

GINOP – 6.1.3-17-2018-00033 Nyíregyházi Szakképzési Centrum – Idegen nyelvi készségek fejlesztése Nyíregyházán és vonzáskörzetében

Angol C2 1 1 039 Angol nyelvi képzés KER A1 szinttől C2 szintig

Képzés nyilvántartásba vételi száma: E-001291/2015/C002

Szakmai segédanyag

a

Gépi és CNC forgácsoló szakma

idegen nyelvi tananyagainak oktatásához

angol nyelv

A2 szint

Készítette: Serdültné Molnár Ildikó

Nyíregyházi SZC Inczedy György Szakképző Iskola és Kollégium



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Reading

Pre-reading task. *Look at the picture. What does it show? You can find this machine in our school workshop. Have you worked on it? Can you speak about milling?*



CNC milling machine

TRX550 PRO Small Vertical Machining Center

5 HP Servo Spindle, Extended X-Axis, Full Production Capacity, \$28,606.00

Meet the new kid on the block. The TRX550 PRO is a compact, full production vertical machining center that has power, speed and performance.

The most unique feature of the TRX550 PRO is the extended length work table. This rugged, small VMC has a 40" long work table with an extended X-axis travel of 21.5". This "Super X" work envelope allows the TRX550 PRO to fit a wide range of applications. Works especially well for large workpieces - or in multiple part set-ups.

The TRX550 PRO Vertical Milling Center has a full "safety assured" machine enclosure, with customer recommended ergonomic package that is designed with all-day operation in mind.

Unique TRX550 PRO features include:

- **Extended Length Work Table and X-Axis:** 40" long work table with 21.5" of X-axis travel allows for machining larger workpieces and multiple set-ups. Maximum versatility.
- **Closed Loop System/Servos:** Industrial level of power, precision and performance.
- **Siemens 808D CNC Control:** Industrial grade CNC control with conversational programming and on-screen help guide.

- **5 HP Servo Spindle Motor:** High torque, even at low RPMs - constant torque rise through the speed range. Allows for rigid tapping and spindle positioning.
- **50-6000 RPM Spindle:** Ramp up from lowest to highest speed at the push of a button.
- **12 Tool Automatic Tool Change System:** Automated milling operations with precision BT30 10-tool ATC. Change tools with pneumatic "push-button" tool change.
- **High-Quality Linear Guides and Ball Screws:** Increased precision and higher speed operations. Allows for 1000 IPM feed rates.
- **Full Enclosure:** Full "Safety-Lock" enclosure keeps the operator safe - contains coolant and chips during long production runs.
- **Heavy Base and Machine Castings:** Optimal vibration damping, assuring consistent precision and excellent repeatability.

Task A - Your task will be to decide if statements (1-6) are TRUE or FALSE according to what the text says. Mark your answer with T (True) or F (False).

1. TRX550 PRO is a horizontal milling machine.
2. The work table has extended Y-Axis travel of 21, 5”.
3. The ‘Super-X’ work envelope grants the machine to fit a wide range of applications.
4. Machinists cannot carry out the milling of large workpieces on TRX550 PRO.
5. Working on this milling machine is safe for operators because of its enclosure.
6. Servos provide the industrial level of power, precision and performance.

Task B - Study the text again and complete the chart with the missing information.

Product information

Model name	
------------	--

Price	
-------	--

Travels and Feed Rates

X-Axis (in inch)	
------------------	--

Table

Length (in inch)	
------------------	--

Spindle

<i>Spindle Power (in HP/Horsepower)</i>	
<i>RPM Range (in RMP/Revolutions Per Minute)</i>	
<i>Drive (Motor) system</i>	
<i>Taper (tool holder) type</i>	

Control Panel

<i>Type</i>	
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Linear Guides and Ball Screws

<i>Feedrate (in IPM/inches per minute)</i>	
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Task C - Match the parts of the milling machine to their features.

