

Core Modules

Technical Mathematics

On completion of the module, students should be able to solve physical, electrical engineering, information technology, mechanical and economic problems mathematically through application-related teaching. They should also be able to master the techniques of problems solving, present results, interpret and cope confidently with professionally related, application-related tasks.

Technical Physics

On completion of the module, students should be able to analyse, calculate the occupation-specific tasks, recognise, understand and evaluate the physical relationships through experiments.

Design I

On completion of the module, students should be able to create 3D models and 3D assemblies with a 3D CAD programme, control the processing of the records for use in different areas of production, perform error and/or functional analyses in their solutions and also with the integration of the possibilities of a 3D CAD programme.

Information Technology

On completion of the module, students should be able to explain the structure of a computer system and describe the functions of the operating system. They should be able to plan and conceive a computer network, taking into account system security and to use industry-standard software for modeling engineering problems.

Quality Management

On completion of the module, students should be able to analyse the structure and operation of quality management systems. They should be able to capture, compress, and evaluate measurement values using control charts and appropriate tools for process optimisation.

Business Management and Communication I

On completion of the module, students should be able to create, analyse the requirements and contents of an annual financial statement, apply full or marginal costing on a case-by-case basis, and can derive production and sales decisions. They should be able to determine capital requirements, differentiate between types of finance and their alternatives, and both execute and evaluate case-related financing. They should be able to develop an understanding of the motivation and communication processes in professional situations. It also includes leading themselves and others, successfully form operational processes and solve problems that arise in a creative and goal-oriented fashion.

Automation Technology I

On completion of the module, students should be able to analyse, implement modern automation systems and to test, configure, dimension and evaluate application-specific circuits and controls, regulations and drives from different technologies to understand the system.

Production Management I

On completion of the module, students should be able to classify a manufacturing company, to use a planning system to develop alternative solutions. They should be able to describe basic mechanisms involved in production planning and control, plan the manufacturing process for selected manufacturing tasks and to control and monitor these while using ERP/PPS software. Topics include volume, scheduling and capacity planning.

Production Technology I

On completion of the module, students should be able to analyse production sequences in accordance with the design aspects, the economic aspects and with respect to the achievable production quality and schedule. They should also be able to evaluate, select the manufacturing processes for production planning, integrate computer-aided CNC programming with CAD/CAM system.

Design II

On completion of the module, students should be able to select appropriate machine elements based on an application, dimension and evaluate their solution. They should also be able to use vendor-specific information and calculation programmes.

Business Management and Communication II

On completion of the module, students should be able to formulate marketing goals, assign marketing instruments, describe the completion and fulfilment of contracts and present the legal consequences of contractual anomalies on the basis of case studies. They should be competent in personal, social, emotional, methodological and equip with cognitive skills, priority management and presentation skills to enable them to motivate others.

Automation Technology II

On completion of the module, students should be able to create programmes, have the necessary knowledge, standards, regulations, rules and safety guidelines to apply in the analysis, selection and testing of equipment and assemblies.

Production Management II

On completion of the module, students should be able to select, use methods to optimize production and work on projects according to the methodology of project management.

Production Technology II

On completion of the module, students should be able to optimize the manufacturing process with associated resources, taking into account ecological and economic aspects.

Final Year Project

On completion of the module, students should be able to apply the skills and knowledge acquired from the course into practice. The assigned or selected project will be guided and monitored by a Project Supervisor. Students are expected to plan, execute, evaluate, monitor the progress and exercise time management on their group project within the project time. This will include the purchasing of required material. A format presentation, with proper documentation and a completed written report are expected from the students.