

# OCCUPATIONAL QUALIFICATION STANDARDS

## CNC sheet metal machine tools operator level 5

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

The sheet metal machine tools operator level 5 occupational standard has been developed as the basis of continuing education curricula and assessment of the professional competencies of persons.

Occupational Title	Estonian Qualifications Framework (EQF) level
<i>CNC sheet metal machine tools operator level 5</i>	5

Possible specializations and titles on the occupational qualification certificate	
Specialization	Title on the occupational qualification certificate
Manufacturing of sheet metal products by way of gas and plasma cutting technology	CNC sheet metal machine tools operator level 5 Manufacturing of sheet metal products by way of gas and plasma cutting technology
Manufacturing of sheet metal products by way of water jet cutting technology	CNC sheet metal machine tools operator level 5 Manufacturing of sheet metal products by way of water jet cutting technology
Manufacturing of sheet metal products by way of laser cutting technology	CNC sheet metal machine tools operator level 5 Manufacturing of sheet metal products by way of laser cutting technology
Manufacturing of sheet metal products on CNC sheet metal machining center	CNC sheet metal machine tools operator level 5 Manufacturing of sheet metal products on CNC sheet metal machining center
Manufacturing of sheet metal products on CNC bending press	CNC sheet metal machine tools operator level 5 Manufacturing of sheet metal products on CNC bending press

## Part A

### DESCRIPTION OF WORK

#### A.1 Description of work

The CNC (Computer Numerical Control) sheet metal machine tool operator is a skilled worker with a specialty education who has completed continuous education courses and has work experience and who works in an enterprise dealing with sheet metal machining. His or her main responsibilities are manufacturing sheet metal parts on the computer numerical control devices.

When performing their tasks, CNC sheet metal machine tool operators are guided by the given technical and normative documents and general quality requirements.

**The CNC sheet metal machine tools operator level 5 is depending on the work experience specialized on one or multiple technologies.**

The worker of level 5 occupational qualification draws up management programs. He or she sets up the machines and ensures the quality of the workpiece, using control measuring instruments.

The CNC sheet metal machine tools operator level 5 is able to supervise the work of a smaller team and is responsible for the high quality and timely execution his or her tasks.

