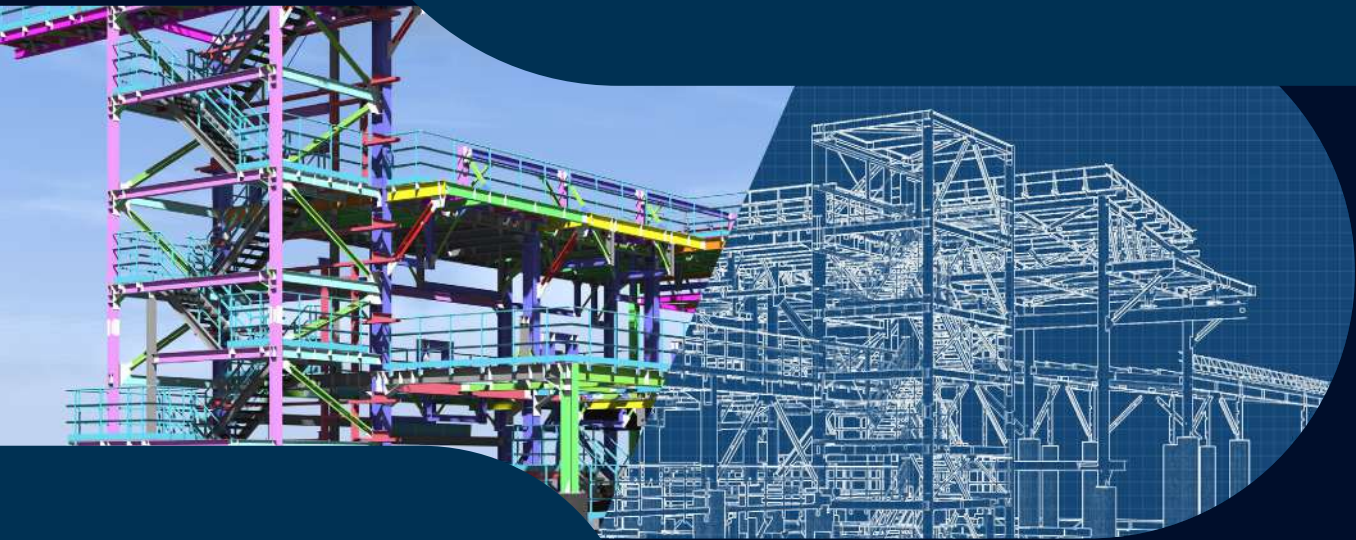




College of Contract Management
United Kingdom

Professional Diploma in BIM (Building Information Modeling)



Syllabus

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1. Course Structure and Rules of Combination

1.1 Rationale

The Professional Diploma in Building Information Modeling (BIM) is for construction professionals who wish to develop their ability to plan, design and manage construction projects and infrastructure. Engineers, Architects, and numerous other construction professionals regularly utilise BIM software. This BIM training course will give you a highly reputable qualification which will advance your career progression and increase your employability. Additionally, you will learn how to use multiple areas of BIM software, understand the BIM project lifecycle and be able to apply this new understanding to your work.

Expert lecturers, with decades of experience, deliver informative theoretical knowledge and provide practical learning examples based on their extensive professional experience. This course has been designed to deliver education that not only furthers your understanding but demonstrates how this knowledge can be applied in practice. Learners will gain an understanding of realistic challenges the industry professionals face and will become equipped with the right skills to navigate and overcome them.

In addition to the expertly delivered live online lectures, enrolling on our BIM course provides you access to the Autodesk Educational Suite. We have teamed up with Autodesk to allow our students full access to AutoCAD, Revit, Autodesk, Fusion360 and Navisworks to help you understand the practical application of the software. Thanks to this you can not only watch highly experienced professionals use the software, but also have a go at applying what you have learnt in your own time. Please note, we do not offer access to BIM360 software.

1.2 Career Progression

This course has been designed to develop a learner's understanding to an expert level. Through the exploration of the Autodesk Educational Suite, this course provides learners with the opportunity to fully comprehend the application of software in real world scenarios. This enhanced comprehension is a valued skill in the industry, giving learners a competitive edge in a popular sector facing high demand.

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 8 credits.

- BIM601: BIM Through the Design Stage
- BIM602: BIM Applications in Facilities and Management
- BIM603: BIM Through the Structural Design Stage

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 old **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
BIM601	BIM Through the Design Stage	80	8
BIM602	BIM Applications in Facilities and Management	80	8
BIM603	BIM Through the Structural Design Stage	80	8

