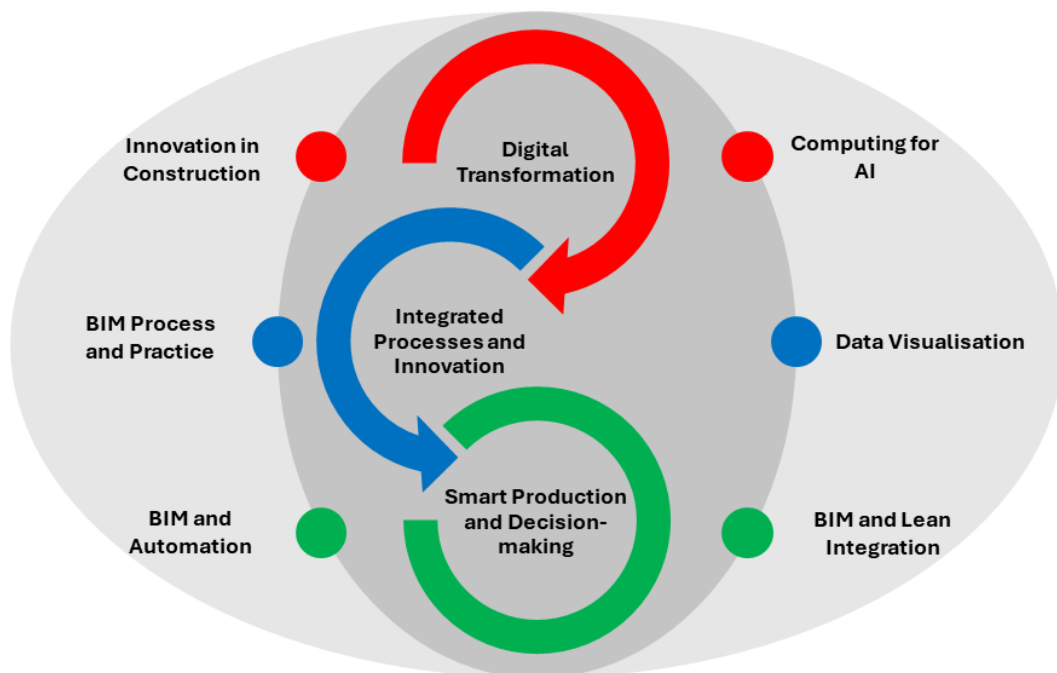


## Course Specification

Course Summary Information		
1	<b>Course Title</b>	MSc Building Information Modelling and Digital Construction
2	<b>Course Code</b>	PT1746
3	<b>Awarding Institution</b>	Birmingham City University
4	<b>Teaching Institution(s)</b> (if different from point 3)	
5	<b>Professional Statutory or Regulatory Body (PSRB) accreditation</b> (if applicable)	Not applicable

6	Course Description
	<p>This MSc in BIM (Building Information Modelling) and Digital Construction course is designed in response to the growth of digitalisation in the built environment, to produce pioneers who can lead and apply digital innovation to the construction industry. This Master's degree is aimed at:</p> <ul style="list-style-type: none"> <li>• Providing you with a comprehensive portfolio of creative, professional, and practice-based education.</li> <li>• Helping you to secure employment and career enhancement, further study, and career enhancement.</li> </ul> <p>The course design has been influenced by the rapid development in automated processes that support different aspects within the built environment, as well as the continual demand of the commercial sector for strategies that support effective technological transformation. Improving digital competencies amongst different professionals at technical, operational, and managerial levels across the built environment sector is becoming vital. With the continual technological evolution of this sector, the demand for graduates who can competently use data and information is on the rise - especially with many emerging potentials resulting from applying areas of knowledge such as techniques from big data analytics, block-chain, and information system management strategies. We welcome professionals and graduates who with an enthusiasm for learning and real-world understanding to study this course.</p> <p>MSc BIM and Digital Construction is a cognate course, which means that it is designed for graduates from backgrounds including built environment, engineering, manufacturing, and computer science industry professionals. This goes hand-in-hand with the applied nature of the taught modules, which contextualise theory and practical exercises into areas where we have considerable expertise, e.g., BIM, information systems and computer science.</p> <p><b>What's covered in the course?</b></p> <p>The MSc BIM and Digital Construction is built on three main areas of knowledge: Digital Transformation, BIM and Integrated Processes, Decision-making and Optimisation.</p>



**Digital Transformation:** Through information system lenses, we will provide you with knowledge and understanding on role of information systems and technology within organisations, shedding light on a range of techniques and technologies that support formulating an effective strategy for digital transformation.

