Module Name	Fundamentals of Power Machinery
Module Number	EuI-RES-E-GEM
Responsible Lecturer	Dr. Andreas Jäger andreas.jaeger@tu-dresden.de
Qualification Objectives	Students master the methodological fundamentals for the design, construction, and operational behavior of turbo and reciprocating machines. Furthermore, they are capable of selecting and dimensioning the appropriate fluid energy machine for a given process.
Contents	The module covers turbo machines, particularly the principles of energy conversion, design fundamentals of axial and radial stages, energy conversion losses, and construction principles. Additionally, the module includes reciprocating machines, focusing on the structure and properties of various machine types, the fundamental processes in the working chambers of compressors, internal combustion engines, pumps, and expansion machines, as well as the basics of losses, drive mechanisms, and charge exchange.
Teaching and Learning Forms	4 hours per week of lectures, 1 hour per week of exercises, and self-study.
Prerequisites for Participation	The competencies to be acquired in the modules Fundamentals of Fluid Mechanics, Thermodynamics Basics, Design Methodologies, Manufacturing Engineering, Materials, and Engineering Mechanics are required.
Usability	The module is an elective module in the elective area "Orientation" according to § 6 paragraph 3 SO and § 33 paragraph 3 PO in the main study phase of the diploma program Renewable Energy Systems. It creates the prerequisites for the modules that list this module in the field "Prerequisites for Participation."
Prerequisites for the Award of Credit Points	Credit points are awarded when the module examination is passed. The module examination consists of a written exam lasting 180 minutes. A bonus for the written exam can be earned through a performance assessment with a workload of 20 hours.
Credit Points and Grades	5 credit points can be earned through the module. The module grade corresponds to the grade of the written exam.
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.