



MODULE SPECIFICATION

Part 1: Information			
Module Title	Foundation Mechanics		
Module Code	UFMFAG-30-0	Level	Level 3
For implementation from	2019-20		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Educational Aims: See Learning Outcomes.</p> <p>Outline Syllabus: Triangles: Pythagoras' Theorem; Trigonometric Ratios; Cosine and sine rule; Trigonometry, Graphs and Waveforms; Trigonometrical Identities and other special relationships.</p> <p>Fundamental Units, Vectors and Scalars. Vectorial Representation and force components.</p> <p>Static Equilibrium: Newton's 1st and 3rd Laws, force, weight, resultant component. Moments, equilibrium, Centre of gravity, Centre of area. Free body diagrams. Stress and strain - shear, direct stress, basic definitions. Basic stress analysis.</p> <p>Dry Friction: Limiting friction; Body at rest on an inclined plane; Impending motion up and down an incline.</p> <p>Rigid Body Motion: Linear motion, displacement, velocity, acceleration, falling bodies, projectiles, relative velocity, application of Newton's 2nd Law. Work done, power and Conservation of Energy.</p> <p>Angular Motion: Radians, angular velocity and accelerations. Centripetal and centrifugal</p>

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acceleration.

Behaviour of Fluids: Fluid properties - pressure, temperature, density. Pressure and pressure measurement. Incompressible Fluid Flow. Volume flow rate and mass flow rate. Continuity Equation. Branched Pipes.

Teaching and Learning Methods: Scheduled teaching and learning includes lectures and tutorial sessions. Demonstrations and practical experiments will be given within the taught sessions and worked examples, class examples and multiple tutorial questions used to clarify and compound understanding.

Independent learning includes hours engaged in problem solving and preparation of tutorial questions and assignment preparation.

Part 3: Assessment

Component A, a two hour end of module examination has been chosen to test the understanding and knowledge of the fundamentals of mechanics under controlled conditions.

Component B assessment is made up of a written assignment and two e-assessment (DEWIS) tests. These have been chosen to ensure students can solve problems in static and dynamic engineering situations, display cognitive skills with respect to simplifying real problems and apply mathematical methods of analysis.

First Sit Components	Final Assessment	Element weighting	Description
Written Assignment - Component B		30 %	Mechanics assignment
In-class test - Component B		10 %	E-assessment test 1
In-class test - Component B		10 %	E-assessment test 2
Examination - Component A	✓	50 %	Examination (2 hours)
Resit Components	Final Assessment	Element weighting	Description
Written Assignment - Component B		50 %	Mechanics Assignment (No set word length as mechanics based mathematical problems)
Examination - Component A	✓	50 %	Examination (2 hours)

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Part 4: Teaching and Learning Methods																	
Learning Outcomes	<p>On successful completion of this module students will achieve the following learning outcomes:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Module Learning Outcomes</th> <th style="text-align: left;">Reference</th> </tr> </thead> <tbody> <tr> <td>Show an awareness of the basic properties of materials and simple stress analysis</td> <td>MO1</td> </tr> <tr> <td>Show a basic understanding of mechanical principles</td> <td>MO2</td> </tr> <tr> <td>Apply mechanical principles to solve problems in static and dynamic engineering situations</td> <td>MO3</td> </tr> <tr> <td>Show cognitive skills with respect to simplifying real problems and applying mathematical methods of analysis</td> <td>MO4</td> </tr> <tr> <td>Apply the principles of Equilibrium, Motion and Conservation of Energy and Conservation of Mass to solve practical problems</td> <td>MO5</td> </tr> </tbody> </table>	Module Learning Outcomes	Reference	Show an awareness of the basic properties of materials and simple stress analysis	MO1	Show a basic understanding of mechanical principles	MO2	Apply mechanical principles to solve problems in static and dynamic engineering situations	MO3	Show cognitive skills with respect to simplifying real problems and applying mathematical methods of analysis	MO4	Apply the principles of Equilibrium, Motion and Conservation of Energy and Conservation of Mass to solve practical problems	MO5				
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Reading List	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://uwe.rl.talis.com/modules/ufmfag-30-0.html</p>																

Part 5: Contributes Towards
This module contributes towards the following programmes of study: