College of Contract Management
United Kingdom

Professional Diploma in

CAD (Computer Aided Design)

Syllabus

Contents

1. Course Structure and Rules of Combination

1.1 Rationale

This Professional Diploma in Computer Aided Design (CAD) has been designed to equip those who are looking to or work within architecture, art, or engineering projects with an enhanced understanding of the use of CAD software. This course is ideal for architects, landscape architects, engineers (mechanical, civil, automotive, aerospace, and electrical) designers, planners and professionals working in construction or surveying. This qualification will increase a learner's capability to fully utilise CAD software within their work. An increased comprehension in CAD can help streamline processes and increase productivity, which in turn increases the learner's value for potential and existing employers.

This Professional Diploma in Computer Aided Design (CAD) is delivered via live online lectures. Our course lecturers have significant experience within the industry and will relate lecture content to real-life scenarios. In addition to this, lectures also include both practical examples and case studies. Through this delivery style, learners will be able to reflect on the practical challenges faced by professionals in the industry and establish an understanding of how to act in these situations in a manner that works towards success.

1.2 Career Progression

This qualification has been designed to provide learners with a comprehensive understanding of the application of CAD software. Learners will be able to confidently navigate software such as REVIT, Fusion 360, 3DS Max, AutoCAD and Navisworks. This increase in skill will help learners develop their professional profile, nurturing existing skills and discovering new techniques that will greatly improve their input on a project.

1.3 Course Rules of Combination

The course can be completed in 6 months (approximately 24 weeks), and includes an assessment at the end of each module. Each module is worth 2 credits.

- CAD604: Introduction to CAD
- CAD605: Revit
- CAD606: Navisworks

To achieve the Professional Diploma, candidates are required to complete all modules and pass their respective final assessments.

1.4 Entry Requirements

- Minimum 18 years of age **and**
- Relevant industry experience.

1.5 Module and Assessment Grades

The Assessor will award a grade for the achievement of each module (Fail, Pass, Merit or Distinction). Grades apply to overall performance in modules and assessments.

Indicative marking descriptors for differentiating between levels of achievement when marking assessments are provided below (Section 1.8).

The overall grade for a qualification is calculated using a points system. Each module grade attracts points as follows:

Fail	0 points
Pass	1 point
Merit	2 points
Distinction	3 points

1.6 Assessment

The assessment process is set by the College of Contract Management, defining the requirements learners are expected to meet in order to demonstrate that a learning outcome has been achieved. All learning outcomes must be achieved in order to gain attainment of credit for that module.

All completed assessments are marked and verified internally, and are subject to approval by our partner universities or awarding bodies.

The assessment criteria are based on 3 areas:

1. **Task Achievement** - This is a measure of how well the candidate answers the task question(s) and identifies the important aspects of the task.
2. **Technical Content** - This is a measure of how well the candidate identifies, describes and evaluates the technical aspects of the task.
3. **Presentation** - This is a measure of how well the candidate presents the assessment, which includes the quality of the structure and paragraphing, the quality and relevance of visual or graphical content and the referencing used for quoted sources.

1.7 Assessment Policies

1. All submission of assessments must include:

    a. a copy of the full brief given by the Examinations Officer or Course Administrator;
    b. all source material must be cited in the text and a full bibliography of source material (including author, title, publisher, edition and page) listed at the end of the submission.

2. All submissions must be submitted into our system as instructed by the Examination Officer or Course Administrator.

3. All submissions under the student's name must only be the work of that student. All information sources must be acknowledged. There is the **possibility of failing the modules if the content of the assessment are deemed be plagiarised** as set out in the rules and regulations of the College.

4. All submissions should be in pdf format (unless software files are specified) and students must keep a copy of all submitted work for reference purposes. Receipt will be acknowledged by the College once the work is submitted via our online exam portal.

5. Whenever a candidate submits work after the approved deadline without an authorised extension, a maximum "Pass" grade will be awarded.

6. The Assessor will comment on the quality of the work for learning purposes.

7. Application for an extension must be requested prior to the submission deadline. Submissions must be made on the exam portal for each module extension request. A primary extension (two weeks) request can be made without the submission of any evidence or reasoning, any further extension requests will require submission of supporting documentation. All requests must be addressed to the Examination Officer or Course Administrator.

1.8 Indicative Marking Descriptors

Note: Please note that the bands below describe indicative characteristics only. An overall holistic approach is required when assessing a candidate's work and assigning a grade. Please read these grading bands in conjunction with the College of Contract Management Assignment Policy.

Grade	Task Achievement - The Relevance of the Response	Inclusion of Relevant Technical Knowledge in Content	Presentation/Coherence
Distinction			
70%+	The work demonstrates a comprehensive understanding of the task. All relevant information is included. The main issues are effectively identified and analysed. There is evaluation and some analysis of solutions to issues relevant to the task. The response shows control of content within the word count.	The work demonstrates a strong understanding of a wide range of technical issues relevant to the task. There is analysis of the advantages/disadvantages of possible choices, risks and potential outcomes.	The work is appropriately structured and the argument is developed coherently. There is a recognised form of source referencing which supports the points in the task. Paragraphing and titling are used effectively to assist the reader. The use of visual/graphical information is clear and effective in assisting the reader. The graphical information is relevant to the task and is accurate.
Merit			
60-69%	The work demonstrates a clear understanding of the main issues relevant to the task. The issues are explained effectively and potential solutions identified. There is some attempt to analyse the merits of the solutions to the task. The task is broadly achieved within the word count, if relevant to assessment.	The work demonstrates an understanding of the key technical issues of the task. There is clear description of relevant technical aspects with some attempt to evaluate the merits of these as appropriate to the task.	Demonstrates an awareness of presentation and an attempt to present the information with clarity and coherence. There is referencing of sources and use of paragraphing and titling to assist the reader. There is use of clear graphical information to support the assessment which has broad relevance to the task. There may be some limited inaccuracies/omissions in these.
Pass			
40-59%	The work demonstrates an understanding of the task. The main points are identified and the task is achieved. There is no attempt to evaluate or analyse the solutions. There may be some inaccuracies, omissions and irrelevant content. There may be lack of control in relation to the word count.	The work demonstrates an understanding of the main technical issues which are identified. This may be limited to description with little evidence of evaluation. There may be some omissions and inaccuracies in the detail. There may be some irrelevant details.	There is an attempt to structure the information. There is evidence of paragraphing and titling which is not always appropriate. Some basic graphical information may be included which is of some assistance to the reader. There may be some omissions or inaccuracies. The work is generally coherent but there may be occasional lapses in coherence and structure.
Fail			
0-39%	The work shows a poor understanding of the task. Frequent inaccuracies. Failure to identify important aspects of the task. Much of the information is irrelevant to the task. There may be evidence of copy and paste from external sources. The response may be limited to lists of words with no attempt to explain the relevance/merits of these to the task. The assessment falls short of the word count.	The work demonstrates a lack of understanding of the technical aspects. There are omissions of important technical information. Errors are evident in the technical content. There is no attempt to explain the relevance of the technical content to the task.	Lacks structure and may be limited to lists of points which are not developed. Disorganised in structure causing difficulty for the reader to understand the points. The response is Illegible or incoherent in places. No referencing of external sources. The graphical illustrations are of poor quality or absent. They may be irrelevant. There may be errors and a lack of clarity causing difficulty for the reader to understand.

1.9 Calculating Overall Qualification Grade

To calculate the overall qualification grade, the individual module grades should be added together and compared to the table below.

Candidates must pass all 3 modules of the course.

Total Points for all 3 Modules	Overall Grade
9	Distinction
8	
7	Merit
6	
5	Pass
4	
3	
2 or fewer	Fail
Candidates must achieve at least a Pass in all 3 modules to be awarded the Professional Diploma.	

1.10 Mandatory Modules

Module Reference	Title	LH	Credit Value
CAD604	Introduction to CAD	20	2
CAD605	Revit	20	2
CAD606	Navisworks	20	2

CAD604: Introduction to CAD

Learning outcomes: The learner will	Assessment criteria: The learner can
1. Comprehend the principles of data creation and management.	1.1 Explain the principles of project information management in relation to BIM standards such as ISO 19650 national annex and ISO 13567. 1.2 Create drawings, documents and data using the relevant standards. 1.3 Apply knowledge of common data environments (CDE) to course work and real work situations.
2. Identify the key features of a CAD drawing.	2.1 Understand the elements of a drawing and the standards to conform to so that drawings are readable. 2.2 Explain the features of a CAD drawing and how they can communicate design. 2.3 Evaluate a CAD drawing and mark it up to explain mistakes or problems.
3. Navigate the elements and features of the CAD tool.	3.1 Use the CAD tool to import data or drawing information from others to use as a basis. 3.2 Use the features of the CAD tool to create a CAD drawing that clearly explains a design and share this with others.
4. Use a CAD systems (AutoCAD) to create drawings.	4.1 Import data or drawing information from the CAD tools to use as a basis. 4.2 Use the features of the CAD tool to create a CAD drawing that clearly explains a design and share this with others.

CAD605: Revit

Learning outcomes: The learner will	Assessment criteria: The learner can
1. Identify the principle of Building Information Modelling (BIM) and how it is applied through Revit architecture.	1.1 Navigate the Revit Architecture workspace to highlight the main differences with CAD. 1.2 Explain in which areas 2D is required and the advantage of initially modelling from 3D. 1.3 Discuss why BIM isn't a software but a design and managing process, introduce Revit elements and families. 1.4 Set up the working parameters. 1.5 Use general drawing tools.
2. Understand the features of Revit architecture.	2.1 Set up and modify levels. 2.2 Create gridlines. 2.3 Identify and use general drawing tools. 2.4 Identify editing elements. 2.5 Work with modify tools.
3. Understand the elements and features of Revit tool. Apply this understanding to start a project.	3.1 Set the project parameters. 3.2 Create and edit wall types. 3.3 Load and insert family types from the library. 3.4 Create floors, stairs, ramps, and roof while controlling object visibility. 3.5 Work with elevation and section views. 3.6 Work with 3D views and site modelling.
4. Navigate the process of preparing construction documents.	4.1 Work with dimensions and annotations. 4.2 Prepare legends and schedules. 4.3 Add furniture and landscapes. 4.4 Prepare title block. 4.5 Prepare the presentation sheets. 4.6 Export and print construction documents. 4.7 Prepare quantities (BOQ).
5. Practical exercise.	5.1 Demonstrate the ability to create a new project. 5.2 Create a design, including walls, doors and windows. 5.3 Generate section views. 5.4 Create a revision table within Revit. 5.5 Create 3D views and site modelling.

CAD606: Navisworks

Learning outcomes: The learner will	Assessment criteria: The learner can