Surveying and Setting Out

Module Information

2022.01, Approved

Summary Information

Module Code	5614BECC
Formal Module Title	Surveying and Setting Out
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Coleg Cambria

Learning Methods

Learning Method Type	Hours
Lecture	12
Practical	27
Workshop	17

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-PAR	PAR	September	28 Weeks

Aims and Outcomes

Aims	To develop an understanding of the principles of site surveying and cartographicdetailing of construction works. To develop skills in the use and application of site surveying instruments. To provide a mathematical base for the study of construction and surveying related subjects

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Demonstrate the ability to establish a station network for horizontal and vertical control. Illustrate the methods of application, booking and calculation.
MLO2	2	Apply industry-standard techniques in the production, transferring and staking out of co-ordinates of multiple construction elements. Illustrate the methods of application and transferring data to total stations.
MLO3	3	Demonstrate the ability to undertake a topographic survey Illustrate the methods of application
MLO4	4	Evaluate the causes of errors and techniques to improve accuracy, including the use of digital data.

Module Content

Outline Syllabus	By the end of this course students will be able to calculate and adjust survey data to analyse errors and derive unknown bearings, distances, coordinates, curve elements and areas to include:● vertical control● Description of types of control points.● Primary controls, first and second order.● Secondary control.● Carrying out a full closed traverse survey for horizontal and vertical controls.● Methods for checking the accuracy of the traverse.● Purpose of a topographic survey.● Techniques to communicate a completed survey.● Methods of completing a topographic survey.● Equipment to be used to capture topographic details.● Setting out techniques.● Use of free station, reference lines, stakeout, tie distances within a total station program.● Techniques to obtain setting out data, including data transfer.● Process of setting out structures and offsetting lines of structural elements.● Errors in surveying and setting out.● Instrumentation error: prism constants, reflector heights, atmospheric influences, calibration certification, free station errors, discrete setting out.● Human errors: alignment of levelling staffs and hand- or tripod-mounted prisms, physical setting out constraints.● Comparing the accuracy of set out element to nationally recognised standards.
Module Overview	
Additional Information	This module develops an understanding of site surveying and its application in the construction industry.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Portfolio	Portfolio of Surveying Task	70	0	MLO1, MLO2, MLO3
Essay	Essay (1000 words)	30	0	MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Volkan Ezcan	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings