

### College of Engineering Civil Engineering Department

Semester: 2020/2021

**About The Course**

**Course Title**: Traffic Engineering **Class**: 5

**Course No**: 901514

**Credit Hours**: 3 **Lecture Room**: 407 Obligatory/ Optional: Obligatory

## Text Book:

### Transportation Engineering, Introduction to Planning, Design, and Operation. Jason C. Yu.

1. R. P. Roess, E. S. Prassas, and W. R. Mc-Shane, Traffic Engineering, Edition 2011

**The Instructor**

**Name: Abdulrazzaq Jawish Title: Assistant Professor**

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**Course Description**

Introduction to traffic engineering analysis, operation and control including traffic capacity analysis, introduction to traffic studies, basics of traffic signal design and phase timing, analysis and design of pre-timed and actuated signalized intersections, signal coordination for arterials, and traffic modeling, including computer applications.

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| **Course Objectives** |
| 1. To introduce fundamental knowledge of traffic engineering |
| 2. Make sure that students can understand and be able to deal with traffic  issues |
| 3. Characterize traffic, various modeling approaches |
| 4. Design of facilities to control and manage traffic |
| **5.** Relate to the current design and analysis practice stipulated in both  national and international codes, standards, and manuals. |

**Learning Outcome**

* 1. Use statistical concepts and applications in traffic Engineering
  2. Identify traffic stream characteristics
  3. Understand elements of highway safety and approaches to accident Studies.
  4. Design a pre-timed signalized intersection, and determine the signal splits.
  5. Identify level of services for arterials
  6. Understand Warrants and ability to use them to evaluate Intersections
  7. Making students aware of how language works to convey meaning as its basic function

**Course Outline and Time schedule**

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| **Week** | **Course Outline** |
| 1st week | Components and characteristics of Traffic System |
| 2nd week | Statistical Applications in Traffic Engineering |
| 3rd week | Introduction to Traffic Studies |
| 4th week | Basic Principles of Intersection Design, Control, and  Signalization |
| 5th week | **First Exam** |
| 6th week | Fundamentals of Signal Design and Timing |
| 7th week | Signal Coordination for Arterials and Networks |
| 8th week | Arterial Analysis, Planning and Design |
| 9th week | Analysis of Un-signalized Intersections |
| 11th week | Developing Traffic Impact Studies |
| 12th week | **Second Exam** |
| 13th week | Traffic Operations and Planning |
| 14th week | Urban Street Networks |
| 15th week | **Final exam** |

# Presentation methods and techniques

### Methods of teaching varied according to the type of text, student and situation. The following techniques are usually used:

1- Lecturing with active participations. 2- Problem solving.

1. Cooperative learning.
2. Discussion.
3. Learning by activities.
4. Connecting students with different sources of information

**Assessment Strategy and its tools**

### The assigned syllabus is assessed and evaluated

Through: feedback and the skills that are acquired by the students

The tools:

* 1. Diagnostic tests to identify the students level and areas of weakness
  2. Formal (stage) evaluation
     1. Class Participation
     2. Ist Exam
     3. 2nd Exam
     4. Activity file

**Tool & Evaluation**

Tests are permanent tools & assessment, in addition to the activity file which contains curricular and the co-cussiculor activities, research, report papers and the active participation of the student in the lecture.

The following table clarifies the organization of the assessment schedule:

|  |  |  |
| --- | --- | --- |
| **Test** | **Date** | **Grade** |
| 1st Exam | According to the department schedule | 20% |
| 2nd Exam | According to the department schedule | 20% |
| Activities &  Participation | Students should be notified about their  marks | 20% |
| Final Exam | According to the department schedule | 40% |

**Activities and Instructional Assignment**

1- Practical assignments to achieve the syllabus objectives. 2- Weekly Pop quiz and Homeworks

3- Semester-End project

**Regulations to maintain the Teaching-Learning Process in the Lecture:**

1. Regular attendance.
2. Respect of commencement and ending of the lecture time. 3- Positive relationship between student and teacher.
3. Commitment to present assignments on time.
4. High commitment during the lecture to avoid any kind of disturbance and distortion.
5. High sense of trust and sincerity when referring to any piece of information and to mention the source.
6. The student who absents himself should submit an accepted excuse.
7. University relevant regulations should be applied in case the student’s behavior is not accepted.
8. Allowed Absence percentages is (15%).

**Internet websites**

1. Traffic-Flow Theory: State-of the-art: <http://www.tfhrc.gov/its/tft/tft.htm>.
2. Manual on Uniform Traffic Control Devices **(MUTCD)**

<http://mutcd.fhwa.dot.gov/>.

# References:

1. Highway Capacity Manual (2010), Transportation Research Board, USA.
2. Roess, RP., McShane, WR. and Prassas, ES. Traffic Engineering, Prentice Hall.
3. May, A. D. Fundamentals of Traffic Flow, Prentice Hall.
4. Papacostas, C. S. Fundamentals of Transportation Engineering, Prentice Hall.

**Syllabus Classification**

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| --- | --- | --- |
| **Objectives** | ***Learning outcomes*** | ***Assessment tools*** |
| 1- | Students are able to identify engineering  problems | Assignments, projects,  and exams |
| 2- | Students are able to design a component  to meet certain constraints | Assignments, projects,  and exams |
| 3- | Students are able to use modern engineering tools for engineering  practice | Assignments, projects, and exams |
| 4- | Students are able to recognize the impact  of engineering solutions in an environmental context | Assignments, projects, and exams |
| 5- | Students are able to formulate a  collective solution to a Problem | Assignments, projects,  and exams |