**BIM and Integrated Processes:** Reflecting on best practice of employing integrated processes across the different built environment disciplines, we will build your knowledge and practice of using Building Information Modelling (BIM) as one of the integrated processes on real-life projects. With the continual evolution of engineering processes within the construction industry, we will also cover knowledge and understanding about lean techniques and principles and its integration in BIM projects.

**Decision-making and Optimisation:** As the integration of technology-based solutions within the built environment expands, the value of understanding data/information in informing different decisions across the whole lifecycle is becoming inevitable. Through interdisciplinary expertise, we will provide you with an insight into different computing-based areas to equip you with robust knowledge on data synthesis to optimise different aspects within the built environment.

<b>7 Course Awards</b>			
<b>7a</b>	<b>Name of Final Award</b>	<b>Level</b>	<b>Credits Awarded</b>
	Master of Science BIM and Digital Construction	7	180
	Master of Science BIM and Digital Construction with Professional Placement Year	7	240
<b>7b Exit Awards and Credits Awarded</b>			
	Postgraduate Certificate BIM and Digital Construction	7	60
	Postgraduate Diploma BIM and Digital Construction	7	120

<b>8 Derogation from the University Regulations</b>	
	Not applicable

<b>9 Delivery Patterns</b>			
<b>Mode(s) of Study</b>	<b>Location(s) of Study</b>	<b>Duration of Study</b>	<b>Code(s)</b>
Full Time September	City Centre	12 months	PT1746
Part Time September	City Centre	24 months	PT1747
Full Time September with Professional Placement Year	City Centre (and placement provider)	18 months	PT1748
Full Time January	City Centre	12 months	PT1750
Part Time January	City Centre	24 months	PT1751
Full Time January with Professional Placement Year	City Centre (and placement provider)	18 months	PT1772

<b>10 Entry Requirements</b>		
<b>Home:</b>		Undergraduate degree from one of the following disciplines: Built Environment, Engineering or Computer Science
<b>EU:</b>		EU students need to obtain 6.0 in IELTS
<b>International:</b>		International students need to obtain 6.0 in IELTS

<b>11 Course Aims</b>	
	The new course of MSc in BIM and Digital Construction aims to provide a platform for built environment professionals to improve or further develop their digital competency, awareness and practical skills that support them to cope with the ever-changing technological advancements. The course also acts as a bridge for those coming from other educational backgrounds and particularly computer science and are interested to join the digital built environment world.

12 Course Learning Outcomes (LOs)	
1	Critically analyse key concepts and principles related to the design and development of Artificial Intelligence systems in the built environment context.
2	Critically appraise the mechanisms to adopt and implement digital tools / techniques in the built environment.
3	Critically explain the processes and practices of integrated project delivery using common data environments in built environment projects.
4	Identify and justify the use of different evaluation and analytical approaches to determine the effectiveness of a variety of data modelling practices related to the built environment.
5	Analyse the application of digital tools/techniques across the lifecycle of the built environment.
6	Analyse the deployment and value of computing-led knowledge and techniques in the built environment.
7	Evaluate the strategies and applications utilised in enabling digital integration within the lifecycle of the built environment.
8	Apply Lean practices and sustainable techniques to organisations and projects in the built environment.
9	Apply the use of common data environments in solving complex issues in the built environment.
10	Critically formulate appropriate automation strategies to improve decision-making and process optimisation across the life cycle of built environment projects.
11	Apply the appropriate use of digital tools / techniques to solve problems in the built environment.
12	Apply appropriate digital construction technologies to allow organisations to be more agile in the built environment.
13	Synthesise and apply advanced computing techniques to different scenarios in the built environment.
14	Apply research and advanced scholarship skills to inquire into the impact of digital tools / techniques within the built environment.

