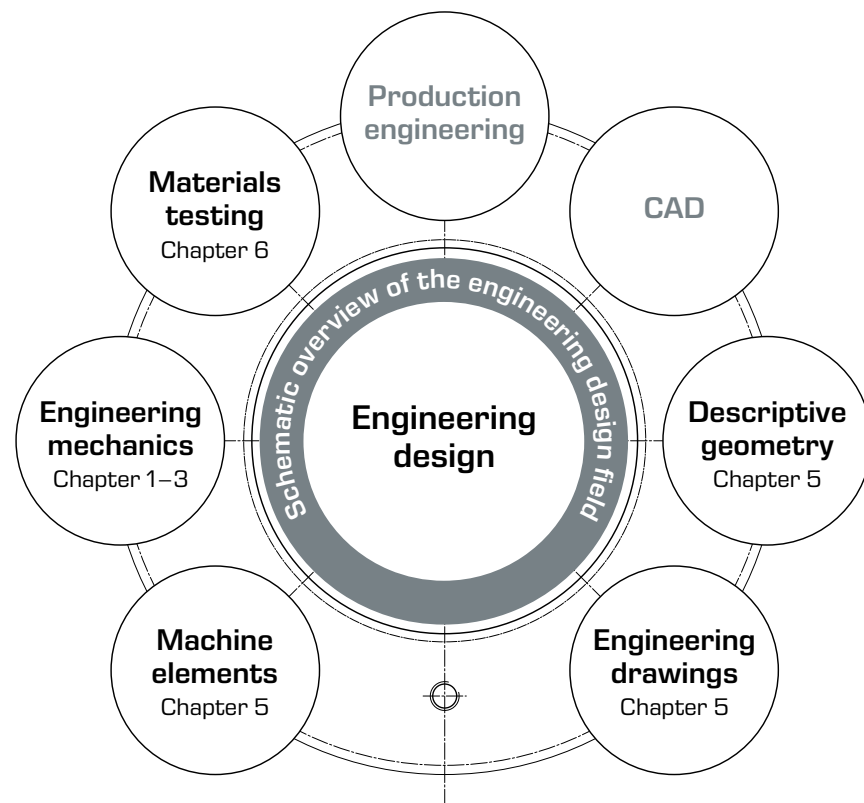


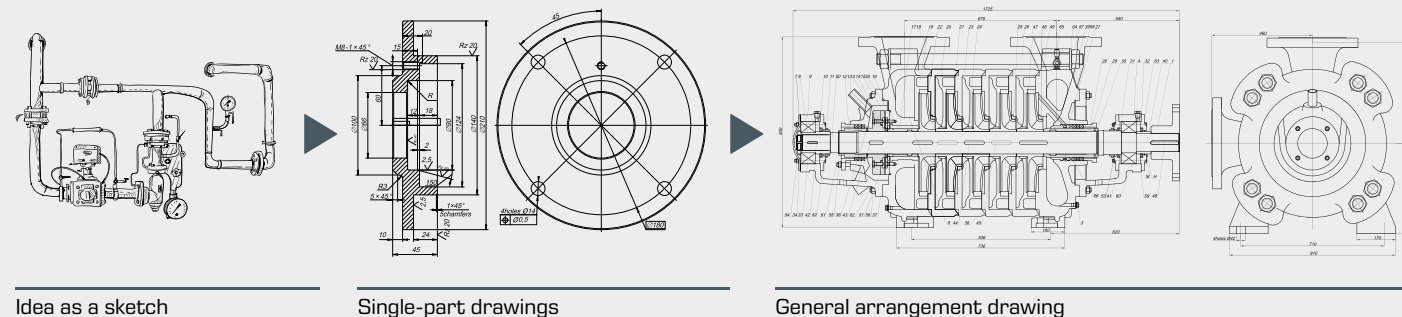
Engineering design

Engineering design means describing technical products in full, thereby enabling their manufacture. This includes observations and concepts with sketches, calculations and initial drafts, all the way up to lists of parts and drawings with specifications for materials, machining, dimensions and tolerances. The applied principles of engineering design are taught in the engineering design discipline. Engineering design is a central and challenging area of learning within engineering education.

By carefully developing fundamental topics such as statics, strength of materials and dynamics, machine elements, materials testing, descriptive geometry and engineering drawings, students are prepared for subsequent professional activities.



From the idea for a product to its illustration in the form of a production-oriented engineering drawing



Idea as a sketch

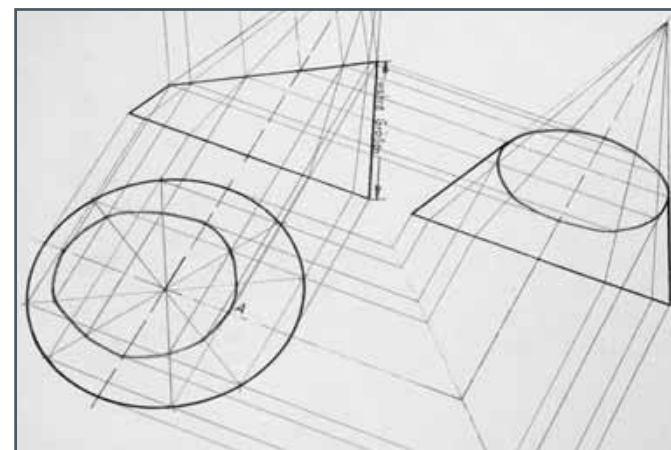
Single-part drawings

General arrangement drawing

Procedure involved in engineering design

Work step	Activity	Result
Observation	<ul style="list-style-type: none"> description of the problem acquisition of information creation of a requirements list 	Technical specifications
Design	<ul style="list-style-type: none"> abstract and formulate the problem description of the function search for solution principles investigate possible solution define a basic solution 	Circuit diagram, hand-drawn sketch or rough scale drawing
Draft	<ul style="list-style-type: none"> sketch rough draft perform calculations design geometry, starting from the basic solution select the materials select the machine elements, standard parts and supplied parts for the function create a design drawing with data on components or machine elements and strength calculation define assemblies 	Calculations, design drawing
Development	<ul style="list-style-type: none"> prepare the single-part drawings create lists of parts review manufacturing options and the final costs define the instructions for manufacturing and assembly create operating instructions and documentation 	Engineering drawings, lists of parts, assembly instructions

Engineering design education



To start with, the fundamentals of engineering design are taught, such as descriptive geometry, engineering drawing and standardisation. Then we look at machine elements such as screws, shafts, bearings and gears. The aim is to learn what

these components do and how they work. Based on this knowledge, engineering design exercises can be solved.