OCCUPATIONAL QUALIFICATION STANDARDS

CNC sheet metal machine tools operator level 4

The Occupational Qualification Standards are documents that describe the work, a set of requirements for skills, knowledge and attitudes or competency for successful performance of the work.

The CNC sheet metal machine tools operator level 4 occupational standard has been developed as the basis of assessment of the professional competencies of vocational education curricula, continuing education curricula, and persons.

Occupational Title	Level of Estonian Qualifications Framework (EQF) level
CNC sheet metal machine tools operator level 4	*4*

Possible partial occupational qualifications and titles on the occupational qualification certificate	
Partial occupational title	**Level of Estonian Qualifications Framework (EQF) level**
Sheet metal CNC water jet cutter operator	4
Sheet metal CNC gas and plasma cutter operators	4
Sheet metal CNC laser cutter operators	4
Sheet metal CNC operator sheet metal machine center operator	4
Sheet metal CNC operator bending machine tool operator	4
Sheet metal CNC plastic deformation equipment operator	4

Part A
DESCRIPTION OF WORK

A.1 Description of Work

CNC (Computer Numerical Control) sheet metal machine tool operator is a skilled worker who works in an enterprise dealing with sheet metal machining. His main responsibilities are manufacturing which include sheet metal parts on the computer numerical control devices.
When performing their tasks, CNC sheet metal machine tool operators are guided by the work orders, technical and normative documents and general quality requirements.

The CNC sheet metal machine tool operator Level 4 draws up control programs for simpler parts or uses the previously drawn control programs entered into the machine tool control system. . He/she sets up the machine tool on the basis of the work order and ensures the quality of the machined part, using control measuring instruments.
The CNC sheet metal machine tools operator, level 4, copes with the performance of his/her duties under normal circumstances, and is responsible for the quality of his/her performance.

The occupational qualification of a CNC sheet metal machine tools operator includes the following partial occupational qualifications:

1) Sheet metal CNC water jet cutter operator
2) Sheet metal CNC gas and plasma cutter operators
3) Sheet metal CNC laser cutter operators
4) Sheet metal CNC sheet metal machine center operator
5) Sheet metal CNC bending machine tool operator
6) Sheet metal CNC plastic deformation equipment operator

A.2 Work Units

A.2.1 Preparation of the work process
A.2.2 Checking, monitoring, adjustment and setting up the work of the machine tool
A.2.3 Performance of maintenance and repairs of the machine tool

THE SELECTED WORK UNITS

A.2.4 Sheet metal cutting on water jet cutters
2.4.1 Setting up the water jet cutter for manufacturing of parts
2.4.2 Manufacturing a sample part
2.4.3 Manufacturing of a sheet metal part on the water jet cutter
A.2.5 Sheet metal cutting with gas cutters
2.5.1 Setting up the gas cutter for manufacturing of parts
2.5.2 Manufacturing a sample part
2.5.3 Manufacturing a sheet metal part on the gas cutter
A.2.6 Sheet metal cutting on plasma cutters
2.6.1 Setting up the plasma cutter for manufacturing of parts
2.6.2 Manufacturing a sample part
2.6.3 Manufacturing a sheet metal part on the plasma cutter
A.2.7 Sheet metal cutting on laser cutters
2.7.1 Setting up the laser cutter for manufacturing of parts
2.7.2 Manufacturing a sample part
2.7.3 Manufacturing a sheet metal part on the laser cutter

A.2.8 Sheet metal cutting on mechanical cutters
2.8.1 Setting up the machine tool for manufacturing of parts
2.8.2 Manufacturing a sample part
2.8.3 Manufacturing a sheet metal part on the mechanical cutter
A.2.9 Sheet metal stamping on a CNC sheet metals machining center
2.9.1 Setting up the CNC sheet metal machining center for manufacturing of parts
2.9.2 Manufacturing a sample part
2.9.3 Sheet metal stamping on a CNC sheet metal machining center
A.2.10 Sheet metal stamping on other stamping devices
2.10.1 Setting up the stamping device for manufacturing of parts
2.10.2 Manufacturing a sample part
2.10.3 Sheet metal part stamping on other stamping devices
A.2.11 Plastic deformation of sheet metal on CNC bending machine tools
2.11.1 Plastic deformation of details on CNC bending machine tools
2.11.2 Manufacturing a sample part on CNC bending machine tools
2.11.3 Setting up a machine tool for bending of simpler parts on CNC bending machine tools
A.2.12 Plastic deformation of sheet metal on roll bending and roll profiling devices
2.12.1 Plastic deformation of details on CNC rolling devices
2.12.2 Manufacturing a sample part on CNC rolling devices
2.12.3 Setting up of a work cycle for rolling of simpler parts on CNC rolling devices
A.2.13 Plastic deformation of sheet metal on CNC bending machine tools
2.13.1 Plastic deformation of parts on other sheet metal molding devices
2.13.2 Manufacturing a sample part on other sheet metal molding devices
2.13.3 Setting up a machine tool for manufacturing of simpler parts on other molding devices.