#### A.2 Work Units

##### 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 Storage and Disposal

#### WORK UNITS RELATED TO SPECIALIZATION

##### A.2.5 Sheet metal product manufacturing by gas and plasma cutting technology

2.5.1 Preparation of the workplace

2.5.2 Setting up the machine tool and manufacturing a sample part

2.5.3 Manufacturing of a sheet metal part on the gas cutter

2.5.4 Manufacturing of a sheet metal part on the plasma cutter

2.5.5 Cleaning of the parts of the offcuts

##### A.2.6 Manufacturing of sheet metal products by way of water jet cutting technology

2.6.1 Preparation of the workplace

2.6.2 Setting up the machine tool and manufacturing a sample part

2.6.3 Manufacturing of sheet metal parts on water jet cutters

2.6.4 After-treatment of completed parts

##### A.2.7 Manufacturing of sheet metal products by way of laser cutting technology

2.7.1 Preparation of the workplace

2.7.2 Setting up the machine tool and manufacturing a sample part

2.7.3 Manufacturing of a sheet metal part on the laser cutter

2.7.4 Cleaning of the parts of the offcuts

##### A.2.8 Manufacturing of sheet metal products on a CNC sheet metal machining center

2.8.1 Preparation of the workplace

2.8.2 Setting up the machine tool and manufacturing a sample part

2.8.3 Manufacturing of sheet metal parts on a CNC sheet metal machining center

2.8.4 Cleaning of the parts of the offcuts

##### A.2.9 Manufacturing of sheet metal products on a CNC bending press

2.9.1 Preparation of the workplace

2.9.2 Setting up the machine tool and manufacturing a sample part
2.9.3 Manufacturing of sheet metal parts on a CNC sheet bending press
<b>A.3 Working environment and the specificity of the work</b>
<p>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.</p> <p>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.</p>
<b>A.4 Work equipment</b>
Unmanned cranes, forklifts, measuring instruments (calipers, tape measures, angle meters, etc.), electric and pneumatic hand tools (grinders, chisels, etc.).
<b>A.5 Personal characteristics necessary for the work: aptitude and personality traits</b>
<p>The CNC sheet metal machine tool operator's work involves mathematical-logical ability and analytical skills, spatial imagination, visual memory and concentration.</p> <p>The work requires precision of movements, coordination and the ability of physical exertion. It is helpful to have correctness, accuracy, learning ability and accountability.</p>
<b>A.6 Professional training</b>
People working on the occupational qualification of CNC sheet metal machine tool operator level 5 have a long time work experience and, in general, vocational education in the professional or on a related field. Persons not having professional education have acquired the necessary skills for their job in the course of on-the-job training. Usually they have a secondary education, and they have completed professional continuing education courses.
<b>A.7 The most common job titles</b>
CNC sheet metal machine tools operator

## Part B

### COMPETENCY REQUIREMENTS

#### **B.1. Structure of the occupational qualification**

On the application for the occupational qualification of the CNC sheet metal machine tools operator is required certification of the competencies B.2.1 - B.2.4, B.2.10 and of at least one competency related to specialization (B.2.5 - B.2.9).

#### **B.2 Competencies**

#### **MANDATORY COMPETENCIES**

<b>B.2.1 Preparation of the work process</b>	<b>ECT Level 5</b>
<u>Performance indicators</u>	
<ol style="list-style-type: none"> <li>1. Examines the work drawings and verifies that the baseline data necessary for the manufacturing of the part is present on the drawing.</li> <li>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.</li> <li>3. Performs a visual inspection of the machine tool to make sure that the machine is in order, cleaned and adjusted before starting to work.</li> <li>4. Checks the existence of the necessary documents (work order, delivery notes, error and problem reports, etc.) and executes them on an ongoing basis.</li> <li>5. On the basis of the data selects the necessary tools and materials, draws up the operational technology and the program and sets the machine tool.</li> </ol>	
<b>B.2.2 Checking, monitoring, adjustment and setting up of the work of the machine tool</b>	<b>ECT Level 5</b>
<u>Performance indicators</u>	
<ol style="list-style-type: none"> <li>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 appropriately. Where relevant, informs immediate managers and/or specialist of the problems.</li> <li>2. Prepares a specimen/sample of the product to check the compliance of the parameters and work order set for the workbench.</li> </ol>	
<b>B.2.3 Performance of maintenance and repairs of the machine tool</b>	<b>ECT Level 5</b>
<u>Performance indicators</u>	
<ol style="list-style-type: none"> <li>1. Checks the physical and electronic characteristics of the machine throughout the working period. If problems occur, takes measures in accordance within his powers to eliminate the deficiency. Where relevant, informs immediate managers and/or specialist of the problems.</li> <li>2. Registers all the occurred problems and the data of the repairs carried out in the prescribed manner.</li> <li>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.</li> </ol>	
<b>B.2.4 Storage and Disposal</b>	<b>ECT Level 5</b>
<u>Performance indicators</u>	

1. On the basis of the work order marks the finished parts and packages them or prepares them for packaging.
2. Stores and marks the waste material of the performance of the work order.
3. Sorts and stores the material to be utilized.

