

PROJECTX N° 005

“PRODUCT MANUFACTURING CNC-ASSISTED LEARNING”

PRESENTATION



Promoting school:

SAVON AMMATTI- JA AIKUISOPISTO
Kuopio, Finland



A. GENERAL DESCRIPTION

Title of the ProjectX

PRODUCT MANUFACTURING CNC-ASSISTED LEARNING

Core area

GENERAL / KNOWLEDGE **MECHANIC**

PARTICULAR / ACTIVITY: **WELDING**

Promoting school

SAVO

Schools participants in the revision of the ProjectX

LYSEE ISAAC NEWTON
XABEC
BIRMINGHAM

Reference to ECVET Credit System and EQF / NQF

ECVET	EQF	REFERENCE TO NATIONAL QUALIFICATIONS (NQF)						
		Spain	Finland	Romania	Portugal	UK	Turkey	France
3	4	4	4	3	4	3	4	4

Learning Outcomes achieved (to be developed in the future related with ECVET credit system)

1. Welding parameter adjustment with mig/mag
2. Welding-order
3. CNC bending with metal sheet work
4. CNC plasma cutting

Time that is necessary to do the ProjectX (in hours)

Theory: 10 hours
Practice: 30 hours

Link to real companies in your region (it is just informative)

1. NAME:	J-METALLIKALUSTE OY	WORKPLACE:	PRODUCTION
2. NAME:	JUNTTAN OY	WORKPLACE:	PRODUCTION
3. NAME:	BRANDENTE OY	WORKPLACE:	PRODUCTION



B. THEORY

Objectives of the theoretical Knowledge

1. Safety regulations
2. Mig/mag welding method
3. CNC plasma cutting methods
4. CNC bending methods

List of activities

1. Work plan
2. Welding test with mig/mag
3. Assisted with the use of CNC machines

C. PRACTICE

Brief description of the Practice

The sheet metal product manufacturing with modern methods. Also awareness of the costs should be carried out

Steps or activities to be performed by the student

- | | |
|----------|-----------------------------------------------|
| First: | Study drawings |
| Second: | Get materials – calculate amount of materials |
| Third: | Parts manufacturing with CNC machines |
| Fourth: | Assembling and dotting welding |
| Fifth: | Welding |
| Sixth: | Clean and sand |
| Seventh: | Quality check and cost accounting |



D. DETAILED DESCRIPTION OF LEARNING OUTCOMES.

Learning Outcome:	Welding parameter adjustment with mig/mag
Knowledge	
- Knows the technical fundamentals of required welding processes.	
Skills	
- Is able to operate welding machines to the extent that they can make the necessary adjustments.	
Competences	
- Is able to work independently and cost-effectively	
- Is able to master the work method, equipment and material	

Learning Outcome:	Welding-order
Knowledge	
- know the drawing symbols for welding and mechanical drawing and interprets them correctly	
Skills	
- The student is able to understand the importance of the right welding order in terms of piece deformation	
Competences	
- The student is able to understand the importance of the right welding order in terms of piece deformation	

Learning Outcome:	CNC bending with metal sheet work
Knowledge	
- know how to write CNC programs according to drawings for CNC-bending machine used in plate and steel structure work	
Skills	
- able to conceive bending program to CNC-bending machine and operate it	
- able to choose right bending tools	
Competences	
- able to - recognize the safety issues involving bending	

Learning Outcome:	CNC plasma cutting
Knowledge	
- know how to write CNC programs according to drawings for CNC-plasma cutting machine used in plate structure work	
Skills	
- The student is able to choose right tools to plasma cutting machine. Able to operate the machine	
Competences	
- The student is able to recognize the safety issues involving bending	

