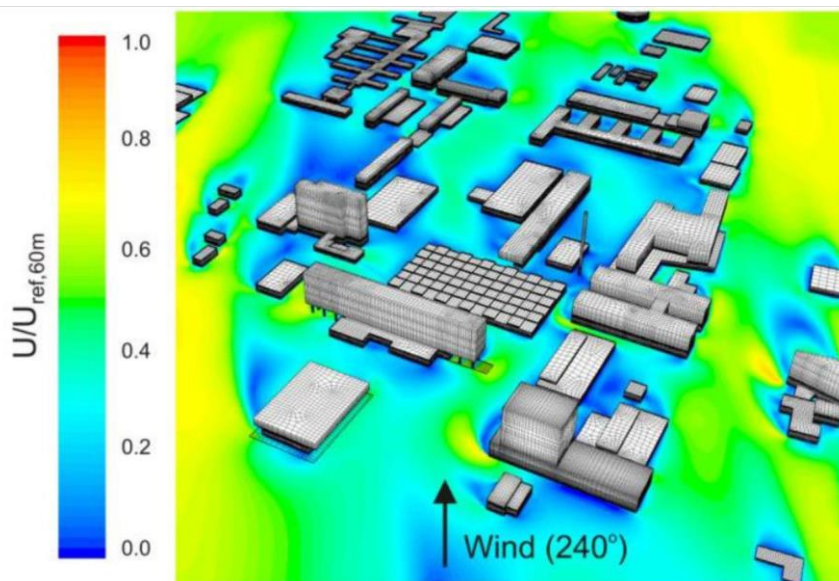


Building Physics: Building and Environment

Building Physics: Building and Environment	
Offered by	Department of the Built Environment
Language	English
Primarily interesting for	All students, but most relevant for students with background in Bachelor major Architecture, Urbanism and Building Sciences
Prerequisites	Required courses: - Recommended courses: 3NAB0 Applied Physical Sciences conceptual 7S3X0 Introduction Building Physics and Material Science 7S4X0 Building Physics and Building Services engineering
Contact person	Dr. K. Schollbach (k.schollbach@tue.nl)

Content and composition

The coherent package of Building Physics 2 is a preparation for the more technical master tracks. The package deals with the relationship between the building and its surroundings. In the package, the emphasis is on the performance of the building within its environment, which is evaluated by means of simulation and modeling. Within the specialization you will deal with the physical building aspects at both levels of detail and the scale area of the city regarding wind, noise, sunlight and precipitation.



With Computational Fluid Dynamics (CFD) calculated (dimensionless) wind fields around the buildings on the campus of TUE (W. Janssen, 2012)



Building Physics: Building and Environment

Course code	Course name	Level classification
7S0X0	Urban Physics: wind, acoustics, insulation and precipitation	
7S7X0	Materialization of facades and roofs	
7S9X0	Introduction building performance	

Course description

Urban Physics: wind, acoustics, insulation and precipitation (7S0X0)

The increasing urbanization, traffic and the increasing requirements of health and comfort in the context of complex energetic, ecologic and economic boundary conditions, put ever higher demands on the quality of the climate. Urban physics deals with the interaction of the outdoor climate with cities and the people living and working in these cities, and with problems as wind, heat stress, air pollution and noise, often caused by the way in which buildings and cities are designed and operated.

Materialization of facades and roofs (7S7X0)

The quality, identity, and performance of facades and roofs are largely determined by their materialization. This course covers the key architectural principles of facades and roofs, by focusing on the different types of materials that can be used, with aspects including hygroscopic behavior, thermal performances, durability, as well as their relationship to different materials (e.g. timber, plastic, metals, glass, concrete...) properties.

Introduction building performance (7S9X0)

This course introduces students to building performance assessment (with a focus on energy and indoor environmental quality) during the (pre)design and operational phase of buildings. The course provides students with the conceptual knowledge to assess the performance of buildings in the (pre)design and operational phase using a variety of tools (e.g. sensors, data loggers and building performance simulation tools) and methods (e.g. measurement and simulation).