The occupational qualification of a CNC sheet metal machine tools operator includes the following partial occupational qualifications:
Sheet metal CNC water jet cutter operator
A.2.1 Preparation of the work process
A.2.2 Checking, monitoring, adjustment and setting up of the work of the machine tool
A.2.3 Performance of maintenance and repairs of the machine tool
A.2.4 Sheet metal cutting on water jet cutters
A.2.8 Sheet metal cutting on mechanical cutters
Sheet metal CNC gas and plasma cutter operators
A.2.1 Preparation of the work process
A.2.2 Checking, monitoring, adjustment and setting up of the work of the machine tool
A.2.3 Performance of maintenance and repairs of the machine tool
A.2.5 Sheet metal cutting with gas cutters
A.2.6 Sheet metal cutting on plasma cutters
A.2.8 Sheet metal cutting on mechanical cutters
Sheet metal CNC laser cutter operators
A.2.1 Preparation of the work process
A.2.2 Checking, monitoring, adjustment and setting up of the work of the machine tool
A.2.3 Performance of maintenance and repairs of the machine tool
A.2.7 Sheet metal cutting on laser cutters
A.2.8 Sheet metal cutting on mechanical cutters
Sheet metal CNC operator sheet metal machine center operator

A.2.1 Preparation of the work process A.2.2 Checking, monitoring, adjustment and setting up of the work of the machine tool A.2.3 Performance of maintenance and repairs of the machine tool A.2.9 Sheet metal stamping on a CNC sheet metal machining center A.2.10 Sheet metal stamping on other stamping devices **Sheet metal CNC operator bending machine tool operator** A.2.1 Preparation of the work process A.2.2 Checking, monitoring, adjustment and setting up of the work of the machine tool A.2.3 Performance of maintenance and repairs of the machine tool A.2.8 Sheet metal cutting on mechanical cutters A.2.11 Plastic deformation of sheet metals on CNC bending machine tools **Sheet metal CNC plastic deformation equipment operator** A.2.1 Preparation of the work process A.2.2 Checking, monitoring, adjustment and setting up of the work of the machine tool A.2.3 Performance of maintenance and repairs of the machine tool A.2.8 Sheet metal cutting on mechanical cutters A.2.11 Plastic deformation of sheet metal on CNC bending machine tools A.2.12 Plastic deformation of sheet metal on roll bending and roll profiling devices A.2.13 Plastic deformation of sheet metal on CNC bending machine tools
A.3 Working environment and the specificity of the work
The working time of the CNC sheet metal, machine tool operators, can be in shifts, on the basis of timesheets, including night time, weekends and public holidays, depending on the employer. The work pace can be periodically fast and intense. The working environment is located indoors and can be noisy. The working environment contains metal dust, which can cause allergic reactions. Failure to comply with occupational safety requirements could lead to an accident at work.
A.4 Work equipment
Various unmanned cranes, forklifts, measuring instruments (calipers, tape measures, angle meters etc.), electric and pneumatic hand tools (grinders, chisels, etc.).
A.5 Personal characteristics necessary for the work: aptitude and personality traits
The CNC sheet metal machine tool operator's work involves mathematical-logical ability and analytical skills, spatial imagination, visual memory, and concentration. The work requires precision of movements, coordination, and the ability of physical exertion. It is helpful to have correctness, accuracy, learning ability and accountability.
A.6 Professional training
Traditionally, people with professional vocational education or secondary education work as CNC sheet metal machine tool level 4 operators. Persons not having professional education have acquired the necessary skills for their job in the course of in-service training or on-the-job training.
A.7 The most common job titles
CNC sheet metal machine tools operator

