ABET course syllabus (Pavement Design)

1. Course number and name
   0901482: Pavement Design

2. Credits and contact hours
   3 Credit Hours

3. Instructor’s or course coordinator’s name
   Instructor: Khair Jadaan, Professor of Civil Engineering
   Course Coordinator: Khair Jadaan, Professor of Civil Engineering

4. Text book, title, author, and year
   a. other supplemental materials

5. Specific course information
   a. brief description of the content of the course (catalog description)
      Pavement types, structural design: stress analysis, vehicle and traffic consideration, structural design of flexible and rigid pavements, pavement materials: bituminous materials and their uses, asphalt concrete mix design, pavement distress and maintenance, preparation and construction of pavements. Planning of maintenance works.
   b. prerequisites or co-requisites
      Prerequisite: Highway & Traffic Engineering (0901481)
   c. indicate whether a required, elective, or selected elective course in the program
      Required for Civil Engineering

6. Specific goals for the course
   a. By the end of this course, the student will be able to:
      • Students will have a fundamental understanding of the methodology of pavement analysis and design, and the required inputs for pavement design.
      • Students will be familiar with the methods to characterize load and traffic, and the methods to characterize materials.
      • Students will be familiar with new Mechanistic-Empirical Pavement Design Guide (MEPDG).
      • Students will be able to design both flexible and rigid pavements according to AASHTO methods.
   b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
      Course addresses ABET Student Outcome(s): c, e, h, and k

7. Brief list of topics to be covered
   • Introduction
• Types of distresses in flexible and rigid pavement
• Stresses and strains in flexible pavements
• Stresses and strains in rigid pavements
• Traffic loading and other design variables
• Materials characterization
• Flexible pavement design methods
• Rigid pavement design methods
• Mechanistic-Empirical Pavement Design Guide
• Nondestructive testing and overlay design
• Superpave design method/ Pavement Management System