

Module Title:	Drives and Actuators
Credits:	5
NFQ Level:	6
Module Delivered In	2 programme(s)
Module Aim:	To provide the student with the knowledge to specify appropriate drive actuator type for a given application
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Define, describe and demonstrate the use of pneumatic and hydraulic actuators
LO2	Define, describe and demonstrate the use of mechanical actuators
LO3	Define, describe and demonstrate the use of electrical actuators
LO4	Employ an appropriate drive and actuator type for a given application and specify appropriate components
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

Pneumatics and Hydraulics

Principles of pneumatics and hydraulics, Linear and rotary actuators

Mechanical Actuation

Chains, Cams, Gears, Belt Drives, Bearings

Electric Drives

Conventional DC motors, Induction Motors, Stepper Motors, Brushless Motors, Servo systems

Design considerations for given application areas

Problem specification, Advantages and disadvantages of electric motor and associated drives drive types

Assessment Breakdown

	%
Continuous Assessment	20.00%
Practical	20.00%
End of Module Formal Examination	60.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	Various assessments to reinforce learnings given throughout the semester	1,2,3,4	20.00	n/a

No Project

Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	A set of regular practical exercises to complement the theory elements of the module	4	20.00	n/a

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	End of Semester Examination	1,2,3,4	60.00	End-of-Semester

ITCarlow 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	Every Week	3.00
Laboratory	Every Week	2.00
Independent Learning Time	Every Week	4.00
Total Hours		9.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EERAS_B	Bachelor of Engineering (Honours) in Robotics and Automated Systems	3	Mandatory
CW_EERAS_D	Bachelor of Engineering in Robotics and Automated Systems	3	Mandatory