COURSE DETAIL

AUTOMOTIVE AND BUILDING AERODYNAMICS
Country Germany
Host Institution Technical University Berlin
Program(s) Technical University Berlin
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Mechanical Engineering
UCEAP Course Number 102
UCEAP Course Suffix B
UCEAP Official Title AUTOMOTIVE AND BUILDING AERODYNAMICS
UCEAP Transcript Title AUTO & BLDG AERODYN
UCEAP Quarter Units 5.50
UCEAP Semester Units

3.70

Course Description

This lecture provides the basics of areodynamics of bluff bodies, ground vehicles and buildings. The focus is on passenger cars. The students will be enabled to analyze and identify sources of aerodynamics forces for these objects in order to improve performance, reduce energy consumption or to incease passenger comfort. The methods include wind tunnel experiments and numerical simulation (CFD). The students will be trained in reading and summarizing scientific publications through presentations.

The course deals with flows around blunt (bluff) bodies, which either move along the ground (e.g. automobiles, trucks, trains) or lie stationary in the path of a flow (e.g. buildings). The content include: - Introduction to the aerodynamics of blunt bodies. - Fundamental mechanisms for lift and drag of automobiles. - Methods of reducing drag by means of lift production. - Aspects to the design of automobiles taking into account the flow around and through the body. - Overview of numeric and experimental methods of investigation. - Introduction of the aerodynamics of high-speed trains - Introduction to aerodynamics of buildings and environment Experiments with a 25% scaled car model will be carried out in the large wind tunnel of the TU-Berlin.

Language(s) of Instruction
English

Host Institution Course Number
0531 L 271

Host Institution Course Title
AUTOMOTIVE AND BUILDING AERODYNAMICS

Host Institution Campus
Technische Universität Berlin

Host Institution Faculty

Host Institution Degree

Host Institution Department
Institut für Strömungsmechanik und Technische Akustik

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