Part B
COMPETENCY REQUIREMENTS

B.1. Structure of the occupational qualification
For being awarded the **occupational qualification of CNC sheet metal machine tool operator level, 4** must be certified all the mandatory (B.2.1 – B.2.3) and transversal (B.2.14) competencies and a) one optional competency of the application of sheet metal cutting technology (B.2.4-B.2.8) b) one optional competency of the application of sheet metal stamping technology (B.2.4-B.2.8) and c) one optional competency of the application of sheet metal plastic deformation technology (B.2.4-B.2.8) For being awarded the partial occupational qualification the competencies must be certified as follows: a) Partial occupational qualification of sheet metal CNC water jet cutter operator: competencies B.2.1 - 2.3 B.2.14, B.2.4, and B.2.8; b) Partial occupational qualification of sheet metal CNC gas and plasma cutter operator: competencies B.2.1 - 2.3 B.2.5, B.2.6, and B.2.8; c) Partial occupational qualification of sheet metal CNC laser cutter operator: competencies B.2.1 - 2.3 B.2.14, B.2.7, and B.2.8; d) Partial occupational qualification of sheet metal CNC sheet metal machining center operator: competencies B.2.1 - 2.3 B.2.14, B.2.9, and B.2.10; e) Partial occupational qualification of sheet metal CNC bending machine tool operator: competencies B.2.1 - 2.3 B.2.14, B.2.8, and B.2.11; f) Partial occupational qualification of sheet metal CNC deforming device operator: competencies B.2.1 - 2.3 B.2.11, B.2.12, and B.2.13;

B.2 Competencies

MANDATORY COMPETENCIES

B.2.1 Preparation of the work process	**ECT Level 4**
Performance indicators 1. Examines the work drawings and verifies that the instructions of the impending work operation are available that they are clear and understandable (the required parameters are specified and available). If necessary, asks for further information. 2. Verifies that the close proximity to the workplace is in order and safe. Checks that the personal protective devices (goggles, gloves, etc.) necessary for work are present and in order. 3. Performs a visual inspection of the machine tool to make sure it is in order, cleaned and adjusted before starting to work. 4. Checks the existence of the necessary documents (work order, delivery notes, error and problem reports, etc.) and executes them on an ongoing basis.	
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.	

B.2.2 Checking, monitoring, adjustment and setting up of the work of the machine	**ECT Level 4**

tool	
Performance indicators 1. Turns on the machine tool and makes sure that there are no deviations in its work. Responds to deviations in accordance with his powers and appropriately, if necessary, notifies the expert or his immediate supervisor of the problems. 2. Prepares, if necessary, a sample or demonstration product to make sure that the parameters configured for the machine tool and the work order are compatible with each other. If necessary, adjusts the parameters.	
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.	

B.2.3 Maintenance and repairs of the machine tool	**ECT Level 4**
Performance indicators 1. Performs regular maintenance and cleaning work on the machine tool in the prescribed manner and using the prescribed means. When ending the work, always brings into order and cleans the immediate proximity of his workplace and the machine tool. Checks the condition of the machine tool throughout the work period. If problems occur, takes measures in accordance with his powers to eliminate the deficiency or notifies his immediate supervisor or a specialist. 2. Registers all the occurred problems and the data of the repairs carried out in the prescribed manner. 3. In pursuance of the powers conferred upon him performs minor repairs and technical maintenance of the machine tool. If necessary, calls a technician and informs other relevant persons.	
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.	

OPTIONAL COMPETENCIES

B.2.4 Sheet metal cutting on water jet cutters	**ECT Level 4**
Performance indicators 1. Manufactures sheet metal parts in compliance with the given work drawings by a water jet cutter. 2. Manufactures a sample part and compares its compliance with the work drawings. 3. If necessary configures the machine tool for the manufacture of simpler parts.	
Knowledge: a) tools and consumables used on water jet cutters; b) the specific nature of the water jet cutting technology, its operation principle; c) water jet cutting technology application areas.	
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.	

B.2.5 Sheet metal cutting on a gas cutter	**ECT Level 4**
Performance indicators 1. Manufactures sheet metal parts in compliance with the given work drawings by gas cutter. 2. Manufactures a sample part and compares its compliance with the work drawings. 3. If necessary configures the machine tool for the manufacture of simpler parts.	
Knowledge:	

d) tools and consumables used on gas cutters; e) the specific nature of the gas cutting technology, its operation principle; f) gas cutting technology application areas.
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.