BIM601: BIM Through the Design Stage

Learning outcomes: The learner will	Assessment criteria: The learner can
1. Understand the BIM process during the design stage.	1.1 Align and integrate ISO 19650. 1.2 Monitor BIM standards and the implementation process. 1.3 Determine industry BIM requirements and uses.
2. Prepare and maintain the documents involved in the BIM process.	2.1 Create, implement, and maintain necessary documentation. 2.2 Evaluate the best practice for BIM use in a project. 2.3 Demonstrate understanding of the process and the documents. 2.4 Align the BIM process to contractual documents.
3. Manage, maintain and extract relevant information from the models.	3.1 Confidently access and navigate Revit models. 3.2 Navigate BIM interoperability tools and other plugins to audit models. 3.3 Create and extract schedules from Revit. 3.4 Understand COBie models.
4. Model coordination using clash detection in federated modules.	4.1 Export NWC files from Revit. 4.2 Create a Federated Model using Navisworks. 4.3 Create clash sets and visual checks. 4.4 Extract reports from Navisworks.
5. Case studies.	5.2 Case A: BIM & Revit applied to a D&B fit out for co-working company. 5.2 Case B: BIM implementation in an architectural practice — where could it go wrong?

BIM602: BIM Applications in Facilities Management

Learning outcomes: The learner will	Assessment criteria: The learner can
1. Identify and develop an asset/facility management database.	1.1 Explain facilities management and its related concepts. 1.2 Outline asset management standards e.g. ISO 55000 and ISO 41001: 2018. 1.3 Demonstrate the ability to identify and classify different assets and their attributes. 1.4 Develop an asset management database.
2. Comprehend smart/asset management (information).	2.1 Explain asset management approaches and practices. 2.2 Outline methodology applicable to smart approach.
3. Comprehend the concepts of interoperability especially with regards to Industry Foundation Classes, COBie, gbXML for exchanging construction information.	3.1 Demonstrate good knowledge of BIM and its related concepts. 3.2 Demonstrate BIM applications in practice (use Revit to generate COBie files). 3.3 Outline information and integration and interoperability concepts. 3.4 Apply interoperability standards in information management.
4. Identify and apply relevant technologies in managing asset/facilities management information.	4.1 Evaluate the rationale/role of BIM for asset/facilities management. 4.2 Develop a BIM-based asset management workflow. 4.3 Demonstrate general software skills used in creating drawings and managing assets (e.g. Revit, BIM360 – Document Management and Asset Modules). 4.4 Critically appraise the different asset management software and their applications in practice (Exo Ecodomus, ArchiBus, Maximo, BIM360 Asset Module).
5. Establish and develop asset information requirements using information standards e.g. ISO 19650-3.	5.1 Identify information management cycles. 5.2 Explain BIM standard for construction and asset management. 5.3 Identify the differences between information requirements (OIR, EIR, PIR, AIR). 5.4 Use standards to develop asset information requirements.
6. Manage asset/facilities management data in BIM software systems in case study projects.	6.1 Develop and explore a BIM model for use in asset management software (Revit, BIM360 Asset Module). 6.2 Export and manage BIM data in an asset management platform. 6.3 Demonstrate the application of BIM and asset management systems for managing asset information of a case study project.

BIM603: BIM Through the Structural Design Stage

Learning outcomes: The learner will	Assessment criteria: The learner can
1. Identify BIM standards and management.	1.1 Understand the ISO 19650 suite of documents, BS 1192-6, BS EN17412-1, BS 8536 and the role of the other standards that are relevant to the BIM management of a structural BIM project. 1.2 Compare BS8644-1 in relation to fire safety and structural BIM deliverables. 1.3 Read a BIM execution plans and understand how the deliverables relate to this project. 1.4 Determine Level of Informational Need (LOIN). 1.5 Navigate the Model Production Delivery Table (MPDT) and Task Information Delivery Plan (MIDP). 1.6 Understand BIM classification processes and naming conventions. 1.7 Distinguish the relevant selection of BEP and the needs of the client.
2. Understand BIM.	2.1 Apply use of Revit Structural Families, proper structuring and naming of them and how to use/ modify them for use in the BIM context. 2.2 Use Revit 2023 with associated Revit Add-ins, including BIM interoperability tool and Di-Roots (external provider, free download). 2.3 Extract quantities and volumes from the structural model using schedules in Revit and associated Revit Add-ins, including Di-Roots (external provider, free download). 2.4 Determine COBie deliverables and the ability to generate them using the BIM interoperability tools. 2.5 Use Uniclass and the BIM interoperability tools to support modeling of data.
3. Manage BIM coordination and collaboration.	3.1 Manage information exchange with other design disciplines and sub-consultants using Revit and Navisworks. 3.2 Manage and track changes to the BIM module using Revit and Navisworks. 3.3 Identify what features to track in Navisworks clashes between structures and other disciplines and how to do this.
4. Apply BIM data management.	4.1 Understand the various data formats used in BIM, including IFC and COBie. 4.2 Manage and organise BIM data effectively using Revit and Navisworks. 4.3 Produce report and visualisations of BIM data using Revit and Navisworks. 4.4 Use Twinmotion to produce visualisations (free to download with Revit).

5. Review and check data.

5.1 Use Model Checker to review the model settings.

5.2 Use Power BI to dashboard this information.

5.3 Review warnings and typical issues to overcome and those that can be allowed.