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Technical English

Mechanical Engineering

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„**Technical English – Mechanical Engineering**“ wendet sich an alle Lehrenden und Studierenden des **Fachbereiches Maschinenbau** an den **Universitäten** und **Fachhochschulen**. Es eignet sich sowohl für die Fremdsprachenausbildung im Rahmen der Module Technisches Englisch 1 und Technisches Englisch 2, aber auch zum Selbststudium und für Schulungen in Unternehmen, in denen technisches Fachvokabular vermittelt wird.

Der erste Teil des Buches befasst sich aufbauend auf dem in den allgemeinbildenden Schulen vermittelten Englisch mit den Grundlagen aus dem Bereich Material, Materialeigenschaften und Fertigungsverfahren, während im zweiten Teil aus einer Vielzahl von Themen diejenigen gewählt werden können, die dem jeweiligen Schwerpunkt der Hochschule oder Universität, bzw. dem beruflichen Umfeld entsprechen.

Durch die Vielzahl an Themen aus dem Bereich Maschinenbau ist das Buch auch für den Einsatz an **berufsbildenden Schulen**, in der **Techniker-** und **Meisterausbildung** geeignet.

Fachbezogene Sachtexte schulen das Leseverständnis und mit den Aufgaben im Anschluss kann das neu eingeführte Vokabular angewendet und vertieft werden. Gleichzeitig wird durch die Vielzahl an verschiedenen Aufgaben jeder Lerntyp angesprochen, sodass der Lernerfolg zu einer weiteren Motivation führt.

Die Lösungen, sowie Mustertexte zu den Schreibaufgaben ermöglichen auch ein eigenständiges Nach- und Weiterarbeiten und die Vokabellisten am Ende jedes Moduls und die umfangreichen Gesamtvokabellisten im Anhang (Englisch-Deutsch, Deutsch-Englisch) dienen auch im Alltag als nützliches Nachschlagewerk.

Nach einer Grammatikwiederholung im ersten Teil werden die einzelnen, für den Bereich des technischen Englisch relevanten, Themen in den Modulen wieder aufgegriffen und vertieft.

Das farblich abgehobene Register an der Seite des Buches ermöglicht ein schnelles und problemloses Auffinden der einzelnen Module.

Wir wünschen den Lernenden und Lehrenden viel Freude und Erfolg bei der Aktivierung und Erweiterung ihrer fachlichen Englischkenntnisse mit dem Buch und freuen uns über konstruktive Kritik und Anregungen für weitere Auflagen, um die Qualität unseres Buches weiter zu verbessern.

Autoren und Verlag

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Module 1

Basic Technical Vocabulary

At the beginning of the technical English course it is necessary to introduce some basic vocabulary and grammar. Technical English is different from the English taught at secondary schools. For this reason, the following module provides the basic tools for every student of mechanical engineering to enlarge their knowledge and to work in an international surrounding.

1.1 Tools in the Workshop

The first and important thing to know is what all the tools and machines in the workshop are called. This enables an engineer to give precise instructions to the trained workers about what to do and how. Therefore, the exercises will provide an overview of the content of a toolbox, useful verbs, measurement tools and the most common units that are needed in during daily working processes.



1.2 Measuring

When it comes to measuring work pieces, there are various methods and many tools available for this task. The first differentiation has to be made between gauges and measurement equipment.

The first represent either a measurement or a form that refers to limit dimensions of tolerances. These have to be fulfilled in fits and usually just provide information about whether a fit is within the limit of tolerances or not. This group includes gauging tools, e.g. slip gauges and accidences, straightedge, square and limit gauges, cylindrical plug gauges, gauging rings and calliper gauges.

The latter can be used for acquiring information on the measurements of a work piece and provide information on the length, width and depth of the outer or inner edges of a work piece, hole or slot. The most common instruments in mechanical engineering are vernier callipers or calliper rules which can be used universally in the workshop. They provide information on lengths and are precise to 0.1 mm. If it comes to smaller tolerances, micrometers are usually used. They measure accurately to within 0.001 mm.



1.3 Common Units

For a very long time every country has used its own measurement system and units which led to a lot of problems, as the measurements of a work piece were not comparable to each other. In an internationally operating industry, a standardized measurement system is absolutely essential and for this reason the International System of Units (SI-units) has been developed from the metric system. Engineers in the United Kingdom still often use the imperial system instead of the metric one, which is now the international standard system. Therefore, every engineer should at least have basic knowledge of the units of the imperial system and how the conversion between the two systems works.

1. The Content of a Toolbox

a) Look at the picture with the tools that belong to the basic equipment of a toolbox. Use the words from the box to label the tools.

ring spanner | open-ended spanner | file | chisel | ratchet | sockets | side cutter | screw-driver | Allen keys | pliers | socket wrench | electric drill | metal saw | torque wrench | strap wrench (oil filter wrench) | grip vice pliers | centre punch | combination pliers | hammer | rim wrench | soldering iron | vernier callipers

			
1.	2.	3.	4.
			
5.	6.	7.	8.
			
9.	10.	11.	12.
			
13.	14.	15.	16.
			
17.	18.	19.	20.
			
21.	22.		

b) Choose one of the tools and describe it in terms of its material, its appearance and what it is used for. Your text should be between 60 and 80 words long.

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2. Working in a Workshop

Have a look at the sentences and match the correct verb from the box with its definition and then find an appropriate tool from exercise 1a) for each task.

