Course: ENCE 447 Pavement Engineering
Tu & Th 11:00-12:15pm (EGR 0110)

Office Hours
Tu 2:30-4:00pm, Th 12:30-5:00

Course Description
Fundamental principles underlying the design, construction, maintenance and repair, and management of highway and airfield pavement systems. Pavement performance (functional/structural; evaluation); pavement mechanics (multi-layered elastic theory; slab theory); pavement materials (properties and characterization); environmental effects; current rigid and flexible design methods (new/rehabilitation); construction (new construction; maintenance/repair; rehabilitation); economic evaluation; pavement management.

Prerequisite
ENCE 340 Fundamentals of Geotechnical Engineering and permission of department.

Instructor
Dimitrios G. Goulias, Associate Professor.
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Textbook & Recommended Reading

Class Web-site (Notes)
AJC Online will be used for class communication and class web notes.

Topics
Introduction
Pavement types, design factors, pavement performance.
Analysis of traffic loads.
Characterization of pavement materials.
Engineering properties of pavement materials.
Environmental Effects
Stresses in flexible pavements (elastic theory).
Stresses in rigid pavements (slab theory).
Design factors and design strategies.
AASHTO design procedure for flexible pavements.

AASHTO design procedure for rigid pavements.

Economic Analysis

Other pavement design procedures for flexible and rigid pavements.

Highway vs Airfield Pavements and Design

Design and rehabilitation strategies.

Pavement evaluation and NDT.

Pavement Management Systems.

Course Grade:

Assignments (10-20 points each)
Exam(s) (60-80 points each)
Term Project (assignment 100 points, and presentation 60-70 points)

Computer usage: report writing, data analysis, PowerPoint presentations.

Library impact: significant library impact.