Machine part	Feature
1. Table	a. spindle positioning
2. Control Panel	b. pneumatic
3. Servo Spindle Motor	c. safety- lock
4. Automatic Tool Changer (ATC)	d. extended length
5. Linear Guides and Ball Screws	e. on-screen help guide
6. Enclosure	f. vibration damping
7. Base and Casting	g. increased precision, higher speed

Writing - Curriculum vitae

Study this Curriculum Vitae (CV) which provides information about a metal cutting- and CNC machinist who is looking for a job.

László Nagy

1. **Email:** nagy.laszlo1234@gmail.com
Address: 20 Forrás út Nyíregyháza, 4400
Phone: +36201122334
Date of birth: 16 July 2005
Nationality: Hungarian
2. **Skilled** metal cutting- and CNC machinist career entrant looking for a position, **Enjoys** manufacturing components, **Interested** in grinding and drilling, **Successful** in performing operations on CNC Lathe and Mill, **Ready** to develop technical skills, **Hardworking** and **reliable**
3. 2022 **Metal cutting- and CNC machinist**
4. 2020-2022 Metalworking Ltd., Nyíregyháza as a dual training place
Vocationally oriented training with contract
Metal cutting- and CNC machinist trainee

2019-2022 Vocational Training Centre of Nyíregyháza, Inczedy György Vocational School and Dormitory, specialized in metal cutting and CNC cutting operations
General Education, Basic Sectoral Education, Vocationally oriented training
5. Traditional machine-based metal cutting: turning, milling, shaping, slotting, grinding and drilling
Knowledge of measuring instruments, technical drawings and tolerance tables
Computer knowledge for CNC machinery, Operations CNC Lathe and Mill, Simple and complex precision CNC machining operations
Business administration, Machine maintenance
Willingness to learn new tasks, Logical thinking, Strong communication skills, Good time management
6. Category 'B' driving licence
7. Good spoken English
8. Volunteering at the animal shelter, Cycling
9. Available upon request

Task A – *Find the right place of the following section titles (A-I) in the CV. Write the letters next to the numbers (1-9) on the dotted lines.*

- A) References**
- B) Contact information**
- C) Language**
- D) Other knowledge**
- E) Objective**
- F) Qualification**
- G) Education**
- H) Key Skills**
- I) Interests**

Task B – *With the help of the above sample write your CV. You are advised to use a CV maker from the Internet.*

A covering letter

Task A - Read the following covering letter from a metal cutting- and CNC machinist. The parts of the text have been jumbled. Put them into the correct order, then write the letters (A-E) next to the numbers (1-5) below.

20 Forrás út
Nyíregyháza, 4400
Hungary

12 June 2022

The Manager
Steel and Cutting Ltd.
5 Arlington Road
London W7 2QD

Dear Sir/Madam,

A

As you can see from my Curriculum Vitae, I am 17 years old and I finished my studies in June this year. I got my certificate with good results. As a career entrant, I am looking for a position where I can improve my skills and grow in my CNC career.

B

Your advertisement mentions that applicants should have skills in handling manual metalworking machines. I point out that I enjoy working with surface grinders and drill presses. I am also good at repairing components. Next, I read you are looking for a skilled worker who has experience in operating CNC lathes and mills. I can perform cutting processes with accuracy on these machines. I also have basic knowledge of programming them.

C

I look forward to hearing from you. Please contact me if you have any questions. I am available for an interview any day after 15th June. Thank you very much for your time and consideration.

D

I am a hardworking and responsible applicant. I think I would be a great member of your team and we could achieve success together. I believe my skills and education make me suitable for the job.

In my free time, I do voluntary work in the local animal shelter. Usually, in summer I go bicycle touring with my friends to nearby places.

I have attached my Curriculum Vitae and a copy of my certificate. I hope you will consider my application favourably.

E

I saw your advertisement in the local newspaper on the 10th June and I am interested in working as a metal cutting- and CNC machinist for your company.

Yours faithfully,

László Nagy

Your answer: 1-....., 2-....., 3-....., 4-....., 5-.....

Task B – *Imagine that you are applying for a position of metal cutting- and CNC machinist.*

Write your covering letter in which you:

- *say why you are writing the letter*
- *introduce yourself*
- *provide information about your skills, personality, interests*
- *say why you are suitable for the job*

You can use the phrases and ideas from the covering letter above.