13 Level Learning Outcomes	
	<p><u>Knowledge and Understanding</u></p> <p>For you to achieve a <b>PG Cert BIM and Digital Construction</b>, you should be able to at least meet three of the following learning outcomes:</p> <p>LO1. Critically analyse key concepts and principles related to the design and development of Artificial Intelligence systems in the built environment context.</p> <p>LO2. Critically appraise the mechanisms to adopt and implement digital tools / techniques in the built environment.</p> <p>LO3. Critically explain the processes and practices of integrated project delivery using common data environments in built environment projects.</p> <p>LO4. Identify and justify the use of different evaluation and analytical approaches to determine the effectiveness of a variety of data modelling practices related to the built environment.</p> <p>LO5. Analyse the application of digital tools/techniques across the lifecycle of the built environment.</p> <p>LO6. Analyse the deployment and value of computing-led knowledge and techniques in the built environment.</p> <p>For you to achieve a <b>PG Dip BIM and Digital Construction</b>, you should meet all the above learning outcomes.</p>

	<p>In addition to LOs 1-6 above, award holders of the <b>MSc BIM and Digital Construction</b> will also be able to:</p> <p>LO7. Evaluate the strategies and applications utilised in enabling digital integration within the lifecycle of the built environment.</p> <p><u>Skills and Abilities</u></p> <p>For you to achieve a <b>PG Cert BIM and Digital Construction</b>, you should be able to at least meet three of the following learning outcomes:</p> <p>LO8. Apply Lean practices and sustainable techniques to organisations and projects in the built environment.</p> <p>LO9. Apply the use of common data environments in solving complex issues in the built environment.</p> <p>LO10. Critically formulate appropriate automation strategies to improve decision-making and process optimisation across the life cycle of built environment projects.</p> <p>LO11. Apply the appropriate use of digital tools / techniques to solve problems in the built environment.</p> <p>LO12. Apply appropriate digital construction technologies to allow organisations to be more agile in the built environment.</p> <p>LO13. Synthesise and apply advanced computing techniques to different scenarios in the built environment.</p> <p>For you to achieve a <b>PG Dip BIM and Digital Construction</b>, you should meet all the above learning outcomes (1-6 and 8-13).</p> <p>In addition to LOs 8-13 above, award holders of the <b>MSc BIM and Digital Construction</b> will also be able to:</p> <p>LO14. Apply research and advanced scholarly skills to critically discuss the impact of digital integration in the built environment.</p>
--	---

<b>14</b>	<p><b>Course Learning, Teaching and Assessment Strategy</b></p>
	<p>The learning strategy includes a range of tutorials, seminars and workshops that are designed to provide you with the best learning experience. The course includes a variety of assessments including reports, presentations and practical-based assessments. The assessments can also take the form of an individual or group work depending on nature of the module and the learning outcomes that need to be satisfied.</p> <p>You will utilise Autodesk software applications to illustrate many of the practical-based aspects of the work, and benefit from our status as Autodesk Training Centre where you can get access to free training on the use of Revit Autodesk Software.</p>

<b>15</b>	<b>Course Requirements</b>																															
<b>15a</b>	<p><b>Level 7:</b></p> <p><i>To complete this course, you must successfully complete all the following CORE modules (totalling 180 credits):</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #ffffcc;">Module Code</th> <th style="background-color: #ffffcc;">Module Name</th> <th style="background-color: #ffffcc;">Credit Value</th> </tr> </thead> <tbody> <tr> <td>CMP6221</td> <td>Computing for AI</td> <td>20</td> </tr> <tr> <td>CMP7227</td> <td>Data Visualisation</td> <td>20</td> </tr> <tr> <td>BNV7149</td> <td>Innovation in Construction</td> <td>20</td> </tr> <tr> <td>BNV7213</td> <td>BIM Process and Practice</td> <td>20</td> </tr> <tr> <td>BNV7217</td> <td>BIM and Lean Integration</td> <td>20</td> </tr> <tr> <td>BNV7218</td> <td>BIM and Automation</td> <td>20</td> </tr> <tr> <td>BNV7200</td> <td>Individual Master's Project</td> <td>60</td> </tr> </tbody> </table> <p><i>To qualify for the award of MSc Digital Construction with Professional Placement, you must successfully complete all the Level 7 modules listed above, as well as the following Level 6 module:</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #ffffcc;">Module Code</th> <th style="background-color: #ffffcc;">Module Name</th> <th style="background-color: #ffffcc;">Credit Value</th> </tr> </thead> <tbody> <tr> <td>PLA6004</td> <td>Professional Placement</td> <td>60</td> </tr> </tbody> </table>		Module Code	Module Name	Credit Value	CMP6221	Computing for AI	20	CMP7227	Data Visualisation	20	BNV7149	Innovation in Construction	20	BNV7213	BIM Process and Practice	20	BNV7217	BIM and Lean Integration	20	BNV7218	BIM and Automation	20	BNV7200	Individual Master's Project	60	Module Code	Module Name	Credit Value	PLA6004	Professional Placement	60
Module Code	Module Name	Credit Value																														
CMP6221	Computing for AI	20																														
CMP7227	Data Visualisation	20																														
BNV7149	Innovation in Construction	20																														
BNV7213	BIM Process and Practice	20																														
BNV7217	BIM and Lean Integration	20																														
BNV7218	BIM and Automation	20																														
BNV7200	Individual Master's Project	60																														
Module Code	Module Name	Credit Value																														
PLA6004	Professional Placement	60																														

