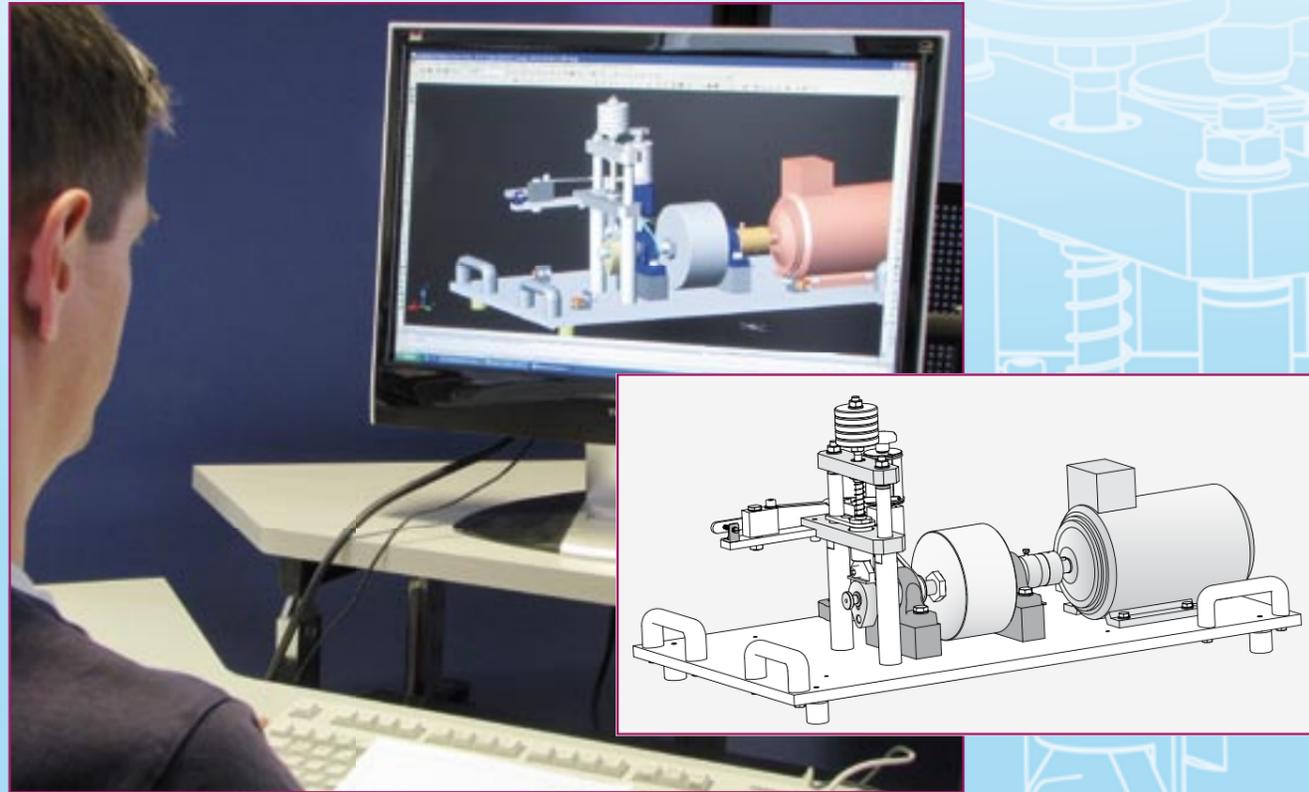


TEACHING AND LEARNING SYSTEMS FOR EXPERIMENTS IN ENGINEERING MECHANICS

Engineering Mechanics as the foundation of machine design



- Engineering Mechanics
- Machine Elements
- Theory of Machines
- Fundamentals of Materials
- Technical Drawing

The GUNT experimentation and demonstration units in this catalogue will help you develop basic knowledge.

Alongside lectures, tutorials and exercises, laboratory experiments are an essential tool in firmly rooting basic knowledge in students' minds and developing their ability to apply that knowledge based on realistic practice.

On pages 50-51 and 106-107 you will find a chart matching the key learning content in STATICS and STRENGTH OF MATERIALS to the corresponding GUNT demonstration and experimentation units.

Experiments help to provide a deeper understanding of the material and link basic theoretical knowledge to practice in a realistic manner.

"The purpose of studying machine element design is to fill the toolbox of young engineers, so that problem-solving and design synthesis activities can be flexible and unconstrained."

Source: FUNDAMENTALS OF MACHINE ELEMENTS, 2nd Edition, Hamrock, Schmid, Jacobson

What learning content can you cover by deploying the GUNT training systems set out in this catalogue?

LEARNING CONTENT IN STATICS	TOPICS COVERED IN STATICS
<p>Statics – as a key area of Engineering Mechanics – deals with rigid (non-deformable) bodies at rest. Material properties are analysed at a later stage. Statics is the foundation for access to two other subdivisions of Engineering Mechanics: Strength of Materials and Dynamics.</p> <p>Fundamental concepts, such as forces and moments, friction, a central force system, types of support, elastic lines, static determinacy and indeterminacy etc., can be demonstrated and experimentally explored with the GUNT experimentation units.</p> <p>The full range of topics covered by the experimentation units provides a comprehensive, self-contained laboratory cycle incorporating all the fundamental principles of statics.</p>	Forces and Moments
	Friction
	Forces in a Truss
	Internal Reactions/Method of Sections
	Bridges, Beams, Arches

First the fundamentals, then the specifics

LEARNING CONTENT IN STRENGTH OF MATERIALS	TOPICS COVERED IN STRENGTH OF MATERIALS
<p>Strength of Materials, as a further subdivision of Engineering Mechanics, requires knowledge of the fundamentals of Statics as the prerequisite for structured learning. Strength of Materials deals with the effect of loads on deformable bodies. It also analyses material-specific parameters.</p> <p>Students can work through fundamental concepts, such as internal reactions to external loads, types of stresses and strains, material characteristics, component failure etc., in a series of illustrative, clearly laid-out experiments.</p> <p>The full range of GUNT Strength of Materials experimentation units represents a comprehensive, self-contained laboratory cycle incorporating experimental exploration of all essential topics.</p> <p>We have placed particular weight on the topic of mechanical stress and strain analysis.</p> <p>Key application cases are investigated with the aid of strain gauges or photoelastically.</p>	Elastic Deformations
	Buckling and Stability
	Compound Stress
	Stress and Strain Analysis

"Engineering Mechanics is the essential introduction to the field of engineering, as it provides both learning content and methodological training."

Prof. Dr.-Ing. Frank Mestemacher, Department of Mechanical Engineering, Fachhochschule Stralsund.