PHYS C2F02: Applied Physics for Agriculture 2

Module Title:	Applied Physics for Agriculture 2
Language of Instruction:	English

Credits:	5

NFQ Level:	6

Module Delivered In	2 programme(s)

Teaching & Learning Strategies:	Lectures, laboratories, 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 the learner with an in depth knowledge to the principles of physics and their importance and relevance to sustainable agricultural science and engineering. The module will develop practical laboratory skills.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Apply and solve formulae involving the motion of an object undergoing circular motion in relation to agricultural engineering applications.
LO2	Apply and solve formulae involving the dynamics of rotation in relation to agricultural engineering applications.
LO3	Analysemathematically the applications of friction in mechanisms such as the plate and the cone-clutch with particular emphasis on agricultural emphasis on agricultural applications.
LO4	Balance systems of rotating masses in single-plane and multi-pane applications with particular emphasis on agricultural applications.
LO5	Contribute effectively, as an individual and as part of a group, to the planning and realization of investigations in a laboratory environment into the effects of applied forces on components.Report on the findings

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*
No recommendations listed
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.*
CAD 1 or equivalent

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Module Content & Assessment

Indicative Content
Motion in a circle • Centripetal force. • Centrifugal force • Applications – Centrifugal clutch
Dynamics of Rotation • Torque and angular acceleration. • Moment of Inertia. • Radius of Gyration. • Relationship between linear and angular motion – the hoist. • Kinetic energy of rotation. • Function of a flywheel.
Balancing of Rotating Masses Single plate balancing. Multi-plane balancing.
Applications of friction in machines • Laws of Friction. • Plate clutch. • Cone clutch. • Torque transmission in geared systems.

Assessment Breakdown	%
Continuous Assessment	70.00%
Practical	30.00%

Continuous Assessment

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Examination	Class test	1,2	35.00	Week 5
Examination	Class test	3,4	35.00	Week 12

No Project

Practical

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	Conduct Applied Agricultural Science and Engineering Science Laboratory Experiments. Report on findings.	5	30.00	Every Week

No End of Module Formal Examination

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

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	12 Weeks per Stage	1.00
Laboratory	12 Weeks per Stage	1.00
Lab/Lecture	12 Weeks per Stage	1.00
Independent Learning	15 Weeks per Stage	11.07
	Total Hours	202.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EFARG_B	Bachelor of Engineering (Honours) in Agricultural Systems Engineering	3	Mandatory
CW_EFARG_D	Bachelor of Engineering in Agricultural Systems Engineering	3	Mandatory