

Module Title:	Dynamics 3
Language of Instruction:	English
Credits:	5
NFQ Level:	6
Module Delivered In	2 programme(s)
Module Aim:	To provide the student with a specialized knowledge of the external effects of forces applied to particles and to rigid links, as evidenced by the change of motion produced.

Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Analyze mathematically the relationship between the motion of a particle and the forces to which it is subjected by the methods of Force-Mass-Acceleration/Energy
LO2	Analyze mathematically the relationship between the motion of a particle and the forces to which it is subjected by the method of Impulse/Momentum.
LO3	Analyze mathematically the relationship between the motion of a rigid body and the forces to which it is subjected by the methods of Force-Mass-Acceleration
LO4	Analyze mathematically the applications of friction in mechanisms such as the plate and the cone-clutch.
LO5	Balance systems of rotating masses in single-plane and multi-plane applications.

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
Kinetics of a particle

Force-mass-acceleration - Application to linked objects. Energy methods. Impulse-momentum method.

Kinetics of Rigid bodies

Plane motion of rigid bodies: Translation.

Balancing of Rotating Masses

Single plane balancing Multi-plane balancing.

Applications of friction in machines

Plate clutch. Cone clutch. Torque transmission in geared systems.

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	35.00	Week 6
Examination	Class Test	2,3	35.00	Week 12
Practical/Skills Evaluation	Labs: Balancing of Rotating Masses, Plate Clutch, Falling mass (Energy Method).	1,4,5	20.00	Every Second Week

No Project

Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Computing Competencies Assignment	1	10.00	Week 8

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_EMMEC_B	Bachelor of Engineering (Honours) in Mechanical Engineering	4	Mandatory
CW_EEMEC_D	Bachelor of Engineering in Mechanical Engineering	4	Mandatory