B.2.6 Sheet metals cutting on a plasma cutter	**ECT Level 4**
Performance indicators 1. Manufactures sheet metal parts in compliance with the given work drawings by plasma cutter. 2. Manufactures a sample part and compares its compliance with the work drawings. 3. If necessary configures the machine tool for the manufacture of simpler parts.	
Knowledge: a) tools and consumables used on plasma cutters; b) the specific nature of the plasma cutting technology, its operation principle; c) plasma cutting technology application areas.	
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.	

B.2.7 Sheet metal cutting on a laser cutter	**ECT Level 4**
Performance indicators 1. Manufactures sheet metal parts in compliance with the given work drawings by a laser cutter. 2. Manufactures a sample part and compares its compliance with the work drawings. 3. If necessary configures the machine tool for the manufacture of simpler parts.	
Knowledge: d) tools and consumables used on laser cutters; e) the specific nature of the laser cutting technology, its operation principle; f) laser cutting technology application areas.	
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.	

B.2.8 Sheet metal cutting on mechanical cutters	**ECT Level 4**
Performance indicators 1. Manufactures sheet metal parts in compliance with the given work drawings by mechanical cutters. 2. Manufactures a sample part and compares its compliance with the work drawings. 3. If necessary configures the machine tool for the manufacture of simpler parts.	
Knowledge: a) tools and consumables used on metal cutters; b) special features of various metal cutting technologies, their operation principles; c) application areas of various metal cutting technologies.	
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.	

B.2.9 Sheet metal stamping on a CNC sheet metal machining center	**ECT Level 4**
Performance indicators 1. Manufactures parts of various materials in compliance with the given work drawings on the CNC sheet metal machining center.	

2. Manufactures a sample part and compares its compliance with the work drawings. 3. If necessary configures the machine tool for the manufacture of simpler parts.
Knowledge: a) stamps, dies and consumables used in stamping; b) types of stamping, their operation principles; c) parameters of stamping and determination thereof.
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.

B.2.10 Sheet metal stamping on various stamping press devices	**ECT Level 4**
Performance indicators 1. Manufactures sheet metal parts in compliance with the given work drawings on various stamping press devices (eccentric, hydraulic, servo-electric press, etc.). 2. Manufactures a sample part and compares its compliance with the work drawings. 3. If necessary configures the machine tool for the manufacture of simpler parts.	
Knowledge: d) stamps, dies and consumables used in stamping; e) types of stamping, their operation principles; f) parameters of stamping and determination thereof.	
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.	

B.2.11 Plastic deformation of sheet metals on CNC bending machine tools	**ECT Level 4**
Performance indicators 1. Manufactures parts of various materials in compliance with the given work drawings of CNC bending machines (bending presses and inverse bending devices). 2. Manufactures a sample part and compares its compliance with the work drawings. 3. If necessary configures the machine tool for the bending of simpler parts.	
Knowledge: a) Tools used on plastic deformation (stamps, dies, rollers, etc.) and consumables.	
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.	

B.2.12 Plastic deformation of sheet metals on roll bending and roll profiling devices	**ECT Level 4**
Performance indicators 1. Manufactures parts of various materials in compliance with the given work drawings on roll bending and roll profiling devices. 2. Manufactures a sample part and compares its compliance with the work drawings. 3. If necessary configures the machine tool for the stamping of simpler parts.	
Knowledge: a) Tools used on plastic deformation (stamps, dies, rollers, etc.) and consumables.	
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.	

B.2.13 Plastic deformation of sheet metals on other molding tools	**ECT Level 4**
Performance indicators 1. Manufactures sheet metal parts in compliance with the given work drawings on other sheet metal	

forming devices (roll forming (curving) machine tools etc.). 2. Manufactures a sample part and compares its compliance with the work drawings. 3. If necessary configures the machine tool for the manufacture of simpler parts.
Knowledge: a) Tools used on plastic deformation (stamps, dies, rollers, etc.) and consumables.
Assessment Method(s): A combined method, which includes the verification of both theoretical knowledge and practical skills.

