**CIVL 580: Traffic Engineering Design (3 Credits)**

This course focuses on sizing and configuration of highway facilities based on capacity analysis. Topics covered also include traffic signal design, impact and mitigation studies, parking and safety design. *(Prerequisite: CIVL 481)*

**Course Learning Outcomes:**

By the end of the course, students will be able to:

A1. Acquire and apply new knowledge as needed, using appropriate learning strategies.

A2. Apply engineering to produce solutions that meet specified needs but always with care and consideration for public health, safety and welfare, as well as for global, cultural, social, environmental and economic factors.

B1. Identify, formulate and solve complex civil engineering problems by applying principles of engineering, science and mathematics.

B2. Develop and conduct appropriate experimentation, analyze and interpret data, and use scientific judgment to draw conclusions.

B3. Accept and integrate new ideas and information on their merits, even if contrary to opinion or previous experiences.

B4. Interpret Computer Aided Design outputs.

B5. Propose and evaluate alternative designs and options for Highways.

B6. Carry out practical Highway Design work.

**Course Learning Materials:**

* Slinn M., Matthews P., Guest P., Traffic Engineering Design: Principles and Practice, Butterworth-Heinemann.
* Garber N., Hoel L.A., Traffic and Highway Engineering, CL Engineering.
* Salter R., Hounsell N., Highway Traffic Analysis and Design, Red Globe Press.

**Course Content:**

1. Traffic Surveys
2. Parking Surveys
3. Estimating Travel Demand
4. Capacity Analyses
5. Traffic Management and Control
6. Highway Layout
7. Signal Control
8. Parking: Design and Control
9. Road Safety Engineering
10. Traffic Calming
11. Public Transport Priority
12. The Development Process
13. Sustainable Development
14. Transport Telematics
15. Statutory Requirements
16. Congestion Charging