

Unit Title: Mechanical Science
Level: Two
Credit Value: 3
GLH:
NOCN Unit Code: XH0/2/TE/001
QCA Unit Reference
Grading Descriptors: Not Applicable

This unit has 7 learning outcomes.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	The learner can:
1. Apply correct S.I. unit terminology to the solution of practical problems	1.1. Solve practical problems using the S.I. system of units
2. Apply the concept of Free Body Diagrams in solving practical problems	2.1. Solve practical problems using the concept of Free Body Diagrams
3. "Illustrate, through practical investigation, the concept of force"	3.1. Carry out appropriate investigations to determine: Static and dynamic forces, Static and dynamic friction, Forces in fluids at rest, Centroids of plain and irregular shapes
4. Use practical investigations and calculations to illustrate the principles of coplanar forces	4.1. Produce vector diagrams of three or more forces and resolve those forces 4.2. Calculate the resultant and equilibrant of two or more forces 4.3. Calculate the centroid of common engineering sections
5. "Establish the relationship between displacement, velocity and acceleration for linear and angular motion: and solve practical problems by investigation and calculation"	5.1. Apply Newton's Laws of Motion 5.2. Determine: displacement, speed, velocity, acceleration, relative velocity and resultant velocity 5.3. Develop and use equations of motion to solve practical problems 5.4. Construct and use velocity vector diagrams to solve practical problems

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LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	The learner can:
6. Interpret the results of tests to show the effects of force on common engineering materials	6.1. Analyse and evaluate: Tension, compression and shear forces, The concept of stress and an internal reaction, The concepts of elastic and plastic behaviour, Strain and shear strain as units of change of size and shape, Young's Modulus of Elasticity as a concept of stiffness, The Factor of Safety and its appropriate applications, The terms of: elastic limit, yield point, load capability, percentage reduction in area
7. Solve problems involving potential and kinetic energy	7.1. Demonstrate by calculation the concept of: Potential energy as energy due to position, Kinetic energy as due to motion

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ASSESSMENT INFORMATION

Guidance:

This grid gives details of the assessment activities to be used with the unit attached. Please refer to the NOCN Handbook for definitions of each activity and the expectations for assessment practice and evidence for moderation.

The assessment activities for this unit are indicated in the table below:

Key: P = Prescribed – this assessment method *must* be used to assess the unit.
O = Optional – this assessment method *could* be used to assess the unit.

Case study		Project	
Written question & answer/test/exam		Role play/simulation	
Essay		Practical demonstration	
Report		Group discussion	
Oral question and answer		Performance/exhibition	
Written description		Production of artefact	
Reflective log / diary		Practice file	

Signposting Key Skills

This unit offers clear opportunities for learners to provide evidence of achievement in Key Skills achievement in the following skill area/s:

Key Skill		Wider Key Skill	
Communication		Working with others	
Information Technology		Problem solving	
Application of Number		Improving Own Learning and Performance	

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Accredited Start date:
Accredited End date:
Unit Sector/Subject area:
Grading descriptors:
Availability for Use:

Purpose and Aim of the Unit	Free Text
Restrictions on the Availability	Free Text or N/A
Additional Assessment Requirements	Free Text or N/A
Details of relationship between the Unit and the NOS	Free Text or N/A
Details of relationship between the Unit and Standards (not NOS)	Free Text or N/A
Endorsement of the Unit by	Free Text or N/A