COURSE OUTLINE

DRA191 Course Number	**INTRODUCTION TO BUILDING INFORMATION MODELING** **Course Title**	2 **Credits**
1/2 **Hours: Lecture/Lab/Other**	**NONE** **Prerequisites**	**Fall 2017** Implementation

Catalog description (2016-2017 Catalog):

Introduction to the use of the computer using building information modeling software. Topics include basic terminology and concepts of modeling, geometry, and the basic commands necessary to prepare a building model and several drawings. 1 lecture/2 laboratory hours

Last revised: Fall 2021

Course coordinator: James Maccariella, maccarij@mccc.edu

Information resources:

Autodesk Student Community [studentcommunity@autodesk.com]
By joining the Student Community the Student will receive instant access to the full student versions of Autodesk software.

Other learning resources: N/A

I. Course Competencies/Goals
After completing this course the student will be able to:

- Navigate the Autodesk® Revit® Architecture interface: Design Bar, Project Browser, menus, toolbars, Type Selector, Views, and Properties dialog boxes.
- Start a building model using Massing; and generate floors, walls, roofs, and other systems from a mass model.
- Place, load, and modify doors and windows; and create a simple in-place family.
- Place and modify stairs.
- Create roof objects using Extrude and Footprint.

- Create sections and elevations.
- Add tags and create schedules.
- Render a perspective view and create a walkthrough.

II. Course-Specific General Education Knowledge Goals and Core Skills.

General Education Knowledge Goals Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals. **Goal 9. Ethical Reasoning and Action.** Students will understand ethical issues and situations. **MCCC Core Skills Goal B. Critical Thinking and Problem-solving.** Students will use critical thinking and problem solving skills in analyzing information. **Goal C. Ethical Decision-Making.** Students will recognize, analyze and assess ethical issues and situations. **Goal E. Computer Literacy.** Students will use computers to access, analyze or present information, solve problems, and communicate with others. **Goal F. Collaboration and Cooperation.** Students will develop the interpersonal skills required for effective performance in group situations.

III. Specific Objectives

Unit 1: Software Tools - Display and Navigation, Annotations and Dimensions

Objective: The student should be able to...

- Navigate menus, toolbars, and the Options Bar: Category Invisible, Close Hidden Windows, Toolbar Text Labels, Filter Selection, Type Selector.

- Demonstrate View Controls: Visibility, Zoom, Detail Level, View Properties, Underlay, View Range, Shading, Advanced Model Graphics, Shadows, Sun Settings.

- Demonstrate System Families: Load from Library, Modify a Family, Type Properties, In-Place Family, Extrusion.

Unit 2: Walls

Objective: The student should be able to...

- Place walls: Sketch Walls, Alignment Lines, Lock Alignment, Arcs, Orientation.

- Modify walls: Split, Fillet, Align, Clean Wall Joins, Trim/Extend.

- Define a wall structure: Modify, Duplicate, Layers, Function, Material, Thickness, Preview.

- Design a complex wall structure: Create a Compound Wall, Split Region, Merge Regions, Assign Layers, Wall Sweeps, Reveals.

Unit 3: Doors and Windows

Objective: The student should be able to...

- Place doors and windows: Add Doors, Load Families, Add Windows.

- Center a door in a wall: Equality Constraints, Align Walls.

- Copy windows: Create Similar, Copy.

Unit 4: Stairs and Railings

Objective: The student should be able to...

- Create stairs: Straight Run Stairs, View Properties, Underlay.

- Modify stairs: Align, Hidden Line display, Open Section View, Stair Properties, Railing Properties, Boundary Sketch, Arc, Mirror.

Unit 5: Roofs

Objective: The student should be able to...

- Create an extruded roof: Sketch reference planes, name reference planes, Sketch Roof, Join/Unjoin Roofs, Attach Walls.

- Create a roof by footprint: Pick Walls, Overhang, Slope Arrow, Modify Slope, Attach Walls.

Unit 6: Sections and Elevations

Objective: The student should be able to...

- Create a new section: Section View, Section Symbol Visibility, View Depth, Reference Bubbles, Section Properties, Far Clip Offset.

- Create an exterior elevation: Elevation Markers, Visibility, Display Mode, All Materials, Surface Pattern.

Unit 7: Schedules

Objective: The student should be able to...

- Create a window schedule: New Schedule, Schedule Properties, Fields, Group and Sort, Instance/Type Schedule, Count and Totals.

- Add room tags: Load Family, Place Room Tag, Room Separation, Room Tag Properties.

- Create a room schedule: New Schedule, Schedule Properties, Fields, Formatting, Set Units.

IV. Evaluation of Student Learning / Course Grading

- While the exact procedures for course grading will be left up to the individual instructor, the following guidelines will apply:

- Assignments: All assignments will be graded on an A to F basis. Late assignments will be subject to grade reductions of one letter grade per class session. Assignments not turned in will be recorded as a zero grade. (30% of final grade)

- Quizzes: Quizzes may be given at any time during the class. They may be written or performance based, and students may or may not be given prior notice. Quizzes missed because of student absence may not be made up and will be recorded as a zero. (30% of final grade)

- Final Grade Calculation: Your final grade will be calculated by averaging all of your grades and weighing them as indicated above.

- Final Examination or project: The individual instructor may wish to require a comprehensive final examination. Notice of intention to administer a final examination must be given to the

students involved, in writing, no later than the fifth (5th) week of the semester. Under no circumstances will the final examination comprise more than twenty-five percent (25%) of the final grade for the course.

V. Academic Integrity Statement:

Students are expected to comply with the college-wide requirements for academic integrity. Mercer County Community College is committed to Academic Integrity—the honest, fair, and continuing pursuit of knowledge, free from fraud or deception. This implies that students are expected to be responsible for their own work. Presenting another individual's work as one's own and receiving excessive help from another individual will qualify as a violation of Academic Integrity. The entire policy on Academic Integrity is located in the Student handbook and is found on the college website (http://www.mccc.edu/admissions_policies_integrity.shtml).

VI. Special Needs Students Statement

Mercer County Community College is committed to ensuring the full participation of all students in all activities, programs and services. If you have a documented differing ability or think that you may have a differing ability that is protected under the ADA and Section 504 of the Rehabilitation Act, please contact Arlene Stinson in LB 216 stinsona@mccc.edu for information regarding support services. If you do not have a documented differing ability, remember that other resources are available to all students on campus including academic support through our Academic Learning Center located in LB 214.