



TECHNIK
HOCHSCHULE MAINZ
UNIVERSITY OF
APPLIED SCIENCES

Module Descriptors for Units Taught in English

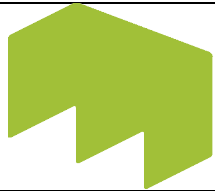
Level 2 Bachelor

Faculty of Technology

International Civil Engineering


Content

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Foundations and Earth Structures	6	2	7
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Module Name	Construction Project Management		Course		Compulsory	Optional
Level	2					
Cycle	B		Civil Engineering			
Abbreviation	CPM		Bachelor			
Subject Thread	International Civil Engineering		Construction Management			
			Structures			
			Planning and the Environment			
Semester	Semester 4		Master			
Frequency	On demand		Construction Management			
			Structures			
Duration	1 Semester		International Civil Engineering			
Language	English		Bachelor			
			Master			
ECTS / Weighting	6/ 6		Civil Engineering with Business Studies			
Student Workload	60 h at University = 4 SWS Lectures					
	120 h Independent Study					
	180 h Total					
Module Co-ordinator	Prof. Dr. A. K. Petersen BSc, PhD, CEng, MICE					
Other lecturers	Visiting Lecturers					
Learning and Teaching Strategy	Formal lectures, tutorials, student led seminars and on-line learning resources will provide theoretical and practical underpinning for the Learning Outcomes.					
Pre-requisites	To have passed ALL Level 1 Modules.					
Recommended Requirements	-					
Progress Control	-					
Progress Tests		Yes	No	Description		
	Pre-exam Test		X			
	Mid-term Test		X			
Examinations	100% coursework (Written Report 70%, Colloquium 30%) or 2.5hr Examination					


Learning Outcomes	<p>On successful completion of this unit, students should be able, at Level 2 threshold level, to:</p> <ol style="list-style-type: none"> 1. Describe the construction techniques employed by specialist sub-contractors such as demolition, earthworks, piling, etc. 2. Distinguish between types of structures, their method of construction and the appropriateness of different materials. 3. Assess the Time, Cost, Quality, Health & Safety and Environmental consequences of site activities.
Syllabus Content	<ol style="list-style-type: none"> 1 Lecture - Construction Project Management Introduction. 2 Lecture – Demolition. 3 Lecture - Temporary Works Construction. 4 Lecture - Scope Plan, Budget Costing and Life cycle Durations. 5 Lecture - Earthworks (Excavation Support). 6 Lecture - Bills of Quantities and Scope Management (WBS). 7 Lecture - Groundwater Control. 8 Lecture - Shallow Foundations and Road Pavements. 9 Lecture - Deep (Piled) Foundations. 10 Lecture - Take of Quantities, Gantt Resources Charts and PMBoK HRM 11 Lecture - Reinforced Concrete Construction. 12 Lecture - Project Decision Analysis, Method Statements and Risk Identification. 13 Lecture - Structural Frame Construction. 14 Lecture - Composite Frame Construction. 15 Lecture - Road Pavement + Sustainable Urban Drainage Construction 16 Lecture - Time Management CPA and Project Management Software 17 Lecture - Cladding and the Building Envelope 18 Lecture - Risk Management. 19 Lecture - Cost Management. 20 Lecture - Quality Management and Sustainable Material Specification. 21 Lecture - Repair and Maintenance. 22 Seminar- Construction Management Revision and Coursework Overview
Recommended Reading	<p>ICE, (201x). <i>CESSM3 Price Database, Edited by Franklin and Andrews</i>, Institution of Civil Engineers, London: Thomas Telford.</p> <p>PMBoK, (2008). <i>A Guide to the Project Management Body of Knowledge: PMBoK Guide. 4rd Edition</i>. Pennsylvania: Project Management Institute Inc.</p>
Notes	<p>Industry Standard software will be used for analysis and detailing.</p>

