Course number and name: (0931582) Transportation Engineering

a. Class schedule: 3 credits
   a. Time and place: Monday and Wednesday 12:30-14:00 at Small Auditorium
   b. Office hours: Monday and Wednesday 8:00 – 9:30

b. Instructor: Dr. Rana Imam (r.imam@ju.edu.jo)


d. References:

e. Course information:
   a. 2005-2006 Catalog description: Transportation Engineering (0931582), 3 credits, this course covers Air Transportation: airport planning, aircraft characteristics, airport configuration, landing area, airport capacity, and terminal area planning; Rail Transportation: cross sections, horizontal and vertical alignments, super-elevation, trains speed, rail sections, joints and crossings; Water Transportation: harbor types, harbor components, and harbor site selection; Urban Transportation Planning: demand forecast, evaluation techniques, transportation system management, and mass transit.
   b. Prerequisite: Pavement Design (0901482)
   c. Department elective.

f. Specific goals of the course:
   Expected outcomes: Students will be expected to develop the following skills/understanding upon the successful completion of this course:
   a. Understand the principles of air transportation; focusing on both the airline management and planning component, as well as the airport planning and design component.
   b. Understand the function of public transit (bus and rail) and the role of government units.
   c. Understand how transit contributes to a sustainable future.
   d. Learn about transit planning, design, operations, and tradeoffs.
   e. Understand the fundamentals of the railroad infrastructure and rolling stock
   f. Know the principle components and terminologies used in different aspects of rail transportation, and understand the uniqueness of rail transportation, when compared with other transportation modes.
   g. Learn about freight operation; especially in harbors.
   h. Link between transportation planning, urban land use, and regional economic development.

g. Topics covered: Syllabus includes 42, 50-minute class periods, a one-hour midterm exam, and two-hour final exam. The topics are:
   a. Introduction to Airline Planning and Operations
   b. Airline Economics: Airline Operating Costs and Measures of Productivity
   c. Airline Schedule Optimization
   d. Airport planning: airport configuration and components
   e. Airport Design: runway, taxiway, and apron design
   f. Transit Operations and Planning
   g. Rail Transportation: cross sections, horizontal and vertical alignments, super-elevation, trains speed, rail sections, joints and crossings
h. Water Freight Transportation: harbor types, harbor components, and harbor site selection
  i. Urban Transportation Planning: demand forecast, evaluation techniques, transportation system management, and mass transit.

h. **Minimum student materials:** Text book, class handouts, engineering calculator.
i. **Instructional methods:**
   a. Lecture/Problem solving sessions.
   b. Case studies.
   c. Homework.
   d. Reading assignments.

j. **Assessment & Grading:**

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>30%</td>
</tr>
<tr>
<td>Final exam</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

k. **Notes:**
   a. All cases of academic dishonesty will be handled in accordance with university policies and regulations.
   b. There will be two announced quizzes during the semester. There will be no make-up quizzes.
   c. Students are expected to attend **EVERY CLASS SESSION** and they are responsible for all material, announcements, schedule changes, etc., discussed in class.
   d. The university policy regarding the attendance will be strictly adhered to.
   e. Any students with disabilities who need accommodations in this course are encouraged to speak with the instructor as soon as possible to make appropriate arrangements for these accommodations.