

UNIVERSITY OF WARWICK

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

Approval information	
Approval Type	<input type="checkbox"/> New module <input checked="" type="checkbox"/> Revised module <input type="checkbox"/> Discontinue module
Date of Introduction/Change	02/10/2018
If new, does this module replace another? If so, enter module code and title:	
If revised/discontinued, please outline the rationale for the changes:	New module leader and changes in the assessment methods to 50% Individual portfolio of Design Work, 30% Surveying Group Report including Peer Assessment and 20% Assessment of Geotechnics Design Work.
Confirmation that affected departments have been consulted:	Changes were made in consultations between the School of Engineering and WMG.
Module Summary	
1. Module Code (if known)	ES2C2
2. Module Title	Civil Engineering Design 1
3a. Lead department:	School of Engineering (100%)
3b. Teaching Split (if known):	100% Engineering
4. Name of module leader	Professor M Gillie
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
7. Principal Module Aims	The principal aims of this module are to introduce and practise the principles of surveying, which is a core JMB accreditation topic, and introduce the idea of conceptual civil engineering design and approaches to it. The modules will also introduce and practise civil engineering design communication (sketching, models, reporting).

Approval information			
8. Principal Learning Outcomes	By the end of the module students should be able to: <ul style="list-style-type: none"> • Specify appropriate surveying techniques and apply them with due regard to survey control, analysis and purpose. • Evaluate and interpret topographical survey data. • Develop conceptual solutions to Civil Engineering design problems by synthesising knowledge from other modules; interpreting briefs; bounding problems and identifying key issues; and critiquing, iterating and selecting solutions. • Use sketching, models (including 3-d printing) and other techniques to develop and communicate design thinking. • Appreciate how civil engineers design and construct infrastructure with safety and professional ethics at the core of the process. 		
9. Timetabled Teaching Activities (summary)	6 hrs online surveying lectures (using VLE) 3 x 8 hrs surveying fieldwork 4 hrs geotechnical design lectures 2 hrs geotechnical design tutorials 2 hrs lab for design and build of shallow foundation using 3D printing 5 hrs seminars on conceptual design with structures focus 10 hrs studio-based design teaching Total of 53 hours.		
10. Departmental Web-link	http://www2.warwick.ac.uk/fac/sci/eng/eso/modules/year2		
11. Other essential notes	Advice and feedback hours are available for answering questions on the lecture material (theory and examples).		
12. Assessment methods (summary)	30% Surveying group report, including peer assessment (maximum 2500 words); 50% Individual portfolio of design work, to include evidence of effective communication, giving and receiving feedback on designs, and appreciation of design process; 20% Assessment of geotechnical design work.		
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.				
School of Engineering (100%)				
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
H216	BEng Civil Engineering	2	C	15
H217	MEng Civil 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 module).				
16. Pre- and Post-Requisite Modules				
Pre Requisites: All compulsory first year engineering modules.				

Module Content and Teaching	
17. Teaching and Learning Activities (<i>totals for module – please see guidance</i>)	
Module duration (weeks)	10
Lectures	10 x 1 hours (including use of VLE)
Seminars	5 x 1 hours
Tutorials	2 hours
Project Supervision	None
Demonstration	None
Practical Class/Workshops	None
Supervised time in studio/workshop	2hrs + 10 hrs= 12hrs
Fieldwork	3 days x 8 hours on surveying
External visits	Possible self-directed assessment of existing Civil Engineering design (see also self-directed study).
Work based learning	None
Placement	None
Year abroad	None
Other activity (<i>please describe</i>): e.g. distance-learning, intensive weekend teaching etc.	97 hours of guided independent learning

Module Content and Teaching		
18. Assessment Method (Standard)		
Type of assessment	Length	% weighting
Written Examinations	NA	NA
Practical Examinations	NA	NA
Assessed essays/coursework	Surveying group report, including peer assessment (maximum 2500 words);	30%
	Individual portfolio of design work, to include evidence of effective communication, giving and receiving feedback on designs, and appreciation of design process.	50%
	Assessment of geotechnical design work	20%
18a. Final chronological assessment (<i>please see guidance</i>)	Surveying group report	

19. Methods for providing feedback on assessment.

Individual, group and general feedback and coaching will be ubiquitous. The focus on fieldwork and seminar work will allow detailed and regular discussion between academics and tutors, and students. Students will also be required to both give and receive feedback on peers' work, a key aspect of the design process and learning outcome of the module.

20. Outline Syllabus

Surveying:

- Planning and control: Whole to part, Geodetic vs plane, Types of survey
- Common techniques and equipment: tape, level, theodolite, EDM, GPS
- Techniques of measurement and error evaluation and control: Error types and mitigation, Bowditch, Least Squares, GPS
- Setting out: profiles, curves
- Instrumentation and Monitoring

Design:

- Handling ill-defined briefs
- Identifying key requirements
- The "role of optioneering"
- Rapid communication – sketching
- Critiquing designs
- Introduction to geotechnical materials
- Geotechnical problems, slope stability ground improvement techniques and preliminary

analysis methods.

- Introduction to foundation selection and design
- Approximate methods of structural analysis appropriate for very preliminary scheme design

21. Illustrative Bibliography

Surveying:

Uren J. & Price B, (2010). *Surveying for Engineers*. Palgrave Macmillan, 5th ed. ISBN-10: 0230221572, ISBN-13: 978-0230221574

Bannister, A., Raymond S. and Baker R., (1998). *Surveying*. Prentice Hall, 7th ed. ISBN-10: 0582302498, ISBN-13: 978-0582302495

Geotechnics:

Barnes, (2016) G.E. Soil Mechanics: Principles and Practice, 4th Ed. ISBN-10: 1137512202, ISBN-13 978-1137512208

Structural design:

Cobb F., (2015). *Structural Engineer's Pocket Book*, 2nd Ed, CRC Press

Sandaker B., Eggen A., Cruvellier M., (2011). *The Structural Basis of Architecture*, 2nd Ed, Routledge

Slade R., (2016). *Sketching for Engineers and Architects*, Routledge

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:

Resources

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

Need consumables to cover cost of model making and posters. Could require technician support and access to design studio to support model making.

Approval

24. Module leader's signature	Professor Martin Gillie
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 242-17/18
27. Chair of Committee's signature	Professor Gillian Cooke

Approval	
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
	30% Surveying group report, including peer assessment (maximum 2500 words); 50% Individual portfolio of design work, to include evidence of effective communication, giving and receiving feedback on designs, and appreciation of design process. 20% Assessment of geotechnical design work.	
A3. Will this module be examined together with any other module (sectioned paper)? If so, please give details below.		
No		
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	

Examination Information	
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 17)	Which summative assessment method(s) will measure the achievement of this learning outcome? (reference activities in section 18)
Specify appropriate surveying techniques and apply them appropriately with due regard to survey control, analysis and purpose.	Lectures & fieldwork	Surveying group report
Evaluate topographical survey data and apply appropriate systems of adjustment.	Lectures & fieldwork	Surveying group report
Develop conceptual solutions to Civil Engineering design problems by synthesising knowledge from other modules; interpreting briefs; bounding problems and identifying key issues; and critiquing, iterating and selecting solutions.	Seminars, lectures, studio sessions & laboratories	Individual portfolio Geotechnical design report
Use sketching, models (including 3-d printing) and other techniques to develop and communicate design thinking.	Seminars, lectures, studio sessions & laboratories	Individual portfolio Geotechnical design report
Appreciate how civil engineers design and construct infrastructure with safety and professional ethics at the core of the process.	Lectures	Geotechnical design report