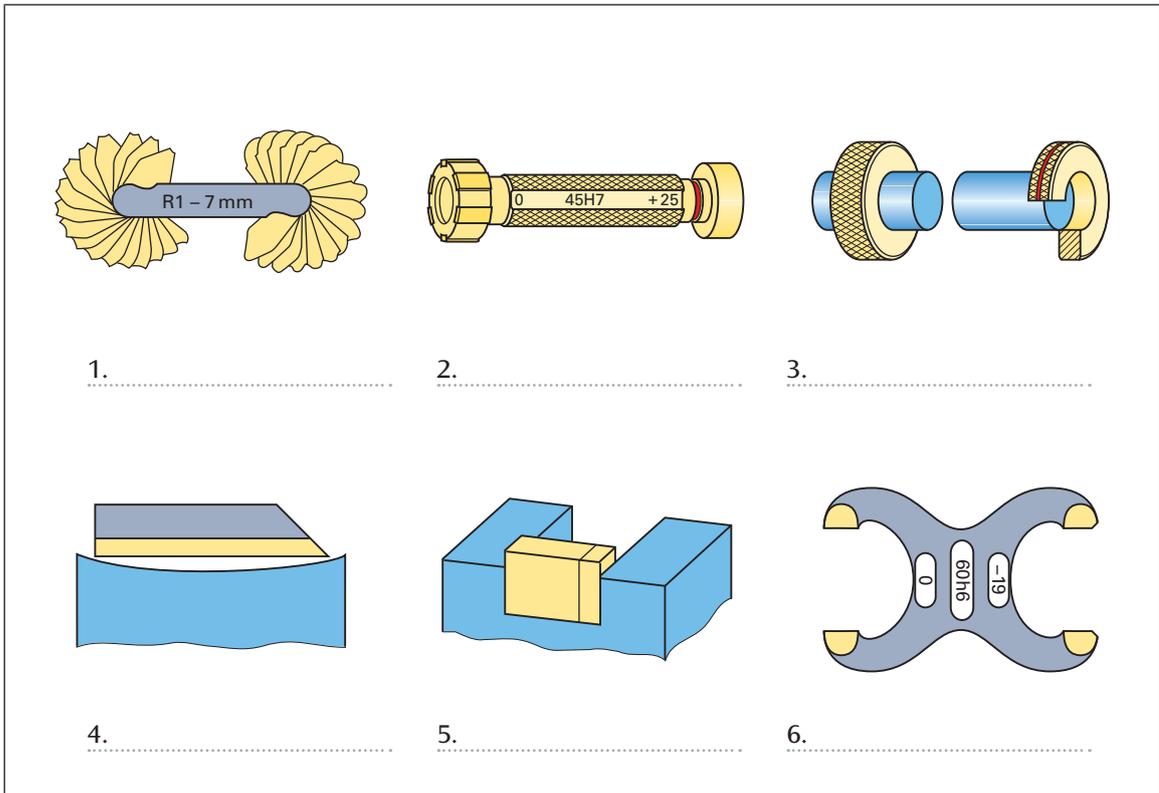
draw | drill | saw | grind | mill | screw | loosen | tighten | solder | measure | shape | sharpen

	Verb	Definition	Tool
1	give a certain form to something, e.g. with a hammer	.....
2	fix the look and the exact measurement of a work piece on paper	.....
3	to become or make s.th. loose	.....
4	to join two materials to each other by melting their surface	.....
5	to fasten s.th. or make it tight with the help of screws	.....
6	to polish a work piece or sharpen s.th. by rubbing it on a rough, hard surface	.....
7	remove a certain amount of material from a work piece with the help of machinery	.....
8	find out the dimensions of a work piece	.....
9	the opposite of 'to loosen'	.....
10	to make s.th. sharp, e.g. by grinding it	.....
11	to make a hole in a piece of metal or other material	.....
12	separate a piece of material from a whole block	.....

3. Quality Assurance

a) Have a look at the pictures of the various measuring tools and label them with the words from the box.

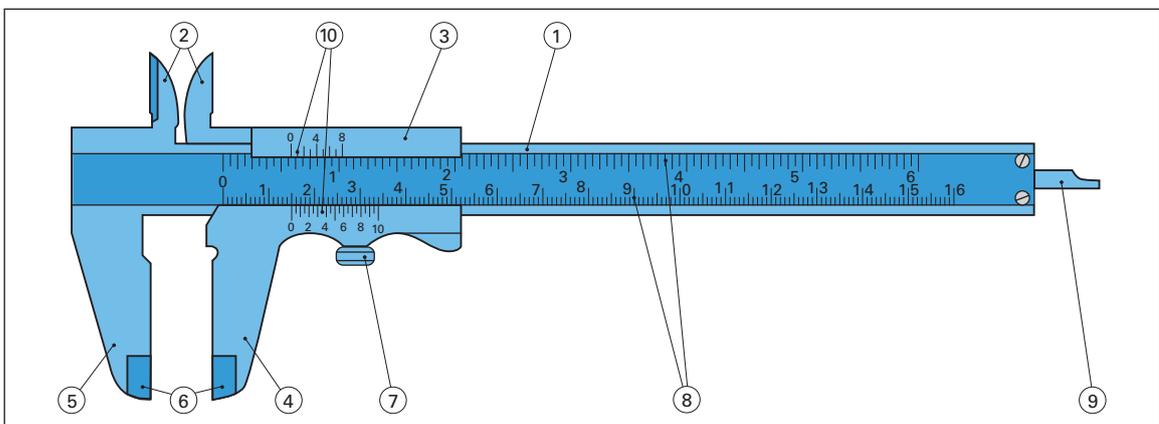
accidence | straightedge | cylindrical plug gauge | gauging tool | calliper gauge | gauging ring



Picture 1/2: Measuring tools

b) Use the expressions from the box and label the parts of the vernier calliper with the appropriate words.

fixed jaw | movable jaw | depth bar | vernier scale | slider | inside jaws | main beam (bar) | scale | clamp screw | outside jaws



Picture 1/3: Parts of a vernier calliper