

## **Welcome to BIM 321**

### **Course Description**

This course will focus on creating a 3D model and working drawings required by their clients. Using a project-based setting, we will design HVAC, plumbing, piping and electrical systems in Revit. Once the modeling has been completed, we will explore how to start making construction documents from the completed model.

### **Student Learning Outcomes & Objectives**

1. Create MEP systems using Revit MEP for the use of construction documents and construction coordination.
2. Implement workflow strategies in Revit MEP for efficient use of the software.
3. Produce construction documents from the model file.
4. Demonstrate worksharing and how it can be implemented for larger projects.

By the end of this course, students will be able to create sheets and annotations necessary to finish deliverable drawings.

### **Software Year**

Autodesk Revit MEP 2018 is recommended for this course, though more recent versions of the software will work as well. If you have specific questions about software versions, please contact your instructor.

### **Recommended Textbook**

There is no required textbook for this course, but if you would like to purchase the recommended textbook as an additional reference, we have provided recommended reading guidelines within the course lessons.

*Autodesk Revit MEP 2021: Fundamentals for MEP* (ISBN-10: 1951139933)

<https://www.ascented.com/courseware/product/autodesk-revit-2021-fundamentals-for-mep>

NOTE: The same textbook is used in both BIM 321 and BIM 322 courses.

### Course Prerequisites

- Fundamental working knowledge of the Windows environment or instructor approval.

### Communication Policy

You may contact your instructor through the Learning Hub messaging system. Please reach out to your instructor early and often, especially if you are experiencing challenges in completing course assignments on time. Your instructor will answer your messages within 24 hours or less.

### Autodesk Certification Exam Objectives

The curriculum covered in this course includes the following Autodesk Certification Exam Objectives:

Certification Exam Objective	Description
<i>Collaboration Professional</i>	<i>Link Revit models, Copy levels and set up monitoring, Create floor plans, Use Worksets, Resolve Coordination Review Errors.</i>
<i>Elements</i>	<i>Differentiate system and component families, Edit Family Connectors, Create a new family type.</i>
<i>Modeling</i>	<i>Electrical: Add and modify receptacles, Electrical: Add and modify panels, Electrical: Create and modify circuits, Electrical: Add and modify lighting fixtures, Electrical: Add and modify switches, Electrical: Create and modify lighting circuits, Electrical: Create and modify switching circuits, Electrical: Add and modify conduit, Electrical: Use cable trays, Mechanical: Add and use mechanical equipment, Mechanical: Add and modify air terminals, Mechanical: Add and modify ducts, Mechanical: Add and modify return ducts, Mechanical: Add and modify duct accessories and fittings, Plumbing: Add and modify fixtures, Plumbing: Add and modify piping, Plumbing: Add and use plumbing equipment, Plumbing: Create a plumbing system, Plumbing: Add and modify pipe accessories, Electrical: Add and modify switch systems, Electrical: Create Distribution System, Electrical - Add and modify security devices, Electrical: Add and modify wiring, Electrical: Generate automatic wire layouts, Mechanical: Add and modify placeholder duct, Mechanical: Define a duct system, Mechanical: Work with spaces, Electrical: Work with Spaces.</i>
<i>Views</i>	<i>View models, Apply view templates, Create detail views, Plumbing: Create a plumbing view.</i>

**Course Schedule**

<b>Lesson</b>	<b>Topics</b>	<b>Quizzes/Assignments</b>	<b>Points</b>
1	<ul style="list-style-type: none"> <li>○ User Interface</li> <li>○ Begin Project</li> <li>○ Copy Monitor</li> <li>○ Edit Room Tags</li> <li>○ Adjusting Background</li> </ul> <p><i>Recommended Reading:</i>            Chapter 1: 1.1 - 1.4            Chapter 2: 2.1 - 2.5            Chapter 3: 3.1            Chapter 4: 4.1 - 4.6</p>	<p>Quiz: Creating an Effective Template Review</p> <p>Quiz: Project Collaboration Review</p> <p>Graded Discussion Forum: Initial Post</p>	<p>30</p> <p>110</p> <p>5</p>
2	<ul style="list-style-type: none"> <li>○ Placing Registers</li> <li>○ Placing Diffusers</li> <li>○ Placing Ducts</li> <li>○ Creating Families</li> <li>○ Connecting Duct to Air Handler</li> <li>○ Cooling – First Floor Flex Duct</li> </ul> <p><i>Recommended Reading:</i>            Chapter 9: 9.1 - 9.3</p>	<p>Hands-On Quiz: Mechanical</p> <p>Quiz: Mechanical Systems and Ductwork Review</p> <p>Quiz: Creating Logical Systems Review</p> <p>Quiz: Creating and Analyzing Spaces</p> <p>Midterm Submission</p>	<p>50</p> <p>60</p> <p>30</p> <p>50</p> <p>100</p>
3	<ul style="list-style-type: none"> <li>○ Plumbing Fixtures</li> <li>○ Piping</li> <li>○ Water Heater Gas</li> <li>○ Water Piping</li> <li>○ Supply Piping</li> <li>○ Water Heater Piping</li> <li>○ Waste Piping</li> </ul> <p><i>Recommended Reading:</i>            Chapter 10: 10.1 - 10.3</p>	<p>Hands-On Quiz: Plumbing</p> <p>Quiz: Plumbing (Domestic, Sanitary, and Other) Review</p>	<p>50</p> <p>50</p>

