Only the german version of the module description as part of the study regulations is legally binding.

Module name	**Production Engineering Specialization - Automated Assembly Systems and Programming**
Module number	INF-25-Ma-NSP-PROD
Responsible lecturer	Prof. Dr. Hans Christian Schmale hans_christian.schmale@tu-dresden.de
Qualification objec-Tives	Students have essential knowledge of the automation of handling and assembly processes. They know the sub-functions and components for the automated provision, feeding, gripping, joining and transferring of components as well as the structure and functionality of robots as a core component of automated workpiece and tool handling. Students are able to design automated handling and assembly processes, select components, including technical and organizational controls, and combine them into an overall system . They are able to develop software solutions for manufacturing applications.
Content	The module covers handling and robot technology as well as handling as part of the production process. Further content includes components for the sub-functions of automated manual handling, their selection and design, different types and variants of industrial robots with regard to areas of application, kinematic structure, parameters, drives, motion control with interpolation and coordinate transformation, sensor signal processing as well as robot programming and programming languages. Further contents are the planning, application preparation and commissioning of robot systems as well as the use of software for robot simulation and offline programming, interlinking of complex assembly systems taking into account organizational and technical control concepts zepte, the simulation-based investigation of automated assembly systems and software solutions for selected manufacturing applications.
Teaching and learning methods	The module comprises lectures of 3 SWS, exercises of 2 SWS, practicals of 5 SWS and self-study. The language of instruction for lectures, tutorials and practicals is German.
Prerequisites for par-ticipation	In the Diploma degree program in Computer Science, the competencies to be acquired in the module INF-25-Ma-NVE-PROD Production Engineering Specialization - Production Engineering and Automated Parts Manufacturing are a prerequisite.
Applicability	The module is a compulsory module of the Non-Computer Science Supplement Production Engineering in the Diploma program in Computer Science. The module creates the prerequisites for the modules listed under prerequisites for participation.
Requirements for earning credit points	The credit points are earned if the module examination is passed. The module examination consists of a written examination lasting 180 minutes and a complex assignment of 100 hours. The examination language for the written examination and the portfolio is German.

Credit points and grades	12 credit points can be earned through the module. The module grade is calculated from the un weighted average of the grades of the individual examinations.
Module frequency	The module is offered every winter semester.
Workload	The total workload is 360 hours.
Module duration	The module comprises one semester.