 TECHNIK HOCHSCHULE MAINZ UNIVERSITY OF APPLIED SCIENCES		Version: Sept 2017																																																		
Module Name Level Cycle Abbreviation	Engineers in Society 2 B EIS	<table border="1"> <thead> <tr> <th rowspan="2">Course</th> <th>Compulsory</th> <th>Optional</th> </tr> </thead> <tbody> <tr> <td colspan="3">Civil Engineering</td> </tr> <tr> <td>Bachelor</td> <td></td> <td></td> </tr> <tr> <td>Construction Management</td> <td></td> <td></td> </tr> <tr> <td>Structures</td> <td></td> <td></td> </tr> <tr> <td>Planning and the Environment</td> <td></td> <td></td> </tr> <tr> <td>Master</td> <td></td> <td></td> </tr> <tr> <td>Construction Management</td> <td></td> <td></td> </tr> <tr> <td>Structures</td> <td></td> <td></td> </tr> <tr> <td colspan="3">International Civil Engineering</td> </tr> <tr> <td>Bachelor</td> <td></td> <td></td> </tr> <tr> <td colspan="3">Facilities Management</td> </tr> <tr> <td>Bachelor</td> <td></td> <td></td> </tr> <tr> <td>Master</td> <td></td> <td></td> </tr> <tr> <td colspan="3">Civil Engineering with Business Studies</td> </tr> <tr> <td>Bachelor</td> <td></td> <td></td> </tr> </tbody> </table>			Course	Compulsory	Optional	Civil Engineering			Bachelor			Construction Management			Structures			Planning and the Environment			Master			Construction Management			Structures			International Civil Engineering			Bachelor			Facilities Management			Bachelor			Master			Civil Engineering with Business Studies			Bachelor		
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Subject Thread	Project Management																																																			
Semester	Semester 5																																																			
Frequency	On demand																																																			
Duration	1 Semester																																																			
Language	English																																																			
ECTS / Weighting	6 / 6																																																			
Student Workload	60 h at University = 4 SWS Lectures 120 h Independent Study 150 h Total																																																			
Module Co-ordinator	Prof. Dr. A. K. Petersen BSc, PhD, CEng, MICE																																																			
Other lecturers	Visiting Lecturers																																																			
Learning and Teaching Strategy	Formal lectures, tutorials, student led seminars and on-line learning resources will provide theoretical and practical underpinning for the Learning Outcomes.																																																			
Pre-requisites	To have passed ALL Level 1 and 2 Modules.																																																			
Recommended Requirements	-																																																			
Progress Control	-																																																			
Progress Tests		Yes	No	Description																																																
	Pre-exam Test		X																																																	
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Examinations	100% coursework (Written Report 70%, Colloquium 30%) or 2hr Examination																																																			


Learning Outcomes	<p>On successful completion of this unit, students should be able, at Level 2 threshold level, to:</p> <ol style="list-style-type: none"> 1. Assess the contractual, economic and social impacts of International Projects during their life cycle. 2. Investigate reasons for failure of some International Projects and demonstrate modern alternative methods of procurement. 3. Write a Business Plan.
Syllabus Content	<ol style="list-style-type: none"> 1 Lecture - International Project Management Introduction. 2 Lecture - History of Management. 3 Lecture - Modern Management. 4 Lecture – Culture. 5 Lecture - Oral Presentations. 6 Lecture – Society. 7 Lecture – Basis of the Law and Land Law. 8 Lecture - Traditional Contracts. 9 Lecture - Classification of Contracts. 10 Lecture – FIDIC. 11 Lecture - Latham Report. 12 Lecture - Egan Report. 13 Lecture - Modern Contracts and Procurement Management. 14 Lecture - PMBoK Procurement Management. 15 Lecture - Handover. 16 Lecture - World Politics 21st Century. 17 Lecture - Macro Economics. 18 Lecture - Micro Economics. 19 Lecture - Accountancy 20 Lecture – Depreciation and Property Valuation 21 Lecture – Whole Life Cycle Costs 22 Lecture - Social Benefit Analysis.
Recommended Reading	<p>Audit Scotland. (2004). <i>Management of the Holyrood Building Project</i>. Edinburgh: Audit Scotland.</p>
Notes	<p>Industry Standard software will be used for analysis and detailing.</p>

 TECHNIK HOCHSCHULE MAINZ UNIVERSITY OF APPLIED SCIENCES		Status: Sept 2017		
Module Name	Foundations and Earth Structures	Course	Compulsory	Optional
Level	2			
Cycle	B	Civil Engineering		
Abbreviation	FES	Bachelor		
Subject Thread	International Civil Engineering	Construction Management		
		Structures		
		Planning and the Environment		
Semester	Semester 4	Master		
		Construction Management		
Frequency	On demand	Structures		
		International Civil Engineering		
Duration	1 Semester	Bachelor		
		Facilities Management		
Language	English	Bachelor		
		Master		
ECTS / Weighting	6 / 6	Civil Engineering with Business Studies		
		Bachelor		
Student Workload	60 h at University = 4 SWS Lectures			
	120 h Independent Study			
	180 h Total			
Module Co-ordinator	Prof. Dr. A. K. Petersen BSc, PhD, CEng, MICE			
Other lecturers	Visiting Lecturers			
Learning and Teaching Strategy	Formal lectures, tutorials, student led seminars and on-line learning resources will provide theoretical and practical underpinning for the Learning Outcomes.			
Pre-requisites	To have passed ALL Level 1 Modules.			
Recommended Requirements				
Progress Control	Conceptual Design Presentation.			
Progress Tests		Yes	No	Description
	Pre-exam Test		X	
	Mid-term Test		X	
Examinations	100% coursework or 2.5 hr Examination			

