Liverpool John Moores University

Title:	SITE SURVEYING, IT AND CAD
Status:	Definitive
Code:	**4109BEHN** (118179)
Version Start Date:	01-08-2016
Owning School/Faculty:	Civil Engineering
Teaching School/Faculty:	Civil Engineering

Team	Leader
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Academic Level:	FHEQ4	**Credit Value:**	24	**Total Delivered Hours:**	78
Total Learning Hours:	240	**Private Study:**	162		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24
Practical	24
Workshop	30

Grading Basis: BTEC

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Technology	AS1		30	
Practice	AS3		50	
Technology	AS2		20	

Aims

1. This module aims to develop an understanding of the use and application of Computer Aided Design in the Built Environment and the development of 2-dimensional draughting techniques and conventions.

2. To introduce 3-dimensional drafting techniques and conventions.
3. To introduce the student to a range of surveying techniques in construction.

Learning Outcomes

After completing the module the student should be able to:

1	Carry out field exercise to demonstrate methods in levelling; booking, calculation & application
2	Carry out a field exercise to demonstrate methods of angular measurement; booking calculation and application
3	Carry out field exercise in setting out information extracted from a drawing, map or other sources.
4	Produce completed booking sheets showing all calculations in the areas of leveling and angular measurement.
5	Carry out a measured survey of a building
6	Produce 2D drawings using industry standard CAD software application.
7	Produce 3D drawings using industry standard CAD software application.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

TECHNOLOGICAL TEST 1	6				
PRACTICE	1	2	3	4	5
TECHNOLOGICAL TEST 2	7				

Outline Syllabus

Surveying:

Vertical control: Set up, use and adjustment of the level. Ordnance Bench Marks. Leveling techniques. Accuracy checks.

Horizontal control: Set up, use and adjustment of Total Station. Theodolite traverses and their adjustment.

Application of electronic and laser instruments and the use of computer packages in surveying.

Setting Out: Procedure for co-ordinated setting out, procedures and practices for setting out groundworks, road construction and drainage works.

Measured Surveys using both tapes and distos and then input into powercad.

Introduction to CAD and applications of the software in practice. Creating, opening and saving CAD files using the latest version of AutoCAD. Setting up system

preferences, drawing scales, drawing sheet size, borders, title block. Use of view, zoom and pan commands, layers, line types, text styles, and dimension styles. Drawing and modifying 2D objects using standard construction industry conventions. Editing, enhancing, annotating and setting up drawings for plotting. Use of design and construction technology issues related to suitable structures through the evaluation of example production drawings and relevant regulation.

Production of site plans, floor plans, elevations and detail drawings. Use of format, draw, tools and modify commands. Use of layers, line type and weight, lock, freeze and thaw. Creating and editing text and dimensions.

Introduction to 3D design including views, UCS, extrude and draw solids commands.

Learning Activities

Surveying lectures and tutorial exercises. Practical use of surveying instruments in the field.

The CAD will be delivered through workshop sessions comprimising explanation and demonstration followed by student-centred working.

Notes

Students require access to personal computers with computer aided drawing software.