TRANSVERSAL COMPETENCIES

CNC sheet metal machine tools operator level 4, transversal competencies	**ECT Level 4**
Performance indicators 1. CNC sheet metal machine tool operator considers important in his work customer satisfaction and manufactures high-quality products that meet agreed standards. He complies with the deadlines and stages. 2. He uses time efficiently, works systematically and in an organized way and follows the given instructions, procedures, and safety requirements. 3. For achieving his work objectives, the CNC sheet metal machine tools operator uses all the acquired field-specific knowledge and opportunities offered by technology. He shares his knowledge and the field-specific knowledge also with his colleagues and develops his professional knowledge through continuous professional development. 4. He is quick-minded and can quickly understand new information. Acquisition of new functions, methods, and techniques does not pose difficulties for him. Being oriented on results and on the achievement of personal work objectives. 5. Doing his job, he analyzes his activities and if necessary, proposes innovation ideas for improvement of work. 6. By his nature, a CNC sheet metal machine tools operator is a team worker. He has a clear understanding of the work of different departments and functions of the organization and he communicates with people at all levels, clearly expresses his opinion and does not hide information. If necessary, copes with conflict situations. 7. As an understanding attitude towards criticism is able to draw conclusions and learns from it. 8. The Estonian language level B2 and one foreign language of his choice (preferably in English) at level A2. 9. Computer literacy AO1-AO4, AO7, a basic knowledge of CAD/CAM programs.	
Knowledge: a) professional terminology, the terms, symbols and signs used in the technical documentation; b) the principles of operation of machine tools, various programs and operating modes, their technical options; c) more common control systems of CNC machine tools; d) machine performance monitoring methodology and methods, signs of malfunction on the display; e) rules of conduct in the event of occurrence of a fault (knowing how to shut down the operation of the machine or the course of operation, so that the damage (the technical condition of the machine, the cost of raw materials, etc.) would be as minimal as possible); f) the general safety rules, the security measures arising from the use of the machine/machine tool and personal protective equipment; g) the most common types of faults, methods of their prevention and elimination; h) The need for archiving of technical repair work from the point of view of further work, document	

formatting requirements; i) other documents required for the work (work orders, reports, etc.), their execution and clearance requirements; j) basic knowledge of metal processing (locksmith work, mechanical processing of materials, etc.); k) measuring instruments necessary for sheet metal processing (e.g., calipers, angle meters, a measuring tape, etc.), their using principles; l) different sheet metal materials, their visual characteristics and the characteristics of differentiation by product marking; m) commonly used sheet metal EN and ISO material standards.
Assessment Method(s): Transversal competencies are assessed in an integrated way in the course of the assessment of other competencies provided in the occupational standard.

Part C
GENERAL INFORMATION AND ANNEXES

C.1 Information for the preparation and approval of the occupational standard, the awarding body, and a reference to the location of the occupational standard in the classifications	
1. The marking of the occupational standard in the occupational qualification register	10-02062014-2.1/2k
2. Occupational qualification standard prepared by:	Ivar Peedu – FinEst Steel AS Peeter Kalmet – Favor AS Henri Tabri – Aider OÜ Aleksei Saareväli – Tallinn Industrial Education Centre Veiko Põldmaa - Tallinn Industrial Education Centre Katrin Tammjärv - SA Innove
3. Occupational qualification standard approved by	Professional Council of Machine, Metal and Electronics Industry
4. Professional Council Decision No.	8
5. Date of Professional Council Decision.	02.06.2014
6. Occupational Standard valid until	01.06.2019
7. Occupational Standard version number	2
8. Reference to the Classification of Occupations (ISCO 08)	7223 Metal processing machine tool setters and operators
9. Reference to the European Qualifications Framework (EQF)	4
C.2 Occupational title in a foreign language	
In English - Sheet metal CNC machine operator	
In Russian - Оператор станков с ЧПУ	
C.3 Annexes	
Annex 1 Work units and work tasks Annex 2 Language skill levels descriptions Annex 3 Computer skills	

Annex 1:

WORK UNITS AND WORK TASKS	CNC sheet metal machine tools operator level 4	CNC sheet metal machine tools operator level 5
1. **Preparation of the work process**	**X**	**X**
2. **Checking, monitoring, adjustment and setting up of the work of the machine tool**	**X**	**X**
3. **Performance of maintenance and repairs of the machine tool**	**X**	**X**
4. Storage and disposal	*No*	**X**
OPTIONAL WORK UNITS (ECT Level 4		
5. **Sheet metals cutting on water jet cutters**		
Setting up the water jet cutter for manufacturing of parts	**X**	*No*
Manufacturing of a sample part on a water jet cutter	**X**	
Manufacturing of a sheet metal part	**X**	
6. **Sheet metals cutting on gas cutters**		
Setting up the gas cutter for manufacturing of parts	**X**	*No*
Manufacturing of a sample part	**X**	
Manufacturing of a sheet metal part on the gas cutter	**X**	
7. **Sheet metals cutting on plasma cutters**		
Setting up the plasma cutter for manufacturing of parts	**X**	*No*
Manufacturing of a sample part	**X**	
Manufacturing of a sheet metal part on the plasma cutter	**X**	
8. **Sheet metals cutting on laser cutters**		
Setting up the laser cutter for manufacturing of parts	**X**	*No*
Manufacturing of a sample part	**X**	
Manufacturing of a sheet metal part on the laser cutter	**X**	
9. **Sheet metals cutting on mechanical cutters**		
Setting up the machine tool for manufacturing of parts	**X**	*No*
Manufacturing of a sample part	**X**	
Manufacturing of a sheet metal part on the mechanical cutter	**X**	
10. **Sheet metals stamping on CNC sheet metals machining center**		
Setting up the CNC sheet metal machining center for manufacturing of	**X**	

parts		*No*
Manufacturing of a sample part	**X**	
Sheet metal stamping on CNC sheet metal machining center	**X**	
11. **Sheet metals stamping on other stamping devices**		
Setting up the stamping device for manufacturing of parts	**X**	*No*
Manufacturing of a sample part	**X**	
Sheet metal part stamping on other stamping devices	**X**	
12. **Plastic deformation of sheet metals on CNC bending machine tools**		
Plastic deformation of details on CNC bending machine tools	**X**	*No*
Manufacturing of a sample part on CNC bending machine tools	**X**	
Setting up a machine tool for bending of simpler parts on CNC bending machine tools	**X**	
13. **Plastic deformation of sheet metals on roll bending and roll profiling devices**		
Plastic deformation of details on CNC rolling devices	**X**	*No*
Manufacturing of a sample part on CNC rolling devices	**X**	
Setting up of a work cycle for rolling of simpler parts on CNC rolling devices	**X**	
14. **Plastic deformation of sheet metals on other forming devices**		
Plastic deformation of parts on other sheet metal forming devices	**X**	*No*
Manufacturing of a sample part on other sheet metal forming devices	**X**	
Setting up a machine tool for manufacturing of simpler parts on other forming devices.	**X**	
WORK DUTIES RELATED TO SPECIALIZATION (ECT Level 5)		
15. **Manufacturing of sheet metal products by way of gas and plasma cutting technology**		
Preparation of the workplace:	*No*	**X**
Setting up the machine tool and manufacturing of the sample part		**X**
Manufacturing of a sheet metal parts on the gas cutters		**X**
Manufacturing of a sheet metal parts on the plasma cutters		**X**
Cleaning of the parts of the offcuts		**X**
Checking of product quality and quantity		**X**
16. **Manufacturing of sheet metal products by way of water jet cutting technology**		
Preparation of the workplace:		**X**

Setting up the machine tool and manufacturing of the sample part	*No*	**X**
Manufacturing of sheet metal parts on water jet cutters		**X**
After-treatment of completed parts		**X**
Checking of product quality and quantity		**X**
17. **Manufacturing of sheet metal products by way of laser cutting technology**		
Preparation of the workplace:	*No*	**X**
Setting up the machine tool and manufacturing of the sample part		**X**
Manufacturing of a sheet metal parts on laster cutters		**X**
Cleaning of the parts of the offcuts		**X**
Checking of product quality and quantity		**X**
18. **Manufacturing of sheet metal products on CNC sheet metal machining center**		
Preparation of the workplace:	*No*	**X**
Setting up the machine tool and manufacturing of the sample part		**X**
Manufacturing of a sheet metal parts on CNC sheet metal machining center		**X**
Cleaning of the parts of the offcuts		**X**
Checking of product quality and quantity		**X**
19. **Manufacturing of sheet metal products on CNC bending press**		
Preparation of the workplace:	*No*	**X**
Setting up the machine tool and manufacturing of the sample part		**X**
Manufacturing of a sheet metal parts on CNC sheet bending press		**X**
Checking of product quality and quantity		**X**