Learning Outcomes	<p>On successful completion of this unit, students should be able, at Level 2 threshold level, to:</p> <ol style="list-style-type: none"> 1. Appraise and evaluate soil reports and design shallow or deep foundations and excavations supported by retaining walls. 2. Identify failure mechanisms of soil slopes and compute slope stability analysis for granular and cohesive slopes with regard to short and long term slope behavior.
Syllabus Content	<ol style="list-style-type: none"> 1 Lecture - Introduction to Foundations and Earth Structures. 2 Lecture - Limit State Design Philosophy. 3 Lecture - Introduction to Eurocodes. 4 Lecture - In Situ Soil Classification and Testing. 5 Lecture - Earthworks (Excavation Support). 6 Lecture - Retaining Wall Design 7 Lecture - Groundwater Control. 8 Lecture - Shallow Foundations and Road Pavements. 9 Lecture - Embedded Retaining Wall Design 10 Lecture - Deep (Piled) Foundations. 11 Seminar - Shallow Foundations and Road Pavements 12 Seminar - Deep (Piled) Foundations. 13 Seminar - Retaining Walls 14 Seminar - Embedded Walls 15 Laboratory - Geotechnics 16 Exkursion 17 Lecture - Slope Stability. 18 Software - Slope Stability Limit State Geo. 19 Lecture – Design of Underground RC Tanks 20 Seminar – Substructure Reports
Recommended Reading	<p>Bond, A.J., Harrison, T., Narayanan R.S., Brooker O., Moss R.M., Webster, R., Harris, A.J. (2006). <i>How to Design Concrete Structures Using Eurocode 2</i>. London: The Concrete Centre.</p> <p>Ciria. (2007). <i>The SUDS Manual</i>. London: Ciria.</p> <p>ICE, (201x). <i>CESSM3 Price Database, Edited by Franklin and Andrews</i>, Institution of Civil Engineers, London: Thomas Telford.</p> <p>Craig R.F. (1997), <i>Soil Mechanics</i>, London, Spon Press.</p> <p>Eurocode 7: (2007), <i>Geotechnical Design, Ground Investigation and Testing</i>, CEN.</p> <p>Smith, G.N. & Smith, I.G.N, (1998) <i>Elements of Soil Mechanics</i>, New Jersey, Blackwell Scientific.</p>
Notes	<p>Industry Standard software will be used for analysis and detailing.</p>

 TECHNIK HOCHSCHULE MAINZ UNIVERSITY OF APPLIED SCIENCES		Status: Sept 2017		
Module Name	Hydrology	Course	Compulsory	Optional
Level	2			
Cycle	B	Civil Engineering		
Abbreviation	HYD	Bachelor		
Subject Thread	International Civil Engineering	Construction Management		
		Structures		
Semester	Semester 4	Planning and the Environment		
		Master		
Frequency	On demand	Construction Management		
		Structures		
Duration	1 Semester	International Civil Engineering		
		Bachelor		
Language	English	Facilities Management		
		Bachelor		
		Master		
ECTS / Weighting	6 / 6	Civil Engineering with Business Studies		
		Bachelor		
Student Workload	60 h at University = 4 SWS Lectures			
	120 h Independent Study			
	180 h Total			
Module Co-ordinator	Prof. Dr. A. K. Petersen BSc, PhD, CEng, MICE			
Other lecturers	Visiting Lecturers			
Learning and Teaching Strategy	Formal lectures, tutorials, student led seminars and on-line learning resources will provide theoretical and practical underpinning for the Learning Outcomes.			
Pre-requisites	To have passed ALL Level 1 Modules.			
Recommended Requirements				
Progress Control	Conceptual Design Presentation.			
Progress Tests		Yes	No	Description
	Pre-exam Test		X	
	Mid-term Test		X	
Examinations	100% coursework or 2.5 hr Examination			

