Surveying, Highways and Transportation

Module Information

2022.01, Approved

Summary Information

Module Code	5201CIV
Formal Module Title	Surveying, Highways and Transportation
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
Civil Engineering and Built Environment

Learning Methods

Learning Method Type	Hours
Lecture	20
Off Site	30
Practical	20
Tutorial	10
Workshop	10

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	To introduce methods of infrastructure route planning.To introduce highway geometry, design & construction. To introduce geodetic and satellite surveying.To demonstrate how total stations and GNSS receivers, can capture data for use in software packages to produce contoured plans and sections.To develop practical surveying skills

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Explain methods used and data requirements for infrastructure planning
MLO2	2	Apply mathematical methods and design standards proficiently to the effective use of surveying information and the design of highways.
MLO3	3	Obtain position and orientation of and from remote points and set out and control on site infrastructure works.
MLO4	4	Use a standard computer software package to process total station and satellite surveying observations and produce appropriate drawings
MLO5	5	Use a range of land surveying equipment effectively for setting out engineering works

Module Content

Outline Syllabus	Evaluation of infrastructure route choices.Basic highway alignment design.Orientation: The use of the Reference Object (RO) and orientation to the NationalGrid system of the Ordnance Survey and other coordinate systems. Standard mapsand plans, scales and symbols.Safety and Risk Assessment in surveying and construction operations.Horizontal Control: Set up, use and adjustment of the theodolite and Total Station.Introduction to Global Navigational Satellite Systems.Setting out of highways works: Field positioning of points and lines using the Total Station.Applications: Production of site drawings.Orientation and Position: Resection and intersection techniques.Total stations: Demonstrations of the field measurements and coding systems available with total stations and GNSS receivers and their use with a computer software package.
Module Overview	In this module you will develop your understanding of, and competence in using, land surveying techniques. You will extend your understanding to be able to apply these techniques to highway design. You will be introduced: To highway geometry, design & construction To geodetic and satellite surveying To how total stations and GNSS receivers can capture data for use in software packages to produce contoured plans and sections To practical surveying skills.
Additional Information	Students will develop their understanding of, and competence in using, land surveying techniques. They will extend their understanding to be able to apply these techniques to highway design.Where this module is part of a Degree Apprenticeship programme, the knowledge learning outcomes are K2 and K4.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Practice	SURVEYING FIELD COURSE	40	0	MLO2, MLO3, MLO4, MLO5
Centralised Exam	Examination	60	2	MLO1, MLO2

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Ziad Abdeldayem	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings