

Liverpool John Moores University

Title: ADVANCED SURVEYING
Status: Definitive
Code: **6157UG** (102684)
Version Start Date: 01-08-2011

Owning School/Faculty: Built Environment
Teaching School/Faculty: Built Environment

Team	Leader
John McLoughlin	Y
Jayne Dooley	

Academic Level: FHEQ6 **Credit Value:** 12.00 **Total Delivered Hours:** 60.00
Total Learning Hours: 120 **Private Study:** 60

Delivery Options

Course typically offered: Summer

Component	Contact Hours
Lecture	20.000
Off Site	30.000
Tutorial	10.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Individual assignment (1000 words)	30.0	
Report	AS2	Group fieldwork (4000 words or equivalent)	70.0	

Aims

To build on existing knowledge of land surveying techniques using modern surveying equipment and software packages.

Learning Outcomes

After completing the module the student should be able to:

- 1 Carry out practical exercises using surveying equipment including total stations and GPS to industry competency level.
- 2 Undertake calculations associated with surveying practices.
- 3 Process fieldwork observations and produce appropriate drawings to industry standard, using standard computer software packages.
- 4 Evaluate the application of new surveying technologies and procedures within a civil engineering context.

Learning Outcomes of Assessments

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

INDIVIDUAL REPORT	4		
GROUP FIELDWORK	1	2	3

Outline Syllabus

Survey software: the field measurements and coding systems to produce DGMs using a range of computer software packages. The use of CAD to enhance the drawings produced, and compute longitudinal and cross sections and volumetrics. The GIS packages available and the formation of data bases within them.

Error theory: the adjustment of survey measurements using the principle of least squares; error ellipses and the use of computers to adjust survey data.

Global systems: the use of global datum and coordinate systems, transformations between systems, satellite techniques using GPS.

Map projections: the various map projections available. Global geodetic systems and their relationship to national mapping.

Establishment and management of geodetic control networks.

Surveying techniques for the measurement of structural and geotechnical movement.

Learning Activities

Lectures, tutorials, practical fieldwork, labs using surveying software packages.

References

Course Material	Book
Author	Bannister A., Raymond S. & Baker R.
Publishing Year	1998
Title	Surveying
Subtitle	

Edition	7th Edition
Publisher	Longman Scientific and Technica
ISBN	0582302498

Course Material	Book
Author	Schofield, W.
Publishing Year	2007
Title	Engineering Surveying :theory and examination problems for students
Subtitle	
Edition	6th Edition
Publisher	Butterworth Heinemann
ISBN	0750649879

Course Material	Book
Author	Van Sickle, J.
Publishing Year	2001
Title	GPS for land surveyors
Subtitle	
Edition	
Publisher	Ann Arbor
ISBN	1575040751

Course Material	Book
Author	Johnson, A.
Publishing Year	2004
Title	Plane and geodetic surveying :the management of control networks
Subtitle	
Edition	
Publisher	E&FN Spon
ISBN	0415320046

Course Material	Book
Author	Kennedy, M.
Publishing Year	2002
Title	Global positioning system and GIS :an introduction
Subtitle	
Edition	
Publisher	Taylor & Francis
ISBN	0415286085

Course Material	Book
Author	Longley, P.A. et al.
Publishing Year	2005
Title	Geographic information systems and science
Subtitle	

Edition	2nd Edition
Publisher	Wiley
ISBN	047087001x

Notes

A study of advanced land surveying techniques including the production of digital ground models, enhanced CAD drawings and design, satellite surveying using Global Navigational Satellite Systems, and the use of GIS in Civil Engineering.