

|  |   |                        |  |
|--|---|------------------------|--|
| Module Title:  | Design and Manufacture  |                        |  |
| Language of Instruction:   | English   |                        |  |
| Credits:   | 5   |                        |  |
| NFQ Level:   | 6   |                        |  |
| Module Delivered In  | No Programmes   |                        |  |
| Teaching & Learning Strategies:  | Lectures, demonstrations, research, project work and some study will be used to ensure the student has a wide range of experiences.           |                        |  |
| Module Aim:  | The aim of this module is to provide students with an in depth understanding of manufacturing, the design process and computer aided methods. |                        |  |
| Learning Outcomes  |   |                        |  |
| On successful completion of this module the learner should be able to:                                       |   |                        |  |
| LO1  | Manufacture components in a workshop environment in a safe manner.  |                        |  |
| LO2  | Select the appropriate fabrication, shaping and fastening process required in the manufacture of components and/or assemblies.                |                        |  |
| LO3  | Understand and apply welding technologies   |                        |  |
| LO4  | Outline measurement and inspection procedures.  |                        |  |
| Pre-requisite learning   |   |                        |  |
| Module Recommendations   |   |                        |  |
| This is prior learning (or a practical skill) that is recommended before enrolment in this module.           |   |                        |  |
| 6427   | MANU H2602  | Design and Manufacture |  |
| Incompatible Modules   |   |                        |  |
| These are modules which have learning outcomes that are too similar to the learning outcomes of this module. |   |                        |  |
| No incompatible modules listed   |   |                        |  |
| Co-requisite Modules   |   |                        |  |
| No Co-requisite modules listed   |   |                        |  |
| Requirements   |   |                        |  |
| This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.  |   |                        |  |
| No requirements listed   |   |                        |  |

**Module Content & Assessment**

**Indicative Content**

• **Manufacturing**

o Manufacturing methods. o Sustainable manufacturing. o The use of computer aided methods. o Computer numerical control o Rapid Prototyping - 3D Printing

• **Workshop safety and risk assessment.**

o Understand the procedures for conducting a risk assessment of a workplace o Understand the procedures for conducting a risk assessment of a new piece or modified piece of machinery o Machinery Directive and International Standards of machine design

• **Welding Technology**

o Detailed instruction including MMA, TIG, MIG, Ultrasonic, laser and various resistance welding processes o Weld joint preparation, inspection and safety according to BS 499 o Current welding procedures and standards for accrediting welded structures

• **Measurement and Inspection**

o Understand the operation of mechanical, optical, pneumatic, electrical and electronic comparators. o Understand and carry out the measurement of screw thread and gear teeth. o Surface texture in terms of BS 1134 and BS 2634

| Assessment Breakdown  | %      |
|-----------------------|--------|
| Continuous Assessment | 30.00% |
| Practical             | 70.00% |

**Continuous Assessment**

| Assessment Type | Assessment Description  | Outcome addressed | % of total | Assessment Date   |
|-----------------|---|-------------------|------------|-------------------|
| Other           | A number of written examinations will assess the extent to which the student has achieved the module learning outcomes Written Reports and Group Presentations on course related topics with respect to application in Industry | 1,2,3,4           | 30.00      | Every Second Week |

No Project

**Practical**

| Assessment Type             | Assessment Description   | Outcome addressed | % of total | Assessment Date   |
|-----------------------------|--|-------------------|------------|-------------------|
| Practical/Skills Evaluation | Workshop assignments & project of students own choice, Laboratory design reports and projects, End of term practical exam - Christmas & Summer | 1,2,3,4           | 70.00      | Every Second Week |

No End of Module Formal Examination

**SETU Carlow Campus reserves the right to alter the nature and timings of assessment**

**Module Workload**

| <b>Workload: Full Time</b> |                  |  |
|----------------------------|------------------|--|
| <i>Workload Type</i>       | <i>Frequency</i> | <i>Average Weekly<br/>Learner Workload</i> |
| Lecture                    | Every<br>Week    | 1.00                                       |
| Laboratory                 | Every<br>Week    | 2.50                                       |
| Estimated Learner Hours    | Every<br>Week    | 3.00                                       |
| Total Hours                |                  | 6.50                                       |