Lesson	Topics	Quizzes/Assignments	Points
4	<ul style="list-style-type: none"> <li>○ Electrical Template</li> <li>○ Space Tags</li> <li>○ Lighting</li> <li>○ Electrical Outlets</li> <li>○ Lighting Panels</li> <li>○ Electrical Circuits</li> <li>○ Conduit</li> <li>○ Cable Tray</li> </ul>	Quiz: Power and Communications Review	70
		Quiz: Lighting Review	50
		Hands-On Quiz: Electrical	50
		Graded Discussion Forum: Comment	5
		Final Submission	100
	<i>Recommended Reading:</i> Chapter 12: 12.1 - 12.6		

**Attendance**

To satisfy the course attendance requirements, students are typically required to complete at a minimum, the initial graded discussion forum engagement by the 4th day of the course and the midterm before the end of the 11th day of the course. All remaining course deliverables including the second graded discussion forum engagement, quizzes and final are due before the end of the 18th day of the course. Course attendance is also evaluated by the timely submission of a student’s quizzes. Specific due dates for this course can be found in “Assignment Instructions & Deadlines”.

**Participation**

Participation is evaluated by engagement in the Graded Discussion Forum. This forum encourages participation directly with instructors and students in a course. Typically, ten percent of the course grade is assigned for participation. A specific grading breakdown for this course can be found in “Weighted Grading Criteria”.

**Grading Policies**

After you have successfully completing all course requirements, you will receive a VDCI course completion certificate. If you are registered as an Audit student, you will not have access to course assignments or quizzes and you will not receive a grade in the course. To change your VDCI grading option from letter grade to Audit, please contact Admissions at [learn@vdc.edu](mailto:learn@vdc.edu). If you are a VDCI Technology Certificate student, your course must be taken for a letter grade.

Letter grades are based on the following scale. Your final course grade is based on the weighted grading criteria of the points you have earned.

Passing Grades	
A+	100%
A	93-99%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%
C+	77-79%
C	73-76%
C-	70-72%

Non-Passing Grades	
D	60-69%
F	59% and below

**Weighted Grading Criteria**

Discussion Forums	10%
Quizzes	10%
Hands-On Quizzes	20%
Midterm Submission	20%
Final Submission	40%
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Total	100%

NOTE: Students can check their course progress in the VDCI Learning Hub at any time by clicking the Assignments tab on the right sidebar of each course page.

### Assignment Instructions & Deadlines

Below is a calendar view of your 18-day course, please use this to budget your time as you work through Lessons 1 through 6 and complete the required assignments.

NOTE: Courses always begin on Fridays and end on the third Monday – specific start dates will vary, please email [learn@vdc.edu](mailto:learn@vdc.edu) with any questions regarding your course schedule.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					Class Start Date	
	Discussion Forum Post					
	Midterm Due					
	All Quizzes, Second Discussion Forum Post, & Final Due	Grading Period	Grading Period	Final Grades Posted		

#### Graded Discussion Forum:

- There are two Graded Discussion Forum posts that will be graded in this course:
  1. The first post in Lesson 1, where you will answer the discussion prompt, is due the first Monday by 11:59 pm (PT).
    - If you are less knowledgeable about the discussion prompt topic, you can ask questions about the discussion prompt and/or share what you find when you research the topic yourself.
  2. Your response to a classmate’s post in Lesson 1 is due the last day of class, the third Monday by 11:59 pm (PT).
- Your grade for each post will be reduced by 10% for every day the post/response is late.
- Posts and responses should be meaningful and geared towards expanding you and your classmate’s learning experience.

Midterm Submission:

- The midterm is due before the end of the second Monday by 11:59 pm (PT).
- Your grade for this submission will be reduced by 10% (one full letter grade) for every day your submission is late.

Final Submission:

- Final course project deliverables will not be accepted any later than one day after the course has formally been closed the end of the third Monday by 11:59 pm (PT).
- Your grade will be reduced by 10% (one full letter grade) for being late.

All remaining course assignments are due by the end of the third Monday by 11:59 pm (PT).

## **Student Groups & Engagement**

The Learning Hub will automatically add you to the course's Student Group - this is a non-graded area for you to interact with your fellow classmates. Please use the Student Group to discuss any issues you are having with the course and to get to know one another.

Another great way to connect with other VDCI current students and alumni, is through the [Facebook VDCI Student Lounge](#).

## **Academic Integrity Policy**

The Virtual Design & Construction Institute (VDCI) is an institution of learning, career education, and technical skill development – a community based on academic honesty and integrity. As members of the VDCI community, faculty, students, and administrative staff share responsibility for maintaining this environment. It is essential that all members of the VDCI community subscribe to the ideal of academic honesty and integrity and accept individual responsibility for their work. Academic dishonesty is unacceptable and will not be tolerated at VDCI. Cheating, forgery, dishonest conduct, plagiarism, and collusion in dishonest activities erode the Institute's educational, research, and social roles.

If students who knowingly or intentionally conduct or help another student perform dishonest conduct, acts of cheating, or plagiarism will be subject to disciplinary action at the discretion of VDCI.