## COMPETENCIES RELATED TO SPECIALIZATION

<b>Manufacturing of sheet metal products by way of gas and plasma cutting technology</b>	
<b>B.2.5 Manufacturing of sheet metal product by gas and plasma cutting technology</b>	<b>ECT Level 5</b>
<u>Performance indicators</u>	
<ol style="list-style-type: none"> <li>1. Verifies the technical condition of the machine tool and makes sure that there are no objects preventing the work of the machine tool in the working area. Prepares the device for operation (opens the required gas valves, checks the pressures, indexes the machine tool, etc.).</li> <li>2. Examines the work order/drawing and adjusts the machine tool accordingly: selects the suitable parameters; and assembles and installs the equipment and the accessories necessary for work, downloads or opens the work program and, if necessary, prepares the program. Manufactures a sample part.</li> <li>3. With a gas cutting machine tool manufactures sheet metal parts following the provided work order/drawing.</li> <li>4. With a plasma cutting machine tool manufactures sheet metal parts following the provided work order/drawing.</li> <li>5. If necessary, cleans the finished parts from the cuttings.</li> <li>6. Checks the quality of the product on the basis of the determined control frequencies. Also controls the compliance of the number of the parts made with the work order.</li> </ol>	
<u>Knowledge:</u>	
<ol style="list-style-type: none"> <li>a) Principles of operation of plasma and gas cutting technology.</li> <li>b) The equipment and the accessories of plasma and gas cutting devices, their characteristics and uses.</li> <li>c) The cutting gasses (plasma gas) and auxiliary gas (nitrogen, argon, oxygen, H<sub>2</sub>O, H<sub>35</sub>, compressed air) used in plasma cutting technology.</li> <li>d) The cutting gasses used in gas cutting technology (propane or acetylene and oxygen as an auxiliary gas), their compatibility with the base materials and the principles of their use.</li> <li>e) Selection of the cutting parameters on the basis of the standard EVS-EN ISO 9013.</li> <li>f) EVS-EN ISO 9013 standards.</li> <li>g) Safety techniques (machinery and gas safety).</li> </ol>	
<u>Assessment Method(s):</u>	
A combined method, which includes the verification of both theoretical knowledge and practical skills.	

<b>Manufacturing of sheet metal products by way of water jet cutting technology</b>	
<b>B.2.6 Manufacturing of sheet metal products by way of water jet cutting technology</b>	<b>ECT Level 5</b>
<u>Performance indicators</u>	
<ol style="list-style-type: none"> <li>1. Verifies the technical condition of the machine tool and makes sure that there are no objects preventing the work of the machine tool in the working area. Prepares the device for operation (indexes the machine tool, etc.).</li> <li>2. Examines the work order/drawing and adjusts the machine tool accordingly: selects the suitable parameters; selects the suitable abrasive, assembles and installs the equipment and the accessories necessary for work, downloads or opens the work program and, if necessary, prepares the program. Manufactures a sample part.</li> <li>3. With a water jet cutting machine tool manufactures sheet metal parts following the provided</li> </ol>	

<p>work order/drawing.</p> <ol style="list-style-type: none"> <li>4. If necessary, cleans the finished parts from the cuttings, dries the part and applies corrosion protectant.</li> <li>5. Checks the quality of the product on the basis of the determined control frequencies. Also controls the compliance of the amount of the parts made with the work order.</li> </ol>
<p><u>Knowledge:</u></p> <ol style="list-style-type: none"> <li>a) Principles of operation of water jet cutting technology.</li> <li>b) The equipment and the accessories of water jet cutting devices, their characteristics and uses.</li> <li>c) In-depth knowledge of materials based on water jet cutting technology.</li> <li>d) Cutting abrasives, their differences and uses.</li> <li>e) Selection of the cutting parameters on the basis of the standard EVS-EN ISO 9013.</li> <li>f) EVS-EN ISO 9013 standard.</li> <li>g) Safety techniques (safety of machinery).</li> </ol>
<p><u>Assessment Method(s):</u></p> <p>A combined method, which includes the verification of both theoretical knowledge and practical skills.</p>

