CIVE08054
Building Information Modelling Infrastructure

Full Title	Building Information Modelling Infrastructure		
Status	Uploaded to Banner	**Start Term**	2015
NFQ Level	08	**ECTS Credits**	10
Module Code	CIVE08054	**Duration**	12 Weeks - (12 Weeks)
Grading Mode	Numeric	**Department**	Building & Civil Engineering
Module Author	Gerard Nicholson		

Module Description

Using BIM Infrastructure software to produce a BIM model for construction Purposes and analysis.

	Learning Outcomes ***On completion of this module the learner will/should be able to:***
1.	Have detailed knowledge of the creation of Infrastructure BIM models
2.	Have a good understanding of the applications of Infrastructural models
3.	Identify and critically analyse infrastructure models and various design options available
4.	Prepare and produce information and data from infrastructure BIM Models
5.	Understand the role of BIM in providing an information-rich, model-centric process with the power to transform project delivery and add value across the lifecycle of infrastructure assets

Indicative Syllabus

AutoCAD 3D Civil

The AutoCAD Civil 3D Interface: Product Overview, AutoCAD Civil 3D Workspaces, AutoCAD Civil 3D User Interface, AutoCAD Civil 3D Tool space, AutoCAD Civil 3D Panorama, AutoCAD Civil 3D Templates, Settings, and Styles.

Project Management: AutoCAD Civil 3D Projects, Sharing Data, Using Data Shortcuts for Project Management.

Parcels: Lines and Curves, Introduction to Parcels, Creating and Editing Parcels by Layout Overview, Creating and Editing Parcels, Renumbering Parcels, Parcel Reports, Parcel Labels, Parcel Tables.

Survey: Survey Workflow Overview, Introduction to the Survey Tool space, Survey Figures, Points Overview, Point Settings, Creating Points, Description Key Sets, Importing Survey Data, Point Groups, Reviewing and Editing Points, Point Reports.

Surfaces: Surface Process, Surface Properties, Contour Data, Other Surface Data, Break lines and Boundaries, Surface Editing, Adjusting Surfaces through Surface Properties, Surface Analysis Tools, Surface Labels, Surface Volume Calculations, Surface Analysis Display.

Alignments: Roadway Design Overview, AutoCAD Civil 3D Sites, Introduction to Alignments, Alignments Layout Tools, Alignment Properties, Labels and Tables.

Profiles: Profiles Overview, Create a Profile View Style, Create Profiles from Surface, Create Profile View Wizard, Finished Ground Profiles, Create and Edit Profiles.

Corridors: Assembly Overview, Modifying Assemblies, Creating a Corridor, Corridor Properties, Designing Intersections, Corridor Surfaces, Corridor Section Review and Edit, Corridor Visualization.

Grading: Grading Overview, Feature Lines, Grading Tools, Modifying AutoCAD Civil 3D Grading.

Pipe Networks: Pipes Overview, Pipes Configuration, Creating Networks from Objects, The Network Layout Toolbar, Network Editing, Annotating Pipe Networks, Pressure Pipe Networks.

Quantity Take Off/Sections: Sample Line Groups, Section Volume Calculations, Pay Items, Section Views

Plan Production: Plan Production Tools, Plan Production Objects, Plan Production Object Edits, Creating Sheets.

InfraWorks – Using Infraworks for preliminary engineering and design

Teaching and Learning Strategy

Blended Teaching and Learning Strategy
The blended teaching and learning strategy for the BIM Infrastructure module aims to create a flexible and accessible learning environment for students. A combination of participative face-to-face workshops and innovative online resources will inform a leaner-centered and subject-led approach to all elements of the module.

Assessment Strategy

Blended Assessment Strategy
The BIM Infrastructure module blended assessment strategy will employ both formative and summative face-to-face and online assessment approaches (MCQs and projects), which clearly focus on individual learning reinforcement, collaborative learning and industry-relevant competences. The assigned authentic assessments tasks with be clearly aligned with in-class and online activities and their associated learning outcomes.

The assessment details on the descriptor are for the part-time delivery mode, below are the assessment details for blended delivery.
Blended Assessment Details

Type	Title	Form	%	Week	LO
CA	Assignment 1	Project	20	3	1-5
CA	Assignment 2	Project	20	6	1-5
CA	Assignment 3	Project	20	9	1-5
CA	Main Project	Project	40	12	1-5

Repeat Assessment Strategies

The learner with be required to repeat the full module

Indicative Coursework and Continuous Assessment:		**100 %**		
Form	***Title***	***Percent***	***Week (Indicative)***	***Learning Outcomes***
Performance Evaluation	Coursework	38 %	OnGoing	1,2,3,4,5
Project	Formative	38 %	OnGoing	1,2,3,4,5
Multiple Choice	Summative	24 %	OnGoing	1,2,3,4,5

Part Time Delivery Mode Average Weekly Workload:			**4.00 Hours**		
Type	***Description***	***Location***	***Hours***	***Frequency***	***Weekly Avg***
Practical	BIM Infrastructure Authoring	Computer Laboratory	4	Weekly	4.00
Independent Learning	Student Work	Not Specified	4	Weekly	4.00

Blended Delivery Mode Average Weekly Workload:			**4.00 Hours**		
Type	***Description***	***Location***	***Hours***	***Frequency***	***Weekly Avg***
Tutorial	Face-to-face lab. workshop	Computer Laboratory	4	Fortnightly	2.00
Online Learning	Project-based activities	Online	4	Fortnightly	2.00

Literary Resources

Louisa Holland, Cyndy Davenport & Eric Chappell (2015) *AutoCAD Civil 3D* - Wiley

Deutsch (2011) BIM and Integrated Design – Wiley

Eastman, Teicholz, Sacks, Liston (2011) *BIM Handbook: A Guide to Building Information*

R.S. Weygant (2011) *BIM Content Development: Standards, Strategies, and Best Practices* - Wiley

Modeling for Owners, Managers, Designers, Engineers and Contractors, 2nd Edition – Wiley

Aouad, Arayici (2010) *Requirements Engineering for Computer Integrated Environments in Construction* – Wiley

Online Resources
Various websites on Advanced AutoCAD 3D Civil

Other Resources
Video Tutorials, Lecturers notes and hand-outs.

Programme Membership
GA_EBIMG_L08 201500 Higher Diploma in Engineering in Building Information Modelling GA_EBOLG_L08 201800 Higher Diploma in Engineering in Building Information Modelling