

## Liverpool John Moores University

Title: SITE SURVEYING PROCEDURES

Status: Definitive

Code: **4304CIVH** (123239)

Version Start Date: 01-08-2021

Owning School/Faculty: Civil Engineering and Built Environment

Teaching School/Faculty: Civil Engineering and Built Environment

| Team            | Leader |
|-----------------|--------|
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|                              |       |                       |       |                               |      |
|------------------------------|-------|-----------------------|-------|-------------------------------|------|
| <b>Academic Level:</b>       | FHEQ4 | <b>Credit Value:</b>  | 20    | <b>Total Delivered Hours:</b> | 73.5 |
| <b>Total Learning Hours:</b> | 200   | <b>Private Study:</b> | 126.5 |                               |      |

### Delivery Options

Course typically offered: Standard Year Long

| Component | Contact Hours |
|-----------|---------------|
| Lecture   | 24            |
| Practical | 24            |
| Workshop  | 24            |

**Grading Basis:** BTEC

### Assessment Details

| Category | Short Description | Description               | Weighting (%) | Exam Duration |
|----------|-------------------|---------------------------|---------------|---------------|
| Practice | AS1               | 2500 WORD FIELD PORTFOLIO | 60            |               |
| Exam     | AS2               | EXAMINATION               | 40            | 1.5           |

### Aims

*To introduce basic techniques for land surveying and setting out: methods of obtaining field measurements for the purpose of producing site drawings and hence the calculation of land areas and earthwork volumes, setting out points using line-of sight.*

*To develop an understanding of the use and application of Computer Aided Design in the Built Environment and the development of 2-dimensional drafting techniques and conventions.*

## **Learning Outcomes**

After completing the module the student should be able to:

- 1 Carry out field exercises to illustrate methods of levelling, angular measurement: booking, calculation and application including setting out using information extracted from a drawing, map or other sources.
- 2 Use measured values to compute and draw contours, longitudinal and cross-sections, and to evaluate volumes of earthworks.
- 3 Produce completed booking sheets showing all calculations in the areas of levelling and angular measurement.
- 4 Identify and calculate data necessary for setting out of civil engineering works.
- 5 Produce 2D drawings using industry standard CAD software application.

## **Learning Outcomes of Assessments**

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

|                 |   |   |   |   |   |
|-----------------|---|---|---|---|---|
| 2500 WORD FIELD | 1 | 2 | 3 | 4 | 5 |
| PORTFOLIO       |   |   |   |   |   |
| EXAMINATION     | 2 | 3 | 4 | 5 |   |

## **Outline Syllabus**

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

*Horizontal control: Set up, use and adjustment of Total Station. Traverse surveys and their adjustment.*

*Application of digital instruments and the use of computer packages in surveying. Setting Out: Procedure for co-ordinated setting out, procedures and practices for setting out ground works, road construction and drainage works.*

*Applications: Computation and drawing of contours, longitudinal sections and cross-sections. Determination of areas of land and volumes of earthworks.*

*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.*

*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.*

## **Learning Activities**

Surveying lectures and workshop exercises, practical use of surveying instruments in the field, CAD workshops.

### **Notes**

An introduction to basic land surveying techniques. The field measurements required to produce a contoured site plan to a chosen scale, the use of field information to compute land areas and earthworks volumes, and setting out simple features to full scale on site in both line and level.

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