



**THE OHIO STATE UNIVERSITY**  
COLLEGE OF ENGINEERING

# Design and Construction of Flexible Pavements

## CIVILEN 4552

**Credit Hours:**

3.00 - 3.00

---

**Course Levels:**

Undergraduate (1000-5000 level)

---

**Course Components:**

Lecture

---

**Course Description:**

The design, manufacturing, placement, compaction and maintenance of hot mix asphalt for roadways with coverage on how to determine and specify which mixture to use for a given application. Sustainable roadway design is also covered.

---

**Prerequisites and Co-requisites:**

Prereq: 3510 (451); and Math 2250 (255), 2415 (415) or 2177.

---

**Course Goals / Objectives:**

- Ability to determine soil class and options for establishing a stable roadway subgrade
  - Knowledge of aggregate and bituminous properties and classifications
  - Ability to use Marshall and Superpave methods to design hot mix asphalt mixtures
  - Knowledge of production, placement, compaction and maintenance of hot mix asphalt
  - Ability to design pavement thickness and perform life cycle costs
  - Ability to specify the proper asphalt mixture for specific applications and traffic loadings
  - Introduction to the concept of sustainable roadways
-

**Course Topics:**

- History of flexible pavements
  - Soils and geosynthetics
  - Aggregate and bituminous properties
  - Marshall and superpave mix design
  - Hot mix asphalt production, placement and compaction
  - Hom mix asphalt mixture specifications and their application
  - Pavement thickness design and life cycle cost
  - Pavement distress and pavement condition rating systems
  - Concept of sustainable roadways and the sustainability of flexible pavements
  - Pavement maintenance, rehab and reconstruction
- 

**Designation:**

Elective