



The Hashemite University  
Faculty of Engineering  
Civil Engineering Program  
Course Syllabus



|                      |                                                           |                              |                                                        |
|----------------------|-----------------------------------------------------------|------------------------------|--------------------------------------------------------|
| <b>Course Title:</b> | <b>Transportation Engineering and Planning 3 (3,0, 0)</b> | <b>Course Number:</b>        | 110 401367                                             |
| <b>Designation:</b>  | Compulsory                                                | <b>Prerequisite(s):</b>      | 110403242                                              |
| <b>Instructor:</b>   | Dr. Randa Oqab Mujalli                                    | <b>Instructor's e-mail:-</b> | <a href="mailto:randao@hu.edu.jo">randao@hu.edu.jo</a> |

**Office Hour** To be announced/ during summer semesters there are no office hours

**Course Description (catalog):** Urban transportation system issues and challenges; Land use; demand forecasting; Transportation modeling, including trip generation, trip distribution, modal split, and traffic assignment. Urban mass transportation systems.

**Textbook(s) and/or Other Supplementary Materials:**

- Paul H. Wright, Norman J. Ashford and Robert J. Stammer, Transportation Engineering Planning and Design, Fourth Edition, John Wiley and Sons, 1998
- James banks, Introduction to Transportation Engineering, 2nd edition, McGraw Hill, 2004
- C.S. papacosta and P.D. Prevedouros, Transportation Engineering and Planning, 3rd edition Prentice Hall, 2001
- Nicholas garber and lasterHoel, Traffic and Highway Engineering, 4th edition, Cengage Learning, 2010

**Major Topics Covered:**

| Topics                                       | No. of Weeks | Contact hours* |
|----------------------------------------------|--------------|----------------|
| 1. Introduction to transportation systems    | 1/3          | 1              |
| 2. Transportation planning                   | 1            | 3              |
| 3. Demand forecasting using 4 steps modeling | 4            | 12             |
| 4. Engineering economy in transportation     | 3            | 9              |
| 5. Evaluation of transportation alternatives | 2            | 6              |
| 6. Urban mass transit systems                | 3.5          | 11             |
| 7. Airports                                  | 1            | 3              |
| <b>Total</b>                                 | <b>14</b>    | <b>45</b>      |

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

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

CLO1: Understand the characteristics of the different modes of transportation in order to plan for new transportation facilities using the 4 steps demand modeling and to evaluate the proposed facilities economically. (c)

CLO2: Gain considerable knowledge of the challenges facing the transportation engineering in terms of energy, and environmental adverse impact. (h)

**Student Outcomes (SO) Addressed by the Course:**

| #                                           | Outcome Description                                                                                                                       | Contribution |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>General Engineering Student Outcomes</b> |                                                                                                                                           |              |
| 1                                           | an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics | M            |



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|                          |                                                                                                                                                                                                                                            |   |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 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                   |   |
| 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 |   |
| 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                        | n ability to acquire and apply new knowledge as needed, using appropriate learning strategies.                                                                                                                                             | M |
| H=High, M= Medium, L=Low |                                                                                                                                                                                                                                            |   |

**Grading Plan:**

|                        |           |
|------------------------|-----------|
| 1st Exam               | 25 Points |
| 2nd Exam               | 25 Points |
| Home works and quizzes | 10 Points |
| Final exam             | 40 Points |

**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**

**Prepared by:** Dr. Randa Oqab Mujalli

**Date:** October 11, 2020