



The Hashemite University
Faculty of Engineering
Civil Engineering Program
Course Syllabus



Course Title: Pavement Materials & Design 3(3,0,0)

Designation: Compulsory

Instructor: Dr. Hamza Alkuime

Office Hour: [S, T, Th. (10:00 – 11:00 am)]

Course Number: 110 401466

Prerequisite(s): 110401368

Instructor's e-mail: Alkuime@hu.edu.jo

Course Description (catalog): Pavement types, Pavement materials; subgrade stabilization methods; Principles of mix design using SUPERPAVE; Analysis of stresses in flexible and rigid pavement, Design methods of highway flexible and rigid pavements; Design of airport flexible and rigid pavement; Overlay design, Computer applications.

Textbook(s) and/or Other Supplementary Materials:

- Traffic & Highway Engineering, 5th Edition. Nicholas Garber and Lester Hoel. Cengage Learning, 2015.
- Any traffic and highway engineering or pavement analysis and design can be a good reference.

Major Topics Covered:

Topics	No. of Weeks	Contact hours*
Highway Materials (bituminous Materials, Aggregates, and soil),	6	18
Pavement types,	1	3
Flexible pavement design (design of Hot Mix Asphalt mixture using Marsha method	2	6
Flexible pavement design (design of pavement thicknesses using the AASHTO method)	2	6
Earthwork operations,	1	3
Drainage and drainage structures, and Rehabilitation and Highway Maintenance	1	3
Drainage and drainage structures, and	1	3
Rehabilitation and Highway Maintenance	1	3
Total	15	45

*Contact hours include lectures, quizzes and exams

Specific Outcomes of Instruction (Course Learning Outcomes, CLO):

After completing the course, the student will be able to:

1. Distinguish the properties of materials used in highway pavements [1].
2. Discriminate between different pavement types [1].
3. Design of flexible pavement layers thickness using the AASHTO method [2].
4. Design of hot asphalt mixes using the Marshall method [2].
5. Develop a basic understanding of drainage facilities and highway construction procedures [1].

Student Outcomes (SO) Addressed by the Course:

ABET 1-7	Outcome Description	Contribution
	General Engineering Student Outcomes	
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	H
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	M
3	an ability to communicate effectively with a range of audiences	
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	



The Hashemite University
Faculty of Engineering
Civil Engineering Program
Course Syllabus



5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	
H=High, M= Medium, L=Low		

Grading Plan:

- | | |
|--------------------------------------|--|
| • 1 st Exam | 20 Points |
| • 2 nd Exam | 20 Points |
| • Others (Quizzes and/or homework's) | 10 |
| • Final Exam | 50 Points (Will be announced by the registrar) |

General Notes:

- The maximum allowed number of absentees from the course is **six** classes.
- Exceeding these limits will lead to prevention from attending the final exam.
- **No MAKE-UP EXAMS.**
- Class attendance is considered part of your class participation.
- Beware of Plagiarism: copying and handing in for credit someone else's work. Any plagiarism case will result in an automatic 'F' for the course.

**Prepared by: Dr.
Hamza Alkuime**

Date: October 9, 2022