Introduction:
Within the current era of an information society in almost every business branch there is an increasing complexity of tasks to be fulfilled. Unlike in former times this cannot be done by a single person anymore, but requires a multidisciplinary team, which is very often spread all over the world. Reaching a higher quality of the results in a shorter time requires new working principles and sophisticated technologies. The technologies of Virtual Reality (VR) could help efficiently to simulate complex coherencies, to visualize large data structures or abstract data and to interact with them in a user-friendly way.

Content:
This lecture gives an overview on the technologies of Virtual Reality as a new tool to accomplish the problems of new business processes. The following topics will be discussed: introduction into the history of VR; Integration of VR into business processes and into product development; Benefit of VR to industry; Human factors as the basis for Virtual Reality; Introduction into the generation (modeling) of virtual environments; Illumination models; Collision detection; Display systems; Projection systems; Sound systems; Tracking systems; Interaction devices for virtual environments; Haptic and tactile interaction; Motion platforms; Data gloves; Physical based simulation; Virtual Prototypes; Data exchange and data communication; Complete VR systems; Augmented Reality; Collaboration systems; VR for supporting esthetical design; Realization of VR in industry; Outlook into research and future work in the field of VR.

Teaching Goals:
The students get an overview on the wide field of Virtual Reality, from a technological point of view as well as from the viewpoint of information technology. They will gain experience with different software- and hardware modules and learn how to use them for typical business processes. With this expertise the students will learns how Virtual Reality can be profitably used in business processes. Furthermore they will achieve knowledge on the wide research field of VR, creating their own ideas on future developments. With a hands-on experience on hard- and software the students will make the first steps towards IT-supported business processes.

Teaching Modules:
- History of VR and definition of the most important ideas and terms
- Classifying VR in business processes
- The generation of virtual environments
- Devices and technologies for an immersive Virtual Reality
- Applications of VR in different fields

Didactical Concept / Handouts/ Costs:
The course consists of lectures, colloquia, and exercises. The lecture can be given in English, if required. The script is also available in English.

Requirements:
none

Lecture is suitable for D-MAVT, D-ITET, D-MTEC, D-MATH, D-PHYS and D-INFK

Certificate/ Credit Requisites / Examination
- Participation in lectures and colloquia
- Successful participation in exercises
- 30 minutes individual oral examination