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| Module Title: | Farm Mechanisation and Regulations |
| Language of Instruction: | English |
| Credits: | 5 |
| NFQ Level: | 6 |
| Module Delivered In | No Programmes |
| Teaching & Learning Strategies: | Content will be delivered based around lectures, visits to farms and machinery dealerships to see machinery in action and group discussions and practical sessions. Guest lectures by farm machinery contractors, bank advisers and farmers on the selection and use of farm machinery. Special attention will be given to Health and Safety aspects of machinery operation and maintenance. |
| Module Aim: | The aim of this module is to provide learners with an insight into the main types of farm machinery in use on Irish farms. Students will be introduced to the operation and maintenance of engines and motors (diesel, petrol, electric and hydraulic). Students will also learn how to calibrate various farm machinery, optimising their use. The module will develop learners' awareness of the most economical means of procuring and operating machinery or machinery services, while also introducing learners to the legal requirements and the health and safety regulations governing the operation of farm machinery. |

| Learning Outcomes | |
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| <i>On successful completion of this module the learner should be able to:</i> | |
| LO1 | Explain and illustrate how engines and motors (diesel, petrol, electric, hydraulic) work, the energy characteristics of different agricultural equipment and the influence of soil conditions on their operation and maintenance requirements. |
| LO2 | Demonstrate a knowledge and understanding of the wide range of agricultural machinery applying to both tillage and livestock based enterprises. Students will be expected to critique the energy consumption of various agricultural practices and how to reduce this consumption. |
| LO3 | Demonstrate knowledge, understanding and critical awareness of precision farming techniques and instruments, their advantages and disadvantages. |
| LO4 | Explain the various regulations governing the operation and maintenance of farm machinery, both on the farm and on public roads, with special attention to Health and Safety Regulations. |
| LO5 | Illustrate and discuss the running costs and overhead costs of typical farm machinery and how machinery is financed and operated most economically. |

| Pre-requisite learning |
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| 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> |
| No requirements listed |

Module Content & Assessment

| Indicative Content |
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| Farm Machinery Types • Understanding the machinery types associated with different streams of agriculture including tillage, dairy, dry stock, pigs and poultry • Slurry spreading laws and their impact on waste storage |
| Regulations Governing the Use of Farm Machinery • Introduce the learners to the subject of health and safety regulations regarding farm machinery operation. |
| Financial Aspects of Farm Machinery Operation • Understanding the true costs of procurement, maintenance and operation of machinery including taxation • Leasing v. Purchasing Options, advantages and disadvantages of each • Costing of agricultural contractor services against ownership • Depreciation of machinery • Energy saving through conservation agriculture • Sourcing of second-hand rather than new machinery |
| Understanding how machinery works • Understanding how diesel and petrol engines, electric motors, hydraulic systems work, their energy requirements and how they are maintained. • Understanding of equipment and instruments used in precision farming, including Global Positioning Satellite (GPS) instruments and their operation. |

| Assessment Breakdown | % |
|----------------------------------|--------|
| Continuous Assessment | 30.00% |
| Project | 10.00% |
| Practical | 20.00% |
| End of Module Formal Examination | 40.00% |

| Continuous Assessment | | | | |
|---------------------------|--|-------------------|------------|-----------------|
| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
| Case Studies | Case Study: Learners will be required to conduct relevant case studies in machinery operation and the use of contracting services in the machinery sector especially in terms of economic performance and comparison | 2,5 | 20.00 | n/a |
| Multiple Choice Questions | Assessing knowledge of machinery types, precision farming techniques and health and safety regulations. | 1,2,3,4 | 5.00 | n/a |
| Short Answer Questions | Assessing knowledge of machinery operations, applications of precision agriculture and health and safety regulations. | 1,2,3,4 | 5.00 | n/a |

| Project | | | | |
|-----------------|--|-------------------|------------|-----------------|
| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
| Project | Project: Project on the Health and Safety aspects of machinery operation | 1,2,3,4,5 | 10.00 | n/a |

| Practical | | | | |
|-----------------------------|------------------------|-------------------|------------|-----------------|
| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
| Practical/Skills Evaluation | Reports on field trips | 1,2,3 | 20.00 | n/a |

| End of Module Formal Examination | | | | |
|----------------------------------|------------------------|-------------------|------------|-----------------|
| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
| Formal Exam | Terminal Examination | 1,2,3,4,5 | 40.00 | End-of-Semester |

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

Module Workload

| Workload: Full Time | | |
|----------------------------|--------------------|--|
| <i>Workload Type</i> | <i>Frequency</i> | <i>Average Weekly Learner Workload</i> |
| Lecture | 30 Weeks per Stage | 1.00 |
| Practicals | 30 Weeks per Stage | 0.50 |
| Independent Learning | 30 Weeks per Stage | 1.83 |
| Total Hours | | 100.00 |

