

Module Information

2022.01, Approved

Summary Information

Module Code	4507ICBTCE
Formal Module Title	Computer Aided Design for Civil Engineering
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	15
Academic level	FHEQ Level 4
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
International College of Business and Technology

Learning Methods

Learning Method Type	Hours
Lecture	15
Workshop	30

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks
JAN-PAR	PAR	January	12 Weeks

SEP_NS-PAR	PAR	September (Non-standard start date)	12 Weeks
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Aims and Outcomes

Aims	This unit provides learners with the skills needed to produce 2D and 3D drawings using industry-standard computer-aided design (CAD) software. Learners will also gain skills to model and analyse civil engineering schedule problems
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Produce 2D drawings using industry-standard CAD software applications
MLO2	2	Produce 3D drawings using industry-standard CAD software applications
MLO3	3	Apply computer software to plan complex civil engineering project

Module Content

Outline Syllabus	<p>2D drawings: setting up, data input, drawing, modifying, text, dimension, insert, file formats, views Setting up: open software application, use of templates, entities, aids, snap, polar, User Coordinate System (UCS), layers, line types, units, model space, paper space, viewports, scale, drawing page, title block Data input: dynamic input, menu and icon input Drawing: line, multiline, polyline, spline, circles, arcs, rectangles, polygons, ellipse, hatching, boundaries, triangulation Modifying: erase, copy, trim, extend, scale, stretch, mirror, move, rotate, chamfer, array, fillet, break, join, lengthen Text: multiline, single line, text style Dimension: aligned, linear, ordinate, angular, diameter, arc length, baseline, continuation, dimension style Insert: blocks, attributed blocks, dynamic blocks, raster image, text, spreadsheets, images, copy/paste, explode, purge File formats: DWG, DXF, OLE, 3ds, Xrefs Views: zoom, pan, aerial, named, viewports 3D drawings: setting up, data input, 3D surface models, 3D solids, solid modelling, modify, rendering, shade, views Setting up: open software application, use of templates, entities, aids, snap, Osnap, polar, UCS, layers, line types, units, model space, paper space, viewports, scale, drawing page, title block Data input: dynamic input, menu and icon input 3D surface models: edge, mesh, revolved, tabulated, ruled, edge, loft, sweep, 3D polyline 3D solids: box, sphere, cylinder, cone, wedge, torus Modify: 3D array, 3D mirror, 3D rotate Rendering: scene, materials, background, lighting Shade: wireframe, hidden, flat, edges Views: viewpoint, isometric, plan view, 3D orbit, viewports, UCS Software related to construction: e.g. Primavera, MS Project Resources: human (direct and sub-contract labour, management and supervision), plant and machinery, materials, sub-contractors, production of long- and short- term programmes, scheduling of material requirements Use of MS Project for construction planning: defining the project data (adding a new project, defining activity codes, defining work breakdown structure, defining calendars), working with activities and relationships (adding activities, assigning activity IDs, activity types, assigning activity codes to activities), project organising (organising the activities, view layouts, copy, backup and restore data), defining logic and scheduling (assigning predecessors and successors, imposing constraints to activities, calculating the schedule, adjusting the schedule), tabular and graphical reports.</p>
Module Overview	
Additional Information	

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
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Report	Report	30	0	MLO1, MLO2, MLO3
Exam	Examination	70	2	MLO1, MLO2, MLO3

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Karl Jones	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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