South Central College

ARCH 1303 MEP Integration

Common Course Outline

Course Information

Description This course reviews the examination of mechanical, plumbing and electrical systems in both residential and commercial buildings. Content includes analysis of plumbing and heating, ventilation and air conditioning (HVAC) systems, and power and lighting systems. The interrelationship of architecture and the engineering functions is explored.

Total Credits 2

Total Hours 48

Types of Instruction

Instruction Type	Credits/Hours
Lecture	1/16
Lab	1/32

Pre/Corequisites

ARCH 1201 Studio 2

ARCH 1202 Revit 1 Fundamentals

Course Outcomes

1. Explore the coordination and integration of engineering disciplines with architecture

Learning Objectives

Explain the fundamentals of mechanical engineering and HVAC systems
Explain the fundamentals of mechanical engineering and plumbing systems
Explain the fundamentals of electrical engineering and electrical systems
Identify predominant coordination factors between the different systems in a building
Identify codes and standards organizations for MEP disciplines

2. Review basic thermal concepts and building science

Learning Objectives

Describe basic thermal processes
Determine the average R-value of a building envelope
Perform heat loss calculations for building assemblies

3. Develop an understanding of HVAC systems

Learning Objectives
Explain the basic components of HVAC systems
Develop heating and ventilation layouts in coordination with an architectural plan
Draft HVAC layouts using BIM tools

4. Develop an understanding of plumbing systems

Learning Objectives
Explain the basic components of plumbing systems
Develop domestic water supply, drain, waste, and venting in coordination with an architectural plan
Develop rainwater and sprinkler system layouts in coordination with an architectural plan
Draft plumbing layouts and riser diagrams using BIM tools

5. Develop an understanding of electrical systems

Learning Objectives
Explain the basic components of electrical systems
Develop a power, lighting, communications and security layouts in coordination with an architectural plan
Draft electrical layout using BIM tools

6. Demonstrate an understanding of basic BIM MEP tools

Learning Objectives
Create MEP model from template and manage model settings
Link architectural and Structural models into MEP model
Understand BIM concepts as they pertain to MEP equipment families
Insert MEP equipment using type catalog
Create spaces and zones in a MEP model
Understand basic BIM system analysis tools

SCC Accessibility Statement

Disability Services provides accommodations and other supports to students with permanent and temporary disabilities that affect their SCC experience. Disabilities may include mental health (anxiety, depression, PTSD), ADHD, learning disabilities, chronic health conditions (migraine, fibromyalgia), sensory disabilities, and temporary disabilities (broken arm, surgery). Common accommodations are extended test time, private room for testing, audiobooks, and sign language interpreter.

Contact us: Faribault A116 (507) 332-5847. North Mankato E112 (507) 389-7222. ds@southcentral.edu
www.southcentral.edu/disability

Attendance Expectation

Class attendance / participation contributes significantly to academic success. Students who attend classes regularly tend to earn higher grades and have higher passing rates in courses. Excessive absences may jeopardize your grades or even your ability to continue in this course. **Class participation will be part of your grade! The following will apply in all ARCH program courses:**

- An absence is excused ONLY if the student contacts the instructor BEFORE class.
- If you are absent from class for any reason, you are responsible for all missed work and for contacting the instructor promptly.
- Unexcused absences for 3 consecutive class sessions will reduce your final grade by 10% after the first occurrence and automatic course failure after the second occurrence. Overall attendance falling below 50% will result in automatic course failure.
- Online attendance is available at the instructor's discretion. It is reserved for extenuating circumstances and is NOT a replacement for attendance.

Grading Scale

Each project, quiz, activity, and assignment will have an assigned possible number of points. Points will be awarded based on

correctness of work. The total of all points earned will be divided by the maximum possible to determine a percentage. Late assignments will be accepted anytime until the semesters end **Any work handed in late (regardless of duration) will incur a 10% deduct from the grade for that instance.**

Grades will be based on the following percentage of points earned

A	92-100
A-	90-91.9
B+	87-89.9
B	83-86.9
B-	80-82.9
C+	77-79.9
C	73-76.9
C-	70-72.9

Note: Grades below 70% will not count towards degree completion, course must be repeated

D+	67-69.9
D	63-66.9
D-	60-62.9
F	Below 60