

## CIV 340 – Civil Engineering Materials Laboratory

**Current Catalog Description:** Laboratory experiments that illustrate the basic analysis and behavior of civil engineering materials and structures. Mechanical loading and analysis of steel, wood, and concrete; quality control tests and field testing; testing of concrete structures. Lab report writing and measurement analysis and error propagation theory. Lectures will cover basic theory and application of civil materials.

**Prerequisite:** MEC 363

**Corequisite:** CIV 310

**Textbooks and/or Other Required Material:** None

**This course is:** Required

- Topics Covered:**
1. Properties of Metals
  2. Properties of Wood
  3. Properties of Aggregates
  4. Portland Cement Concrete Mix Design
  5. Properties of Portland Cement Concrete (Regular, Steel Reinforced, Fiber-reinforced)
  6. Properties of Asphalt Concrete

**Course Learning and Student Outcomes:**

Course Learning Objectives	<a href="#">ABET Student Outcomes</a>
Employ various testing methods to identify engineering properties of materials.	6
Conduct laboratory testing of wood, steel, asphalt and concrete to develop a working knowledge of commonly used materials in civil engineering applications.	1, 2, 6
Operate modern civil engineering testing machines, measuring devices, and data acquisition systems.	1, 2, 6
Write comprehensive lab reports and give oral presentations in order to discuss experimental results and enhance understanding of underlying theories and applications of each test.	3
Design and conduct a unique experiment to explore the properties of civil engineering materials	2, 5, 6
Work as an effective member of a multidisciplinary team	5
Employ various testing methods to identify engineering properties of materials	6

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