<b>Manufacturing of sheet metal products by way of laser cutting technology</b>	
<b>B.2.7 Manufacturing of sheet metal products by way of laser cutting technology</b>	<b>ECT Level 5</b>
<u>Performance indicators</u>	
<ol style="list-style-type: none"> <li>1. Verifies the technical condition of the machine tool and makes sure that there are no objects preventing the work of the machine tool in the working area. Prepares the device for operation (opens the required gas valves, checks the pressures, indexes the machine tool, etc.).</li> <li>2. Examines the work order/drawing and adjusts the machine tool accordingly: selects the suitable parameters; selects the suitable cutting gas, assembles and installs the equipment and the accessories necessary for work, downloads or opens the work program and, if necessary, prepares the program. Manufactures a sample part.</li> <li>3. With a laser cutting machine tool manufactures sheet metal parts following the provided work order/drawing.</li> <li>4. If necessary, cleans the finished parts from the cuttings.</li> <li>5. Checks the quality of the product on the basis of the determined control frequencies. Also controls the compliance of the amount of the parts made with the work order.</li> </ol>	
<u>Knowledge:</u>	
<ol style="list-style-type: none"> <li>a) Principles of operation of laser cutting technology.</li> <li>b) The equipment and the accessories of laser cutting machine tool, their characteristics, and uses.</li> <li>c) In-depth knowledge of materials based on laser cutting technology.</li> <li>d) The cutting gasses used (oxygen, nitrogen, pressurized air etc.), their compatibility with the base materials and the principles of their use.</li> <li>e) Resonator gasses, their purpose and compatibility with the equipment.</li> <li>f) Selection of the cutting parameters on the basis of the standard EVS-EN ISO 9013.</li> <li>g) EVS-EN ISO 9013 standard.</li> <li>h) Safety techniques (machinery safety and gas safety).</li> </ol>	
<u>Assessment Method(s):</u>	
A combined method, which includes the verification of both theoretical knowledge and practical skills.	

<b>Manufacturing of sheet metal products on a CNC sheet metal machining center</b>	
<b>B.2.8 Manufacturing of sheet metal products on a CNC sheet metal machining center</b>	<b>ECT Level 5</b>
<u>Performance indicators</u>	
<ol style="list-style-type: none"> <li>1. Verifies the technical condition of the machine tool and makes sure that there are no objects</li> </ol>	

<p>preventing the work of the machine tool in the working area. Prepares the device for operation (indexes the machine tool, etc.).</p> <ol style="list-style-type: none"> <li>Examines the work order/drawing and adjusts the machine tool accordingly: assembles and installs the tools necessary for work, downloads or opens the work program and selects the suitable parameters, if necessary, prepares the program. Installs the sheet device on the worktop and manufactures a sample part.</li> <li>Prepares the given work drawings, following the sheet metal parts on the CNC sheet processing machine (eccentric, hydraulic, servo-electric press, etc.). Separates the manufactures components from the processed sheet.</li> <li>If necessary, cleans the finished parts from the cuttings.</li> <li>Checks the quality of the product on the basis of the determined control frequencies. Also controls the compliance of the amount of the parts made with the work order.</li> </ol>
<p><u>Knowledge:</u></p> <ol style="list-style-type: none"> <li>The stamps, dies and consumables used in stamping, their special characteristics and use.</li> <li>Various types of stamping, their operation principles (embossing, finning) and the principles of their operation.</li> <li>Parameters of stamping and determination thereof.</li> <li>Principles of selection of the appropriate clearances between the stamp and the die on the basis of the specific nature of the material to be processed.</li> <li>The machine codes needed for preparation of the program.</li> <li>Safety techniques (safety of machinery).</li> </ol>
<p><u>Assessment Method(s):</u> A combined method, which includes the verification of both theoretical knowledge and practical skills.</p>

<b>Manufacturing sheet metal products on a CNC bending press</b>	
<b>B.2.9 Manufacturing sheet metal products on a CNC bending press</b>	<b>ECT Level 5</b>
<u>Performance indicators</u>	
<ol style="list-style-type: none"> <li>Verifies the technical condition of the machine tool and makes sure that there are no objects preventing the work of the machine tool in the working area. Prepares the device for operation (indexes the machine tool, etc.).</li> <li>Examines the work order/drawing and adjusts the machine tool accordingly: assembles and installs the tools necessary for work, downloads or opens the work program and selects the suitable parameters, if necessary, prepares the program. Manufactures a sample part.</li> <li>Manufactures sheet metal parts in compliance with the given work drawings by a CNC bending press.</li> <li>Checks the quality of the product on the basis of the determined control frequencies. Also controls the compliance of the number of the parts made with the work order.</li> </ol>	
<u>Knowledge:</u>	
<ol style="list-style-type: none"> <li>The stamps and dies used in stamping, their special characteristics and use.</li> <li>Different types of bending (air bending, bottom bending, coining) and the principles of their operation.</li> <li>Principles of selection of the die with appropriate dimensions on the basis of the specificity of the bendable.</li> <li>Basis of calculation of the strength necessary for the bending.</li> <li>Safety techniques (safety of machinery, adjustment of curtain airbags).</li> <li>Basis of calculation of the dimensions necessary for the product.</li> <li>Basis of calculation of the bending sequence suitable for the product.</li> </ol>	
<u>Assessment Method(s):</u>	

A combined method, which includes the verification of both theoretical knowledge and practical skills.