**15b Structure Diagram**
**Full-time, and DL FT mode (September and January intake)**

<b>1<sup>st</sup> Semester</b>	Computing for AI (20 credits)	Data Visualisation (20 credits)	Innovation in Construction (20 credits)	Individual Master's Project (60 credits)
<b>2<sup>nd</sup> Semester</b>	BIM Process and Practice (20 credits)	BIM and Lean Integration (20 credits)	BIM and Automation (20 credits)	
<b>3<sup>rd</sup> Semester</b>				

**Professional Placement September Full Time**

<b>Year 1 1<sup>st</sup> Semester (Sept – Dec)</b>	Computing for AI (20 credits)	Data Visualisation (20 credits)	Innovation in Construction (20 credits)
<b>Year 1 2<sup>nd</sup> Semester (Jan – May)</b>	BIM Process and Practice (20 credits)	BIM and Lean Integration (20 credits)	BIM and Automation (20 credits)
<b>Year 1 3<sup>rd</sup> Semester (May- Sept)</b>	Individual Master's Project (60 credits)		
<b>Year 2 2<sup>nd</sup> Semester (Sept - Jan)</b>	Professional Placement (60 credits)		

**Professional Placement January Full Time**

<b>Year 1 1<sup>st</sup> Semester (Jan – May)</b>	Computing for AI (20 credits)	Data Visualisation (20 credits)	Innovation in Construction (20 credits)
<b>Year 1 2<sup>nd</sup> Semester (June - Sept)</b>	BIM Process and Practice (20 credits)	BIM and Lean Integration (20 credits)	BIM and Automation (20 credits)
<b>Year 1 3<sup>rd</sup> Semester (Sept - Jan)</b>	Individual Master's Project (60 credits)		
<b>Year 2 2<sup>nd</sup> Semester (Jan – May)</b>	Professional Placement (60 credits)		

**Part-time and DL PT mode (September and January intake)**

<b>1<sup>st</sup> Semester</b>	Computing for AI (20 credits)	Data Visualisation (20 credits)	-	
<b>2<sup>nd</sup> Semester</b>	-	-	Innovation in Construction (20 credits)	
<b>3<sup>rd</sup> Semester</b>	-	-	BIM Process and Practice (20 credits)	Individual Master's Project (60 credits)
<b>4<sup>th</sup> Semester</b>	BIM and Automation (20 credits)	BIM and Lean Integration (20 credits)	-	



<b>16</b>	<b>Overall Student Workload and Balance of Assessment</b>
-----------	---

Overall student *workload* consists of class contact hours, independent learning and assessment activity, with each credit taken equating to a total study time of around 10 hours. While actual contact hours may depend on the optional modules selected, the following information gives an indication of how much time students will need to allocate to different activities at each level of the course.

- *Scheduled Learning* includes lectures, practical classes and workshops, contact time specified in timetable
- *Directed Learning* includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning
- *Private Study* includes preparation for exams

The *balance of assessment* by mode of assessment (e.g. coursework, exam and in-person) depends to some extent on the optional modules chosen by students. The approximate percentage of the course assessed by coursework, exam and in-person is shown below.

### Level 7

#### Workload

#### 17% time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled Learning	300
Directed Learning	370
Private Study	1130
<b>Total Hours</b>	<b>1800</b>

#### Balance of Assessment

Assessment Mode	Percentage
Coursework	80%
Exam	0
In-Person	20%