

Module Title:	Dynamics Vibration Control
Language of Instruction:	English
Credits:	5
NFQ Level:	8
Module Delivered In	2 programme(s)
Module Aim:	To provide the student with a specialised knowledge of the vibration of mechanical systems
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Derive and apply formulae to solve design problems involving the vibration of a mechanical system with one degree of freedom.
LO2	Derive and apply formulae to solve design problems involving the vibration of a mechanical system with two degrees of freedom.
LO3	Derive and apply formulae to limit vibration by the design of a vibration absorber.
LO4	Quantify by calculation and simulation the characteristic response of mechanical systems subject to vibration.
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>	
No requirements listed	

Module Content & Assessment

Indicative Content

Vibrating Systems with one degree of freedom:

Free vibration of damped spring-mass systems; Forced vibration of damped spring-mass systems; - excitation by harmonic force of constant amplitude; - excitation by rotating unbalance; - excitation by harmonic support vibration; - transmissibility of system; Vibration isolation; whirling of shafts; Vibration measurement.

Vibrating Systems with two degrees of freedom:

Normal mode of vibration; Undamped free vibration of two degree of freedom systems; Undamped forced vibration of two degree of freedom systems; Torsional vibration with two degrees of freedom; Vibration Absorbers.

Assessment Breakdown	%
Continuous Assessment	90.00%
Practical	10.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	Class Test	1	40.00	Week 8
Examination	Class Test	2,3	40.00	Week 12
Practical/Skills Evaluation	Lab: Whirling of shafts, Vibrating Beam.	1,4	10.00	Ongoing

No Project

Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Computing Competencies Assignment	1,4	10.00	n/a

No End of Module Formal Examination

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	12 Weeks per Stage	4.00
Laboratory	12 Weeks per Stage	1.00
Independent Learning	15 Weeks per Stage	4.33
Total Hours		125.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EFARG_B	Bachelor of Engineering (Honours) in Agricultural Systems Engineering	8	Mandatory
CW_EMMEC_B	Bachelor of Engineering (Honours) in Mechanical Engineering	8	Mandatory