## TRASNVERSAL COMPETENCIES

<b>B.2.10 CNC sheet metal machine tools operator level 5, transversal competencies</b>	<b>ECT Level 5</b>
<p><u>Performance indicators</u></p> <ol style="list-style-type: none"><li>1. The CNC sheet metal machine tool operator considers important in his work the satisfaction of both the customers and the team and manufactures high-quality products that meet the agreed standards. He or she considers it important to adhere to deadlines and stages and to the maintenance of quality and productivity.</li><li>2. He or she uses his or her time and the time of the team efficiently, works systematically and in an organized way and follows the given instructions, procedures, and safety requirements.</li><li>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 or she shares his or her knowledge and the field specificity also with his or her colleagues and develops his or her professional knowledge through continuous professional development.</li><li>4. He or she understands the new information quickly. Acquisition of new functions, methods, and techniques do not pose difficulties for him. Being oriented on results and on the achievement of personal work objectives, he or she seeks opportunities for self-development and improvement of skills.</li><li>5. He or she analyzes his or her own work as well as the work of the team and provides ideas and innovative suggestions for improving the work.</li><li>6. By his nature, a CNC sheet metal machine tools operator is a team worker. He or she has a clear understanding of the work and functions of different departments of the organization and he or she communicates with people at all levels, clearly expresses his or her opinion and does not hide information. If necessary, copes with conflict situations.</li><li>7. Has an understanding attitude towards criticism, is able to draw conclusions and learn from them. Is able to provide constructive criticism, draw attention to the shortcomings of the work process and make suggestions to improve the situation (improvement of work environment, or the technology, development and implementation of more efficient working techniques, motivation of the team, etc.).</li><li>8. A person working as a CNC sheet metal machine tools operator attaches importance to ethical principles and values.</li><li>9. The Estonian language level B2 and one foreign language of his or her choice (preferably in English) at level A2.</li><li>10. Computer skills, Module1-Module4, Module7, general knowledge of the CAD/CAM programs.</li></ol>	
<p><u>Knowledge:</u></p> <ol style="list-style-type: none"><li>a) Professional terminology, the terms, symbols and signs used in the technical documentation.</li><li>b) The principles of operation of machine tools, various programs and operating modes, their technical options.</li><li>c) More common control systems of CNC machine tools.</li><li>d) Machine performance monitoring methodology and methods, signs of malfunction on the display.</li><li>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.).</li><li>f) The general safety rules, the security measures arising from the use of the machine/machine tool and personal protective equipment.</li><li>g) The most common types of faults, methods of their prevention and elimination.</li><li>h) The need for archiving of technical repair work from the point of view of further work, document</li></ol>	





ESF program "Development of the system of qualifications"

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 are necessary for sheet metal processing (e.g. calipers, angle meters, a measuring tape, etc.) and their use 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):

Transferal 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

<b>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</b>	
1. The marking of the occupational standard in the occupational qualification register	10-02062014-2.2/2k
2. Occupational qualification standard prepared by:	Ivar Peedu – FinEst Steel AS Peeter Kalmet – Favor AS Henri Tabri – Aider OÜ Aleksi Saareväli – Tallinn Industrial Education Centre Veiko Pöldmaa - Tallinn Industrial Education Centre Katrín 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)	5
<b>C.2 Occupational title in a foreign language</b>	
In English - Sheet metal CNC machine operator	
In Russian - Оператор станков с ЧПУ	
<b>C.3 Annexes</b>	
Annex 1 Work units and work tasks.	
Annex 2 Language skill levels descriptions	
Annex 3 Computer skills	

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

ESF program "Development of the system of qualifications"

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

ESF program "Development of the system of qualifications"

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