

COURSE DETAIL

ROAD SAFETY ENGINEERING

Country

Italy

Host Institution

University of Bologna

Program(s)

University of Bologna

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Civil Engineering

UCEAP Course Number

178

UCEAP Course Suffix**UCEAP Official Title**

ROAD SAFETY ENGINEERING

UCEAP Transcript Title

ROAD SAFETY ENG

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

This course is part of the Laurea Magistrale degree program and is intended for advanced level students. Enrollment is by permission of the instructor. The objectives of the unit are to gain a clear understanding of: why road safety is important, how we can achieve improvements and who is doing the work; the multidisciplinary nature of road safety and why we need to use a combination of engineering, education, and enforcement to be successful; the behavior of road users and ways in which the road environment can be designed/improved to cater for their needs; the complexity of the human/vehicle/road system and how the interrelationships work to influence the level of safety; what are the legal responsibilities of road authorities and decision makers and how they can fulfil them; how to undertake accident investigations; how to collect accident data and what to look for in quality data; how to analyze accident data, turn it into information and develop cost effective, practical counter measures; what needs to be done after treating a site and how to do it; how to be proactive in preventing accidents before they occur. Specific skill sets developed in the class are: Analysis of traffic collision and injury data; Analysis of collision risk in a road network (network screening); Identifying crash causal factors; Identifying and evaluating countermeasures; Principles of Road Safety Management; What is the Road safety Audit procedure, and what are aims and objectives, roles and responsibility; history of road safety audit, road safety audit and design standards, road safety audit tasks, various stages of safety audits; common identifiable problems; How to structure a road safety audit report, identify common problems; and case studies and site visits; what to look for on site visits.

The course explores the fundamentals and role of road safety engineering theory and practice. An appreciation of the design of traffic elements on the road network and a rigorous detective approach to investigating road crash data are developed. Participants learn applied skills to find road crash data and analyze it to determine the nature and extent of road crash problems at any given site. An ability to translate road crash data into meaningful information, determine counter measure options from thorough analysis of information and prioritize and evaluate counter measure implementation

programs is cultivated. Students become aware of key issues in road safety policy, techniques for accident analysis, and prevention and road safety audit procedures. Other topics include the Highway Safety Manual, screening methods for identifying high collection concentrations, and proactive improvements to traffic safety.

The course examines principles of engineering and behavioral science relevant to preventing traffic collisions and subsequent injury. Human behavior, vehicle design, and roadway design are considered as interacting approaches to preventing traffic crashes and injuries. Safety of vulnerable road users (primarily pedestrians and bicyclists) is covered extensively.

Language(s) of Instruction

English

Host Institution Course Number

78595

Host Institution Course Title

ROAD SAFETY ENGINEERING

Host Institution Course Details

<https://www.unibo.it/en/study/course-units-transferable-skills-moocs/course-uni...>

Host Institution Campus

BOLOGNA

Host Institution Faculty**Host Institution Degree**

LM in CIVIL ENGINEERING

Host Institution Department

CIVIL, CHEMICAL, ENVIRONMENTAL, AND MATERIALS ENGINEERING

Course Last Reviewed

2025-2026

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