

Module Name	Turbo Pumps and Piston Compressors
Module Number	Eul-RES-E-TPKV
Responsible Lecturer	Dr. Andreas Jäger andreas.jaeger@tu-dresden.de
Qualification Objectives	Students master advanced design and construction methods for turbopumps and reciprocating compressors and are able to assess their operating behavior. They are capable of characterizing and evaluating relevant sub-aspects of the machines according to the requirements of the most important fields of application and solving engineering-specific, topic-related tasks.
Contents	The module contents include the fluid mechanical design of radial, diagonal, axial impellers, and guide vanes, as well as the analysis of the operating behavior of turbopumps and their structural design. Furthermore, the module covers design- and application-specific aspects of reciprocating compressors for refrigerants and process gases. Topics include acoustics/NVH, experimental and computational analysis of operating behavior, lubrication and sealing concepts, valves, and current developments.
Teaching and Learning Forms	2 hours per week of lectures, 2 hours per week of exercises, and self-study.
Prerequisites for Participation	The knowledge to be acquired in the modules Fundamentals of Fluid Mechanics, Thermodynamics Basics, Design Methodologies, Manufacturing Engineering, Materials, Technical Engineering, and Fundamentals of Power Machinery is required.
Usability	The module is an elective module from the elective area "Competence Deepening" in accordance with § 6 paragraph 3 SO and § 33 paragraph 3 PO in the main study phase of the diploma program Renewable Energy Systems.
Prerequisites for the Award of Credit Points	Credit points are awarded when the module examination is passed. The module examination consists of a portfolio with a workload of 65 hours.
Credit Points and Grades	5 credit points can be earned through the module. The module grade corresponds to the grade of the examination performance.
Frequency of the Module	The module is offered every summer semester.
Workload	The total workload is 150 hours.
Duration of the Module	The module lasts one semester.