Small talks

Task A - At the job interview

1. In the following interview with László Nagy, a metal cutting- and CNC machinist, the questions have been removed. Read the text and match the questions with the answers. Write the letters of the missing lines (A-H) next to the correct numbers (1-8).

A (applicant): Good afternoon!

B (personnel manager): Good afternoon! Take a seat, please!

A: Thank you.

B: (1)

A: Yes, I know this area very well.

B: (2)

A: Yes, certainly. I am László Nagy and I was born on 16th July, 2004 in Nyíregyháza. After finishing primary school, I learnt my trade in Inczedy György Vocational School. This year I completed grade 11, then I took the final vocational exam. I received my certificate in June. At present, I live with my family in Nyíregyháza but I am planning to work abroad and get a job in the U.K.

B: (3)

A: I was specialized in mechanics. My subjects were, among the others, Basic tasks in mechanical engineering, Turning, Milling and Grinding operations, and CNC milling. I passed my vocational examination with excellent results. At school, I was good at interpreting information on mechanical materials, such as technical drawings, tolerance tables and tables of joints.

B: Yes, I see. (4)

A: As I have always been interested in new technologies I learnt the operation of CNC machines quite easily. So I can load and check CNC machining programs and perform necessary modifications successfully.

B: Very good. (5)

A: Well, I can use traditional cutting machines, especially grinders and drilling presses. I have experience in working with CNC lathes and mills. I would also say that I have great communication skills, I am a good listener. I think I am also hardworking and reliable so I would accept further training opportunities to develop my practical skills.

B: Great. (6)

A: Yes, I usually get along well with people. In a team, the colleagues can support and encourage each other to reach the company's success. Next, I can communicate my ideas clearly and I always listen to people's opinions.

B: Thank you. (7)

A: As I am fond of dogs, at weekends I go to the local animal shelter to help the dogs in need. I think volunteering is the best way to feel happier and learn responsibility. Next, I would like to keep fit, so I have chosen cycling as a hobby. I enjoy exploring new places and when I go on a bicycle tour I spend a lot of time with my friends.

B: OK. (8)

A: Next week.

B: Thank you for coming to the interview. Goodbye!

A: You are welcome. Goodbye!

A) What are your hobbies?

B) Can you introduce yourself, please?

C) And my last question, if I offer you the position, when can you start?

D) Can you speak about your educational background in the vocational school?

E) In your CV you wrote that CNC machine operation is one of your key skills. Can you explain why you think that?

F) Can you find us easily?

G) Do you like working as part of a team?

H) Can you tell me what your strengths are?

2. Role play. Now talk in pairs and act out a job interview. You can use the phrases and ideas from the interview above.

Student A: Imagine that you are applying for a job and Student B is interviewing you. You are a metal cutting- and CNC machinist. Answer his questions.

Student B: *Imagine that you are a personnel manager and student A is applying for the job in the company you work for. Interview him.*

The applicant should include the following points:

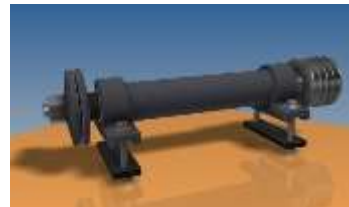
- Introduction
- Key skills and strengths
- Working in a team
- Hobbies

Task B – In the machine shop

1. *Read the following dialogue in which a **customer** and a **metal cutting- and CNC machinist** are talking to each other. Some sentences are missing from the text. Your task is to complete the dialogue with the sentences below. Write the letters (A-F) next to the numbers (1-6) on the dotted lines.*



table circular saw



circular saw shaft



external circlip

Making a circular saw shaft

A (*customer*): Good morning!

B (*metal cutting- and CNC machinist*): Good morning! How can I help you?

A: Can you produce a part for me? I need a new shaft for my table circular saw.

B: 1).....

A: I can't tell you them but I have the old part with me which I can show you now. Here you are.

B: Thank you. I can produce it on the manual lathe because it needs simple production technology. 2) For example, should it be heat-resistant or stainless steel?

