New Module Request - Engineering Vibrations and Noise [MEU44B14] - [Ref.: MC_00000020859430348388]

Field	Current value	Proposed value
Academic Year (for deployment)	NA (Y)	2021/22 (2021/22)
Module Name*	Engineering Vibrations and Noise	
Scheme	Any course within ECTS credit scheme [level 7+] (ECTS)	
Proposed Module Code*	MEU44B14	
Discipline	MECHANICAL AND MANUFACTURING ENGINEERING (MEME)	
Faculty/School	EMS, Engineering (EMS-EG)	
Course Year Taught	Undergraduate course year 4 (U4)	
ECTS Value*	5	
Module Type	Standard Module (STAN)	
Module Coordinator*	John Kennedy (06204325)	
Participate in Blackboard Grades Journey?	No (N)	
Assessment Period	Semester 2 Assessed (SEM202)	
Marking Scheme	M40-02 Mod Sch 40%; no automatic reassessment (M40-02)	
HEA Price Group	Laboratory (LAB)	
Module Approval Date		
Module Approved By	Council (COUNCIL)	
Module In Use	Yes (Y)	

Module description

Current description	Proposed description
Learning Outcomes	
On completion of this module, the student will be able to: ' understand the principles of vibration isolation and assess designs for solutions of one of the most common problems faced by noise and vibration engineers in practice; ' analyse and recognize multi-degree of freedom systems and apply modal methods to their solution; ' apply eigenvalue analysis to the solution of vibration problems; ' understand the concept of modal analysis and how it is implemented in practice; ' model and analyse continuous systems; ' predict vibration properties of systems using finite elements; ' perform vibration measurements and compare the results with those obtained by the analytical and numerical methods developed in the course.	
Module Content	

Current description	Proposed description
' Vibration measurement and isolation forced vibration of single degree-of-freedom systems vibration isolation vibration measurement vibration absorbers ' Multi degree of freedom systems generalised equations of motion Newton's equations of motion for discrete systems matrix formulation Lagrangian formulations; ' Modal analysis Stiffness and flexibility matrices mode shapes and natural frequencies orthogonality analysis of dynamic response mode superposition modal analysis generalised dynamic response. ' Continuous Systems string vibration longitudinal and torsional vibration transverse vibration applications. ' Vibration Testing measurement hardware digital signal processing random vibration analysis modal data extraction. ' Numerical Methods vibrating rod and beam finite elements FE method in vibration trusses.	
Teaching and Learning Methods	
Assessment Details	
This module is assessed by a formal written two-hour examination (75% of final mark) together with a laboratory experiment and work assignment (25% of final mark).	
Reassessment requirements	
Contact hours	
50 hours	
Recommended Reading List	
' Engineering Vibration, DJ Inman, Prentice Hall OTHER RELEVANT TEXT(S) ' Elements of Vibration Analysis, L Meirovitch, McGraw Hill ' Mechanical Vibrations, SS Rao, Pearson/Prentice-Hall	
Module Pre-requisite	
Module Co-requisite	
Module Website	
http://www.tcd.ie/Engineering/undergraduate/baiyear4/modules/4B11.pdf	
Are other schools/departments involved?	
Academic Start Year	
Academic Year of Data	
2014/15	
Graduate Attributes - To Think Independently	

Current description	Proposed description
Graduate Attributes - To Act Responsibly	
Graduate Attributes - To Communicate Effectively	
Graduate Attributes - To Develop Continuously	

Existing Assessment Pattern

Assessment Type	Mark Scheme	Weight	Hours	Qualifying Mark
[001] ANNUAL EXAMINATION - 1 X 2 HOUR PAPER				
Exam - Realtime Online	C40-01 Comp Sch 40%	75	02:00	
[002] CONTINUOUS ASSESSMENT				
Coursework marked by name	C40-01 Comp Sch 40%	25		
[901] Reassessment				
Exam - Realtime Online	C40-01 Comp Sch 40%	100	02:30	

Activity Log and Notes

Date and Time	By	Type	Activity	Notes
No notes yet.				