

UNIVERSITY OF WARWICK

Proposal Form for New or Revised Modules (MA1 - version 7 - April 2014)

Approval information	
Approval Type	<input checked="" type="checkbox"/> Revised module
Date of Introduction/Change	October 2018
If new, does this module replace another? If so, enter module code and title:	.
If revised/discontinued, please outline the rationale for the changes:	Revised MA1 in the light of feedback after the first year, updated learning outcomes, syllabus and aims; removed a laboratory and added a design showcase. Assessment changed to Journal article / vlog (15%), Specification (15%), Group design portfolio including peer assessment (40%), Prototype & poster (30%).
Confirmation that affected departments have been consulted:	Changes have been made in consultations between the School of Engineering and WMG

Module Summary	
1. Module Code (if known)	ES2D2
2. Module Title	Mechanical Engineering Design
3a. Lead department:	School of Engineering
3b. Teaching Split (if known):	100% Engineering
4. Name of module leader	Chloe Agg
5. Level	UG: <input type="checkbox"/> Level 4 (Certificate) <input checked="" type="checkbox"/> Level 5 (Intermediate) <input type="checkbox"/> Level 6 (Honours) PG: <input type="checkbox"/> Level 7 (Masters) <input type="checkbox"/> Level 8 (Doctoral) See Guidance Notes for relationship to years of study
6. Credit value(s) (CATS)	15 credits
7. Principal Module Aims	This stream-specific second year design module focusses on creative practice and practical aspects of problem solving. Supported by development of CAD proficiency & manufacturing experience.
8. Principal Learning Outcomes	By the end of the module the student should be able to: <ul style="list-style-type: none"> • Locate developing technologies related to mechanical engineering & describe them to a technical audience.

Module Summary	
	<ul style="list-style-type: none"> Recognise the broad range of needs, perspectives & factors which affect all engineering projects. (Defend a point of view on a project) and develop a solution in agreement with other parties. Appraise requirements in order to write a specification, evaluate the information provided for completeness and carry out research or experimentation to manage the technical uncertainty. Select an appropriate design process/stages model and employ it (& other appropriate project management tools) to manage a design project. Apply the engineering fundamentals learnt throughout this & the other modules studied during the course, to design & price a sustainable product to meet a specification. Evaluate the success of the product, design improvements to it and communicate the improved product to a non-technical audience. Recognise roles & skill sets of team members, select roles & work in teams whilst also taking personal responsibility.
9. Timetabled Teaching Activities (summary)	<ul style="list-style-type: none"> Lectures/briefings (5 x 1 hrs); CAE/CAD training laboratories (2 x 2 hrs); Seminars (5 x 2 hrs, 10 x 1 hrs); Workshops/manufacture (8 x 2 hrs); Design showcase (1 x 1hrs). <p>Total Hours 46 hours</p>
10. Departmental Web-link	http://www2.warwick.ac.uk/fac/sci/eng/eso/modules/year2/
11. Other essential notes	<p>Advice and feedback hours are available for answering questions on the lecture material (theory and examples).</p> <p>Students must pass all elements with reassessment by resubmission of failed items.</p>
12. Assessment methods (summary)	<ul style="list-style-type: none"> Journal article / vlog (15%) Specification (15%) Group design portfolio including peer assessment (40%) Group Prototype & poster including peer assessment (30%).

For use by Strategic Planning and Analytics Office only - Do not fill in this section

Level	JACS3 Code	Teaching Split
		<i>If not provided in 3b above</i>

External Credit Level	Scheme

Module Context				
13. Please list all departments involved in the teaching of this module. If taught by more than one department, please indicate percentage split.				
100% Engineering				
14. Availability of module				
Degree Code	Title	Study Year	C/OC/A/B/C	Credits
H113	BEng Engineering	2	A	15
H114	MEng Engineering	2	A	15
H315	BEng Mechanical Engineering	2	C	15
H316	MEng Mechanical Engineering	2	C	15
HN11	BSc Engineering and Business Studies	2	A	15
15. Minimum number of registered students required for module to run				
1 (core)				
16. Pre- and Post-Requisite Modules				
None				

Module Content and Teaching	
17. Teaching and Learning Activities (<i>totals for module – please see guidance</i>)	
Module duration (weeks)	13 wks
Lectures	5 x 1 hrs
Seminars	5 x 2hr, 10 x 1hr
Tutorials	-
Project Supervision	In seminars
Demonstration	-
Practical Class/Workshops	2 x 2 hrs labs; 1 x 1 hrs design showcase
Supervised time in studio/workshop	8 x 2 hr workshop manufacture
Fieldwork	-
External visits	-
Work based learning	-
Placement	-
Year abroad	-
Other activity <i>(please describe): e.g. distance-learning, intensive weekend teaching etc.</i>	104 hours of guided independent learning.
18. Assessment Method (Standard)	
Type of assessment	Length % weighting