A: I'll choose stainless steel. Can you make some changes on the shaft? Its middle part should be a little bit thicker because I want to install a bigger bearing on it.

B: I see. 3)

A: Not really, but I have brought it with me, too. You can measure the inner surface of the bearing.

B: Right. 4)

A: I would like to fix it the same way as the original one, so I'll use an external circlip (Seeger ring). Can you also make a groove on the shaft?

B: 5)

A: All right. Thank you very much. When should I come back for the shaft?

B: 6)

A: Goodbye!

B: Goodbye!

- A) Anyway, do you know the exact size of the bearing?
- B) Yes, I can make it for the circlip.
- C) Tomorrow afternoon.
- D) Yes, certainly. I need the parameters of the shaft.
- E) Do you have any special requirements for the shaft material?
- F) And how will you install the bearing on the shaft?

2. Role play. *Talk in pairs. Act out the conversation. You can use the phrases and ideas from the dialogue above.*

Student A: *Imagine that you are a customer and you would like to have a shaft produced for your table circular saw. Talk to Student B who is a metal cutting- and CNC machinist.*

You can include the following points:

- say you would like a new shaft
- you want some changes on the shaft (a thicker middle part, a groove)
- you will use an external circlip for installing the bearing on the shaft

Student B: *Imagine that you are a metal cutting- and CNC machinist and Student A would like you to produce a shaft for his table circular saw. Discuss the details with him.*

You can include the following points:

- ask him about:
 - the shaft parameters
 - the type of the material
 - the size of the bearing
 - the installation of the bearing on the shaft

Useful phrases:

I would like/need/want (to).....

Can you produce/ make.....?

Do you have.....?

How will you install.....?

I can show/ produce/ make.....

I will choose/ use.....

You can measure.....

I would like to fix/ install.....

Occupational health and safety

Task A - Read the text about industrial safety. Complete the sentences with the words in brackets. Find out the words, the letters are jumbled. Some nouns are in the plural.

Industrial Safety

To avoid accidents, employees must be aware of safety principles and dangerous areas of their industry. They must learn safety measures even before they start working on a machine. Workers and other employees should need to know and understand all the safety instructions and how to reduce risk.

The **major sources of risks** are the following:

1. Low (**tighl**)..... machine operation areas
2. Revolving shafts, (**nidlessp**)....., and tools like drills, milling cutters, and boring tools
3. Rotating worms and spirals enclosed in casings, like milling cutters, (**dingring**).....wheels
4. Electrical wires, switches, (**toroms**)..... and control panels
5. Oily, (**etw**).....and dirty shop floor
6. Moving weights, such as in slotting (**nichamse**).....for counter-balance
7. Nips between crank (**nahdle**).....for machine controls and fixed parts
8. Projecting ...(**parsh**)..... edge or nips of belt and chain drives

Task B - Read the **Safety Precautions** for these two types of machine tools, the lathe and the grinding machine. Write **Don't** before the instructions that are not true or **tick (✓)** the true sentences.

Lathe Machine



examples: **Don't**.... put things on the machine.; ✓..... keep the machine clean.

1.clamp the workpiece and the tool with the correct size of work and tool holding device.
2.stop the machine when you make measurements or adjustments.
3.work without eyeglasses.
4.operate the lathe without knowledge of the proper procedure.
5.check the workpiece frequently while machining.
6.use your hands to remove chips.

Grinding machine



7.work with cracked or worn grinding wheels.
8.leave flammable materials near the machine.
9.before using a new machine, run it at full speed to make sure it is perfectly balanced.
10.put other things on the grinding table while you are using the machine.
11.wear goggles.
12.follow the manufacturer's instructions for the correct use.

Task C - Safety Signs keep people safe at their workplaces. There are two types of them in this task, Warning Signs (1-6) and Mandatory Signs (7-16). As a metal cutting- and CNC machinist you will meet them at your future workplace. Match the signs (1-16) with their correct meaning (A-P)

Warning Signs



1.....



2.....



3.....



4.....



5.....



6.....

- A) Fire
- B) Slippery when wet
- C) Corrosive
- D) Explosive
- E) High Voltage
- F) Danger for cutter

Mandatory Signs



7.....



