

Course descriptor B51EO

Course code	B51EO
Course title	Dynamics 1
Credits	15
School	Engineering and Physical Sciences
SCQF Level	11
Semester	1
Aims	To provide students with a thorough understanding of vibration theory and an appreciation of its application in an engineering environment.
Syllabus	<p>1-D.o.F. systems: Response to non-harmonic input, damping, force transmission, vibration isolation, vibration instrumentation</p> <p>2 D.o.F. systems: Matrix methods, frequency equation, mode shapes, harmonic response, vibration absorber, extension to n D.o.F. systems</p> <p>Continuous systems: vibrating strings, lateral vibrations of beams.</p> <p>Approximate methods: Dunkerley's method, Rayleigh's method</p>

Learning Outcomes	
Subject Mastery	<p>Demonstrate an understanding of advanced vibration theory with its applications to engineering problems. Develop an appreciation of the effects of varying system parameters on vibration response and natural frequencies. To inculcate a knowledge of a wide range of vibration problems including vibration isolation of 1 D.o.F systems, transmissibility, multi-degree of freedom systems, continuous systems and the available modelling techniques.</p> <p>MEng students will submit a short report/essay (20% of overall marks) for a dynamics system design.</p>
Personal Abilities	<p>A comprehensive understanding of the subject of vibration engineering and an awareness of the range of available analysis techniques to be employed in modelling and synthesising vibrating systems. This module builds on and develops the relatively elementary introductory vibration modules delivered elsewhere in the course.</p>

Assessment method	80% written examination, 20% Coursework
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