

IZMIR INSTITUTE OF TECHNOLOGY
CIVIL ENGINEERING DEPARTMENT

**CE 454 – SYLLABUS for TRAFFIC ENGINEERING COURSE
FALL 2026**

Class Meeting Time: Mondays 13:30 – 16:15

Location: CZ11

Instructors: Asst. Prof. Dr. Tolga ERCAN – Email: tolgaercan@iyte.edu.tr
Res. Asst. Burak ALBAYRAK – Email: burakalbayrak@iyte.edu.tr

Office Hours: Only by appointment

Description: The purpose of the course is to introduce students to the field of Traffic Engineering, which covers the different components of traffic system, traffic-stream characteristics, traffic studies, data collection, and traffic control of urban streets and highways.

Textbook: Traffic Engineering by Roess, Prassas, and McShane. Pearson. Fourth Edition.

References: 2918 Sayılı Karayollari Trafik Kanunu
Karayollari Trafik Yonetmeligi
Karayolu Trafik Isaretleme Standartlari
Highway Capacity Manual 6th and 7th Editions
Highway Safety Manual, 1st Edition, 2010, (including 2016 Errata)
Manual of Uniform Traffic Control Devices (MUTCD), 2009,
<https://mutcd.fhwa.dot.gov/>

Learning Outcome:

- Fundamentals of traffic flow theory and stream characteristics
- Evaluate transportation alternatives
- Analyze traffic conditions at intersections and roadways
- Develop signal phasing and timing plans
- Learn the basics of traffic data collection techniques and analyses

Grading Policy:

- Class Project (Group Project): %30 of the final grade
 - Data Collection from a 4-leg intersection, delay and volume analysis, SUMO Traffic Simulation Application (*more details of the project will be announced during class meetings*)
- Midterm Exam: %30 of the final grade
- Final Exam: %40 of the final grade

Date	Week	Lecture Content
28/9/2026	Week 1	Introduction to Class & Introduction of Concepts
5/10/2026	Week 2	Components of the Traffic System and Roadway
12/10/2026	Week 3	Traffic Control Devices - Traffic Stream Characteristics
19/10/2026	Week 4	Traffic Flow Theory – Statistical Applications – Traffic Data Collection
26/10/2026	Week 5	Volume - Speed, Travel Time, and Delay Studies – Fundamentals & Concepts of Uninterrupted Flow Facilities
2/11/2026	Week 6	Level of Service for Basic Freeway Segments & Multilane Highways
9/11/2026	Week 7	Level of Service for Multilane Highways Level of Service for Two-Lane Highways
16/11/2026	Week 8	Midterm Exam Review
23/11/2026	Week 9	Mid-Term Exam
30/11/2026	Week 10	SUMO Traffic Simulation Education
7/12/2026	Week 11	Level of Service for Two-Lane Highways
14/12/2026	Week 12	Field Trip to İZUM
21/12/2026	Week 13	Elements of Intersection Design and Layout – Fundamentals of Signalized Intersection Design
28/12/2026	Week 14	Fundamentals of Signal Timing and Design
4/1/2027	Week 15	Student Project Presentations Intelligent Transportation Systems
11/1/2027 – 22/1/2027	Final Exams – TBD	