aircraft Systems | 4 | Mandatory |