



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

Střední průmyslová škola strojnická Olomouc, tř.17. listopadu 49

**Výukový materiál zpracovaný v rámci projektu „Výuka moderně“
Registrační číslo projektu: CZ.1.07/1.5.00/34.0205**

Šablona: III/2 Anglický jazyk

Sada: 2

Číslo materiálu v sadě: 17

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky

Název: Machining 2

Jméno autora: Mgr. Jana Novotná

Předmět: anglický jazyk

Jazyk: anglický, český

Klíčová slova: machining, traditional processes, non-traditional processes

Cílová skupina: žák 3. ročníku

Stupeň a typ vzdělání: střední odborné

Očekávaný výstup: žák si rozšíří slovní zásobu k tématu „obrábění“.

Metodický list/anotace:

Žáci si na základě této prezentace rozšíří slovní zásobu k tématu „obrábění“ a doplní si znalosti o jednotlivých obráběcích procesech uvedených v předchozím DUM.

Datum vytvoření: 1. 3. 2013

1. Answer the questions.

Pre – reading task:

1, What is *machining*?

2, What is *CNC - machine*? What is it used for?

3, Which two methods of machining do you know?

Key:

1. Machining is a process of removing material from a workpiece to achieve a desired shape and size. The material is cut by sharp cutting tools into the form of chips.
2. CNC- machine is It an automated device which makes industrial components without direct human assistance. It uses coded instructions which are sent to an internal computer. The components are made quickly and accurately.
3. There are 2 methods of machining: traditional and non-traditional.

2. Read the text.

MACHINING 2

Machining is a very important process in engineering and manufacturing process. There are 2 methods of machining: TRADITIONAL (conventional) and NON-TRADITIONAL (non-conventional).

1. TRADITIONAL PROCESSES

They are based on removing material in the form of chips by using a tool which is harder than a workpiece. The processes are called: turning, milling, drilling, planning and slotting. The finishing operations are called honing, lapping, superfinishing, grinding, etc. They are used to improve a surface of a product.

TURNING is used to produce cylindrical components. The main cutting motion is done by a workpiece, while feed and infeed are done by a tool. Turning is performed on a machine called **lathe** (the process is controlled manually) or on a CNC-machine (the process is controlled by a computer). When turning, the workpiece is held and rotated around the horizontal axis while being formed to size and shape by a cutting tool called **turning tool**.

MILLING is used to produce parts having flat or curved shapes like grooves or geared wheels. In the milling process the cutting motion is carried out by a rotating tool while feed and infeed is done by a workpiece. The workpiece is usually held in a vise and fed against a rotating multiple-tooth tool known as the **milling cutter**.

DRILLING is used to make cylindrical holes. The cutting motion and feed is performed by a rotating tool while the infeed is given by a drill. The drilling operation can be carried out on a **drilling machine** but a lathe can be used for drilling as well. A tool used for making holes is called a **drill**.

2. NON – TRADITIONAL PROCESSES

They are used for machining some advanced alloys which are very hard, high-strength, temperature – resistant, or too brittle. For metal machining they use some form of energy instead of a traditional tool. They can be classified according to the type of energy, e.g. water jet, electron-beam, laser-beam, plasma-beam, chemical cutting, etc. These processes play an important role in modern industries, for example, in aircraft or aerospace and nuclear industries.

Vocabulary:

alloy - slitina

axis – osa

beam - paprsek

brittle - křehký

chip – tříška

curved – zakřivený, ohnutý

cutting motion – řezný pohyb

cylindrical – válcový

drill – vrták

drilling – vrtání

drilling machine - vrtačka

feed – posuv

(to) feed – dávkovat, podávat

flat – plochý

geared wheel - ozubené kolo

grinding – broušení

groove – drážka

hole - díra

honing – honování

horizontal - vodorovný

(to) improve – vylepšit, zlepšit

infeed - přísuv

lapping – lapování

lathe - soustruh

milling – frézování

milling cutter - fréza

planing – hoblování

slotting – obrážení

superfinishing – superfinišování

surface - povrch

tool – nástroj

turning – soustružení

vise – svěrák

water jet – vodní paprsek

workpiece – obrobek

3. Fill in the table.

	<u>TURNING</u>	<u>MILLING</u>	<u>DRILLING</u>
MACHINE		<i>milling machine</i>	
TOOL			

Key:

	<u>TURNING</u>	<u>MILLING</u>	<u>DRILLING</u>
MACHINE	<i>lathe CNC machine</i>	<i>milling machine</i>	<i>drilling machine lathe</i>
TOOL	<i>turning tool</i>	<i>milling cutter</i>	<i>drill</i>

4. Choose the best answer.

1. Turning, milling and drilling are _____ machining processes.

A, traditional B, non-traditional

2. Turning is used to produce _____ components.

A, cylindrical B, flat

3. Milling is used to produce _____ .

A, holes B, geared wheels

4. The drilling operation can be carried out on _____ .

A, a drilling machine or a lathe. B, a drilling machine or a milling machine.

5. Non-traditional processes are used for machining _____ .

A, light and soft alloys B, hard alloys

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A, light and soft alloys *B, hard alloys*

Použitá literatura:

vlastní zdroje

DEUTSCH, P., HENDRYCHOVÁ, P. *Technická angličtina zaměřená pro střední průmyslové školy se zaměřením na elektrotechniku a strojírenství*. Olomouc, 2011.