

**APPROVED****ARCH7040: CTMS - Basements**

Module Details	
Module Code:	ARCH7040
Title:	CTMS - Basements <b>APPROVED</b>
Long Title:	CMS - Basements
NFQ Level:	Intermediate
Valid From:	Semester 1 - 2019/20 ( September 2019 )
Duration:	1 Semester
Credits:	5
Field of Study:	5810 - Architecture & Urban Environment
Module Delivered in:	<a href="#">2 programme(s)</a>
Module Description:	CTMS Construction Technology Materials and Structure - Basements explores the principles for basement design and construction including alternative construction techniques

Learning Outcomes	
On successful completion of this module the learner will be able to:	
#	Learning Outcome Description
LO1	Distinguish between embedded and gravity retaining walls.
LO2	Formulate appropriate waterproofing techniques for basement construction and superstructure.
LO3	Explain the reasons for and the use of system building techniques for medium to high rise buildings.
LO4	Formulate strategies for structural systems.
LO5	Determine the effects of actions on concrete beams and columns in simple construction and design beams and columns using simplified rules.

Dependencies	
Module Recommendations	
Incompatible Modules	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements	
No requirements listed	

Indicative Content	
<b>Principles</b> Temporary works. Ground water control. Site investigations. Retaining walls. Foundations. Basement construction: domestic and commercial, forces, excavation, waterproofing, top-down, bottom up. Retaining walls: gravity, embedded, temporary. Basement construction bottom up, top down. Damp-proofing: methods and materials.	
<b>Technology, Materials</b> Ground Water Control, Site Investigations, Temporary and Permanent Water Exclusion. Soil Types, Category of Soils, Soil Characteristics, Bearing Capacity, Soil Movements, Settlement, Contaminants, Pyrite, Radon, Sulphates. Dealing with Contaminants. Foundation Selection, Function, Selection, Deep Piles, Caissons, Displacement and Replacement Piles, Method of Installation, Pile Caps, Grouped Piles. Raft types/design, Displacement Theory. Retaining walls, Embedded and Gravity, Plain Concrete, Reinforced Concrete, Mechanically Stabilised Earth Walls, Reinforced Masonry. Forces Acting on Retaining Walls. Basement Construction, Domestic Basements, Commercial Basements, Grade and Type of Basement. External, Internal Tanking. Dampproofing, Methods and Materials. Construction, Open Excavations, Excavations with Temporary and Permanent Support. , Excavation of Footprint, Permanent Embedded Retaining Walls. Steel Frame, Precast, Cast In-situ Structures, Cast-In-Situ Floors, Infill Walls – Masonry, Metal Stud. Upstands, Drop Beams, One Way and Two Way Spanning Slabs, Sizing Cast Concrete Floors, Hollowcore Slabs, Metal Deck, A Beams. Precast and Cast In-situ Cores, Lift Shafts, Low-Rise Masonry Loadbearing Construction, Engineered Timber Floors for Commercial Buildings. Service Provision. Suspended Ceilings, Raised Access Floors. Precast Stairs and Landings. Hybrid Connections – Steel to Concrete/Masonry etc. Warm Roof Build Ups, Roof Terraces, Roof Finishes, Asphalt, Membranes, Metal Standing Seam, Insulation, Green Roof Construction.	
<b>Structure</b> Lateral stability (diaphragm, frame, core), shells and membranes. Actions/loads which structural members in a concrete framed building are required to resist. Characteristic and design actions and the transfer of such actions/loads through a structural framed building.	
<b>Regulations</b> Demonstrate compliance with the relevant building regulations, technical guidance documents and codes & standards.	

Module Content & Assessment	
Assessment Breakdown	%
Coursework	100.00%

**Assessments**

Coursework			
Assessment Type	Project	% of Total Mark	40
Timing	Every Week	Learning Outcomes	1,2,3
<b>Assessment Description</b> Complete a booklet of details including detailing critical junctions to prevent ingress of moisture to building fabric.			
Assessment Type	Critique	% of Total Mark	30
Timing	Week 13	Learning Outcomes	4,5
<b>Assessment Description</b> Analysis, selection and specification of structural system for studio project.			
Assessment Type	Written Report	% of Total Mark	30
Timing	Week 13	Learning Outcomes	1,2,3
<b>Assessment Description</b> Report on basement construction and structural form			
No End of Module Formal Examination			
Reassessment Requirement			
<b>Coursework Only</b> This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination.			

## Module Workload

Workload: Full Time					
Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lecture	Contact	Lecture based learning	Every Week	2.00	2
Lecturer-Supervised Learning (Contact)	Contact	Integrated Studio Workshop	Every Week	1.00	1
Independent & Directed Learning (Non-contact)	Non Contact	Research, Development and Completion of Assignment	Every Week	4.00	4
Total Hours					7.00
Total Weekly Learner Workload					7.00
Total Weekly Contact Hours					3.00

  

Workload: Part Time					
Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lecture	Contact	Lecture based learning	Every Week	2.00	2
Lecturer-Supervised Learning (Contact)	Contact	Integrated Studio Workshop	Every Week	1.00	1
Independent & Directed Learning (Non-contact)	Non Contact	Research, Development and Completion of Assignment	Every Week	4.00	4
Total Hours					7.00
Total Weekly Learner Workload					7.00
Total Weekly Contact Hours					3.00

## Module Resources

Recommended Book Resources	
<p>Edward Allen and Joseph Iano. (2014), Fundamentals of Building Construction, Sixth. J. Wiley &amp; Sons, Hoboken, N.J., [ISBN: 1118138910].</p> <p>Edward Allen and Joseph Iano. (2017), The Architect's Studio Companion, Sixth. Wiley, Hoboken, NJ, [ISBN: 9781119092414].</p> <p>Derek Seward. (2014), Understanding Structures, Fifth. Palgrave Macmillan, [ISBN: 9780070432536].</p> <p>Andrea Deplazes and G. H. Söffker. (2013), , Constructing Architecture: Materials, Processes, Structure, Third. Birkhäuser.</p> <p>Stephen Emmitt, Christopher Gorse. (2018), Barry's Introduction to Construction of Buildings, Fourth. Wiley-Blackwell, Oxford, [ISBN: 1118977165].</p> <p>Arthur Lyons. (2014), Materials for Architects and Builders, Fifth. Routledge, Glasgow, [ISBN: 9780415704977].</p>	
Supplementary Book Resources	
<p>Edward Allen and Joseph Iano. (2017), The Architect's Studio Companion], Sixth. Wiley, Hoboken, NJ, [ISBN: 9781119092414].</p> <p>Francis D. K. Ching and Cassandra Adams. (2014), Building Construction Illustrated, Fifth. Wiley, New York, [ISBN: 987111845834].</p> <p>Roy Chudley; Revised by Roger Greeno. (2011), Construction Technology, Eleventh. Pearson Education Ltd., [ISBN: 113890709X].</p>	
This module does not have any article/paper resources	
This module does not have any other resources	

## Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_CARCT_8	<a href="#">Bachelor of Science (Honours) in Architectural Technology</a>	-1	Mandatory
CR_TARCH_7	<a href="#">Bachelor of Science in Architectural Technology</a>	-1	Mandatory