

Faculty of Civil Engineering, TU Wien  
Mission Statement Teaching

Our academic program aims to provide students with the basis to acquire comprehensive competence in the diverse and fascinating subject areas of civil and environmental engineering.

Our bachelor and master programs are aligned with the "European Qualifications Framework for Lifelong Learning" and the "National Qualifications Framework in Austria". Graduates of the Bachelor's program have acquired in-depth theoretical knowledge in order to be able to carry out tasks independently and with ultimate responsibility at a high professional level, to master comprehensive challenges in changing contexts and to develop new, innovative approaches to solutions. Graduates of a Master's program have acquired expert knowledge in the chosen areas of specialization as well as sufficient basic knowledge from other disciplines, which they can use for the strategic management of complex projects. By independently acquiring and critically reflecting on new information and knowledge, they are also able to contribute to innovations in civil and environmental engineering.

Our courses aim at a balanced synthesis of versatile and therefore fundamental theoretical concepts and their computational application in the challenges of civil and environmental engineers. The world is literally open to dedicated graduates: Our programs provide them with the foundation to acquire all the necessary prerequisites to either pursue a career in engineering practice and/or a successful career in scientific research, in Austria or in any other country. In any case, they should contribute to consolidating and further expanding the high reputation of TU Wien graduates worldwide.

We take the advancing digitalization into account by preparing our students for a responsible use of software solutions. This requires an understanding of the underlying theoretical concepts, in particular the simplifying assumptions on which they are based, as well as the resulting application limits. In particular, the competence to apply well-founded theoretical knowledge to numerical calculations in an accurate manner is required. The most suitable methods to acquire this important and challenging implementation step are hand calculations supported by calculators. Based on this, our teaching aims at providing students with the tools to program software routines themselves in order to be aware of the computational processes involved, the areas of application and their limitations. Of course, computer programs that are frequently used in practice are also used, especially in master courses. Non-trivial benchmark examples are studied for which analytical solutions exist. They can be used to verify that a software computes at least approximately correctly.

Everyday practice is highly regulated by standards and guidelines. Our teaching at the bachelor's level is particularly aimed at showing the connection between the theoretical foundations and the currently applicable regulations. At the master's level, we also address topics in which new standards are required or the currently applicable regulations require updating in order to meet modern engineering practice. In our teaching that is based on latest research findings, we present the results of scientific research in this context and thus convey an understanding of the basis of the standards of the future.