MODULE SPECIFICATION

Part 1: Information			
Module Title	Dynamics		
Module Code	UFMFL8-15-2	Level	Level 5
For implementation from	2020-21		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Module type:	Standard		
Pre-requisites	Engineering Mathematics 2020-21		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: An understanding of dynamic behaviour is an essential key element in the makeup of a good Engineer. This module seeks to instil a confident understanding of the discipline to build upon the basics introduced in level one.

Outline Syllabus: Revision basic dynamics, rigid body motion, vector methods, single dof free vibration

Vibration – undamped single d.o.f. forced vibration

Damping and its effect in 1 d.o.f. systems

Forced oscillation

Introduction to 2 d.o.f. systems

Principles of vibration measurement

1-d wave equation

Mechanisms (open and closed) – four bar linkage

Vector analysis of mechanisms for position, velocity and acceleration

Crank-slider mechanisms

Teaching and Learning Methods: Contact time: 36 hours

Assimilation and skill development: 65 hours

Coursework preparation: 17 hours

Exam preparation: 32 hours

Total study time: 150 hours

Large group lecture supported by small group tutorial/laboratory sessions. Study time outside of contact hours will be spent on going through exercises and example problems.

Lab sessions (small groups) will provide a design opportunity to link the abstract theoretical concepts and techniques to real engineering tasks.

Scheduled learning includes lectures, tutorials and laboratory classes.

Independent learning includes hours engaged with essential reading, assignment preparation and completion etc. These sessions constitute an average time per level as indicated in the table above.

Part 3: Assessment			
Component A: Assessed via end of semester Exam to assess underlying concepts, principles and applications.			
First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Examination (Online) - Component A	✓	100 %	Online End of semester exam
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Examination (Online) - Component A	✓	100 %	Online Exam

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will achieve the following learning outcomes:

Module Learning Outcomes	Reference
Understand the principles and methods used in the study and analysis of dynamic behaviour, mechanical vibrations and mechanisms.	MO1
Demonstrate an understanding and knowledge of the key mathematical principles needed to properly analyse dynamic vibrations and systems.	MO2
Identify and describe the performance of dynamic systems using analytical methods and modelling tools.	MO3
Demonstrate the ability to apply appropriate theoretical and practical methods to the analysis and solution of laboratory based problems.	MO4
Show cognitive skills with respect to modelling and simplifying real problems, and applying mathematical methods of analysis.	MO5
Demonstrate skills in problem formulation and decision making, interpreting experimental results.	MO6

Contact Hours

Independent Study Hours:	
Independent study/self-guided study	114
Total Independent Study Hours:	114
Scheduled Learning and Teaching Hours:	
Face-to-face learning	36
Total Scheduled Learning and Teaching Hours:	36
Hours to be allocated	150
Allocated Hours	150

Reading List

The reading list for this module can be accessed via the following link:

https://uwe.rl.talis.com/modules/ufmfl8-15-2.html

Part 5: Contributes Towards
This module contributes towards the following programmes of study: Mechanical Engineering and Vehicle Technology [Feb][FT][GCET][4yrs] BEng (Hons) 2018-19 Mechanical Engineering [Sep][PT][UCW][3yrs] FdSc 2018-19 Mechanical Engineering [Sep][PT][COBC][6yrs] BEng 2018-19 Mechanical Engineering and Vehicle Technology [Oct][FT][GCET][4yrs] BEng (Hons) 2018-19 Mechanical Engineering [Sep][PT][BTC][3yrs] FdSc 2018-19 Mechanical Engineering [Sep][PT][Frenchay][7yrs] MEng 2018-19 Mechanical Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng 2018-19 Mechanical Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng 2018-19 Mechanical Engineering {Foundation} [Sep][FT][Frenchay][5yrs] MEng 2018-19 Mechanical Engineering {Foundation} [Sep][SW][Frenchay][6yrs] MEng 2018-19 Mechanical Engineering [Sep][PT][Frenchay][6yrs] BEng 2018-19 Mechanical Engineering {Apprenticeship} [Sep][PT][Frenchay][6yrs] BEng 2018-19 Mechanical Engineering {Apprenticeship} [Sep][PT][UCW][3yrs] FdSc 2018-19