Module Content and Teaching		
Written Examinations	-	0 %
Assessed essays/coursework	Journal article / vlog	15%
	Specification	15%
	Group design portfolio including peer assessment	40%
	Group Prototype & poster including peer assessment	30%
18a. Final chronological assessment (<i>please see guidance</i>)	Prototype & poster	

19. Methods for providing feedback on assessment.

Written feedback on journal article/vlog, specification, design portfolio, prototype & poster.
 In session feedback of developing design.
 Peer review of developing design in seminars.
 Peer appraisal on performance within group.
 Public/client/peer perception of prototype/poster.
 Support during listed office hours.

20. Outline Syllabus

- Developing/emerging technologies
- Factors affecting engineering design
- Writing specifications and understanding user requirements
- Design process/stages, including FMEA
- Project management
- Creative design practices
- Design development and analysis using CAE / CAD
- Working with others & team roles
- Communication skills

21. Illustrative Bibliography

Shigley's Mechanical Engineering Design, 10th edition 2014, Budynas and Nisbett, McGraw-Hill Higher Education.

22. Learning outcomes

Successful completion of the module leads to the learning outcomes. The learning outcomes identify the knowledge, skills and attributes developed by the module.

Learning Outcomes should be presented in the format "By the end of the module students should be able to..." using the table at the end of the module approval form:

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Resources

23. List any additional requirements and indicate the outcome of any discussions about these.
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Approval

24. Module leader's signature	Chloe Agg
25. Date of approval	25 April 2018
26. Name of Approving Committee (include minute reference if applicable)	School of Engineering and WMG Course and Module Approval Committee (CMAC), Minute 246-17/18.
27. Chair of Committee's signature	Professor Gillian Cooke
28. Head of Department(s) signature	Professor David Towers

Examination Information		
A1. Name of examiner (if different from module leader)	N/A	
A2. Indicate all available methods of assessment in the table below		
% Examined	% Assessed by other methods	Length of examination paper
0 %	Journal article / vlog (15%) Specification (15%) Group design portfolio with peer assessment (40%) Group Prototype & poster including peer assessment (30%)	N/A
A3. Will this module be examined together with any other module (sectioned paper)? If so, please give details below.		
N/A		
A4. How many papers will the module be examined by?	N/A	
A5. When would you wish the exam take place (e.g. Jan, April, Summer)?	N/A	
A6. Is reading time required?	N/A	
A7. Please specify any special exam timetable arrangements.		
N/A		
A8. Stationery requirements		
No. of Answer books?	N/A	
Graph paper?	N/A	
Calculator?	N/A	
Any other special stationery requirements (e.g. Data books, tables etc)?	N/A	
A9. Type of examination paper		
Seen?	N/A	
Open Book?	N/A	
Restricted?	N/A	
If restricted, please provide a list of permitted texts:	N/A	

LEARNING OUTCOMES		
(By the end of the module the student should be able to...)	Which teaching and learning methods enable students to achieve this learning outcome? (reference activities in section 15)	Which summative assessment method(s) will measure the achievement of this learning outcome? (reference activities in section 16)
Locate developing technologies related to mechanical engineering & describe them to a technical audience.	Seminars	Journal article / Vlog
Recognise the broad range of needs, perspectives & factors which affect all engineering projects. (Defend a point of view on a project) and develop a solution in agreement with other parties	Seminars	Group design portfolio
Appraise requirements in order to write a specification, evaluate the information provided for completeness and carry out research or experimentation to manage the technical uncertainty.	Lecture + Seminars	Specification Assignment
Select an appropriate design process/stages model and employ it (& other appropriate project management tools) to manage a design project.	Lecture + Seminars	Group design portfolio
Apply the engineering fundamentals learnt throughout this & the other modules studied during the course, to design & price a sustainable product to meet a specification	Lecture + Seminars	Group design portfolio + Prototype & Poster
Evaluate the success of the product, design improvements to it and communicate the improved product to a non-technical audience.	Lecture + Seminars	Prototype & Poster
Recognise roles & skill sets of team members, select roles & work in teams whilst also taking personal responsibility.	Lecture + Seminars	Group design portfolio + Prototype & Poster + Peer Assessment