Learning Outcomes	<p>On successful completion of this unit, students should be able, at Level 2 threshold level, to:</p> <ol style="list-style-type: none"> 1. Plot a Catchment Hydrograph and design Sustainable Urban Drainage for a Project. 2. Design: the horizontal and vertical alignment and the associated pavement, and drainage for a Project. 3. Assess the Environmental Impact of a Project and differentiate between the removal processes that operate at different stages of water treatment. 4. Apply Theoretical, Scaled Physical and Computational Hydrology Models to analyse Hydrology problems.
Syllabus Content	<ol style="list-style-type: none"> 1 Lecture - Introduction to Hydrology 2 Lecture – Architecture and Urbanisation. 3 Lecture - Road Networks 4 Lecture - Road Safety 5 Lecture – Infiltration and Hydrographs. 6 Lecture - SUDs Selection 7 Lecture - SUDs Design Criteria 8 Lecture - Groundwater Control. 9 Lecture - SUDs Source Control 10 Lecture - SUDs Inlets and Pre Treatment 11 Software - SUDS Hydrographs 12 Lecture - Infiltration Trenches, Soakaways and Basins. 13 Lecture - Conveyance Swales and Pipe Systems. 14 Lecture - Road Alignment (Vertical) 15 Lecture - Road Alignment (Horizontal) 16 Laboratory - Hydrology 17 Lecture - Ponds and Wetlands, Water Treatment Removal Mechanisms. 18 Lecture - Outlets and Sludge. 19 Lecture - Natural Hazards Management 20 Lecture - Urban Risk Management 21 Lecture - Environmental Impact Assessment 22 Lecture - Environmental Impact Assessment Methods
Recommended Reading	<p>Chadwick, A J, Morfett, J C, Borthwick, M. (2004). <i>Hydraulics in Civil and Environmental Engineering (4th ed)</i> London: E & FN Spon.</p> <p>Ciria. (2007). <i>The SUDS Manual</i>. London: Ciria</p> <p>Danish Road Directorate. (2002). <i>Beautiful Roads - A Handbook of Road Architecture</i>. Copenhagen: Danish Road Directorate.</p> <p>FGSV. (2012). <i>Directives for the Design of Urban Roads RAS06</i>. Cologne: FGSV Verlag GmbH.</p> <p>ICE, (201x). <i>CESSM3 Price Database, Edited by Franklin and Andrews</i>, Institution of Civil Engineers, London: Thomas Telford.</p> <p>Littlefield, D. (2007). <i>Metric Handbook Planning and Design Data, 3rd Edition</i>. London: Routledge.</p>
Notes	Industry Standard software will be used for analysis and detailing.

 TECHNIK HOCHSCHULE MAINZ UNIVERSITY OF APPLIED SCIENCES		Status: Sept 2017		
Module Name	Study Skills	Course	Compulsory	Optional
Level	2	Civil Engineering		
Cycle	B	Bachelor		
Abbreviation	SKILLS	Construction Management		
Subject Thread	International Civil Engineering	Structures		
Semester	Semester 4	Planning and the Environment		
Frequency	On demand	Master		
Duration	1 Semester	Construction Management		
Language	English	Structures		
ECTS / Weighting	1 / 1	International Civil Engineering		
Student Workload	10 h at University = 4 SWS Lectures	Bachelor		
	20 h Independent Study	Facilities Management		
	30 h Total	Bachelor		
Module Co-ordinator	Prof. Dr. A. K. Petersen BSc, PhD, CEng, MICE	Master		
Other lecturers	Visiting Lecturers	Civil Engineering with Business Studies		
Learning and Teaching Strategy	Formal lectures, tutorials, student led seminars and on-line learning resources will provide theoretical and practical underpinning for the Learning Outcomes.	Bachelor		
Pre-requisites	To have passed ALL Level 1 Modules.	Master		
Recommended Requirements	-			
Progress Control	-			
Progress Tests		Yes	No	Description
	Pre-exam Test		X	
	Mid-term Test		X	

Examinations	100% coursework
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Learning Outcomes	<p>On successful completion of this unit, students should be able, at Level 2 threshold level, to:</p> <ol style="list-style-type: none"> 1. Write an Academic Paper. 2. Use the Harvard APA referencing style.
Syllabus Content	<ol style="list-style-type: none"> 1 Lecture - History of Academia. 2 Lecture - Teaching and Learning. 3 Lecture - History of English. 4 Lecture - Effective Report writing. 5 Lecture - Literature Search and Critique.
Recommended Reading	Davies, J.W. (2001), <i>Communication Skills</i> , New Jersey: Prentice-Hall.
Notes	Industry Standard software will be used for analysis and detailing.