8.....



9.....



10.....



11.....



12.....



13.....



14.....



15.....



16.....

G) Turn off when not in use

H) Wear safety goggles in this area

I) Disconnect mains plug from electrical outlet

- J) Wear protective clothing**
- K) Wear dust mask**
- L) Protective gloves must be worn**
- M) Wear safety boots**
- N) Wear ear protection**
- O) Read and understand operator’s manual before using this machine**
- P) Wear safety helmet**

Wordlist

1. axis - tengely
2. boring - furatesztergálás
3. CAD (Computer Aided Design) - számítógéppel segített tervezés
4. CAD-CAM system - CAD-CAM rendszer
5. CAM (Computer Aided Manufacturing) - számítógéppel segített gyártás
6. chip - forgács
7. clamping device - szorító készülék
8. CNC (Computer Numerical Control) machine - számítógép vezérelt gép
9. CNC Machining Center - CNC Megmunkáló Központ
10. CNC machining cycles - CNC megmunkálási ciklusok
11. component - alkatrész
12. computer- aided measurement - számítógéppel támogatott mérések
13. cutting - forgácsolás
14. cutting machine - forgácsológép
15. cutting point - szerszámcsúcs, késcsúcs
16. cutting speed - forgácsoló sebesség
17. cutting technologies - forgácsolási eljárások
18. cutting tool - forgácsoló szerszám
19. drill press - oszlopos fűrógép
20. drilling - fúrás
21. external surface- külső felület
22. facing - oldalazás
23. feed motion - előtoló mozgás
24. fine surface treatment - finom felületi megmunkálások
25. grinding - köszörülés
26. holder - befogó készülék
27. insert - lapka
28. machine- turned - géppel esztergált
29. machine error - géphiba
30. machine shop - forgácsoló műhely
31. machine tool - szerszámgép
32. machined surface - megmunkált felület
33. mechanical engineering - gépészet
34. metal cutting- and CNC machinist - gépi és CNC forgácsoló
35. metal cutting machinist - gépi forgácsoló
36. metal cutting process - fémforgácsolási eljárás
37. milling - marás

38. numerically controlled machine tool (NC- machine tool) - számjegyvezérlésű (NC) szerszámgép
39. primary motion - főmozgás
40. quality assurance - minőségbiztosítás
41. shaping - gyalulás
42. shop drawing - műhelyrajz
43. slotting machine - vésőgép
44. standard - szabvány
45. surface grinder - síkköszörű
46. technical drawing - műszaki rajz
47. the know-how of metal cutting - forgácsolási ismeretek
48. threading - menetesztergálás
49. to check - ellenőriz
50. to install devices of the workpiece - a munkadarab eszközeit felszereli
51. to machine - gépen megmunkál
52. to manufacture - gyárt (alkatrészt)
53. to perform - végez
54. to repair - javít
55. tolerance table - tűrés táblázat
56. tool mark - forgácsolási barázda
57. traditional machine-based - hagyományos gépi
58. turning - esztergálás
59. work surface - megmunkálandó felület
60. workpiece - munkadarab

References

Reading

CNC milling machine (own picture, Vocational Training Centre of Nyíregyháza)

adapted from:

<http://automatecnc.com/collections/automate-cnc-mills/products/trx550-pro-small-vertical-machining-center> (Utolsó letöltés: 2021. 07. 28.)

Small Talk

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<https://grabcad.com/library/circular-saw-shaft-hop-600-dm-1> (Utolsó letöltés: 2021. 07. 28.)

<https://5.imimg.com/data5/SI/UD/MY-5191904/4mm-external-circlips-500x500.jpg> (Utolsó letöltés: 2021. 07. 28.)

Occupational health and safety

adapted from:

<https://analyseameter.com/2019/10/industrial-safety.html> (Utolsó letöltés: 2021. 07. 28.)

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<https://www.gjplastics.co.uk/wp-content/uploads/2020/02/Turn-Off-When-Not-In-Use-Web-File-scaled.jpg> (Utolsó letöltés: 2021. 07. 28.)