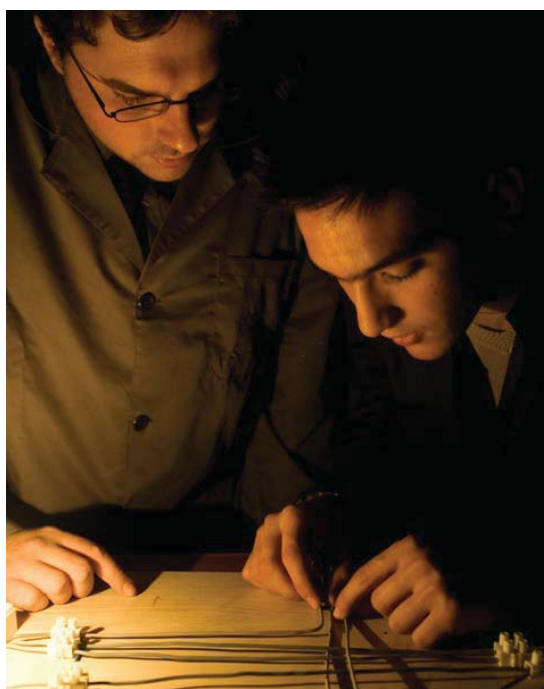


PROJECTX Nº 004

“REPLACING BEARINGS IN ELECTRIC MOTORS”

PRESENTATION



Promoting school:

SAVON AMMATTI- JA AIKUISOPISTO
Kuopio, Finland



A. GENERAL DESCRIPTION

Title of the ProjectX

REPLACING BEARINGS IN ELECTRIC MOTORS

Core area

GENERAL / KNOWLEDGE **MECHANIC**

PARTICULAR / ACTIVITY: **MAINTENANCE**

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
2	4	4	4	3	4	3	4	4

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

1. Know the electric motor construction
2. Defines right tooling and knows how to use them
3. Generating work plan / report

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

Theory: 5 hours
Practice: 10 hours

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

- | | |
|-----------------------------------|--------------------------------------|
| 1. NAME:POWERFLUTE-SAVON SELLU OY | WORKPLACE: OPERATION AND MAINTENANCE |
| 2. NAME:JUNTTAN OY | WORKPLACE: ASSEMBLING |
| 3. NAME:JELD-WEN SUOMI OY | WORKPLACE:OPERATION AND MAINTENANCE |



B. THEORY

Objectives of the theoretical Knowledge

1. Identification of different bearingtypes
2. Get familiar with construction of electric motors
3. Safety with induction-heater
4. General safety – safety glasses, safety shoes/clothing, lifting

List of activities

1. Introducing a work plan
2. Test

C. PRACTICE

Brief description of the Practice

Perform bearing replacement with acceptable methods – the right tool in the right place
Self-assessment is carried out during completing the work plan/report

Steps or activities to be performed by the student

- | | |
|----------|---|
| First: | Arrange your working area |
| Second: | Use a suitable lifting device, if needed |
| Third: | Select tools |
| Fourth: | Make a work plan (this is first “short version”) |
| Fifth: | Disassembling |
| Sixth: | Choosing right type of bearings |
| Seventh: | Replacing bearings and quality control until this – right order of components etc... |
| Eighth: | Assembling and final quality control – tighten bolts and nuts, rotating the rotor, etc... |
| Ninth: | Complete your work plan/report |
| Tenth: | Return tools and accessories – don’t forget to recycle waste material |



D. DETAILED DESCRIPTION OF LEARNING OUTCOMES.

Learning Outcome:	Mastery of the work process
Knowledge	
<ul style="list-style-type: none"> - The student knows the mastery of the work as a whole - The student knows the initiative and entrepreneurship 	
Skills	
<ul style="list-style-type: none"> - The student is able to write a work plan 	
Competences	
<ul style="list-style-type: none"> - The student is able to planned work - The student is able to master the work as a whole - The student is able to be initiative and entrepreneurship 	

Learning Outcome:	Mastering the work method, equipment and material
Knowledge	
<ul style="list-style-type: none"> - The student knows the installation work - The student knows the use of tools - The student knows the mastery of materials - The student knows the measurements and adjustments 	
Skills	
<ul style="list-style-type: none"> - The student is able to choose the appropriate tools - The student is able to select right type of bearings - The student is able to be independent or as an active member of a team make demanding installations - The student is able to handle the materials correctly - The student is able to handle the induction heater and thermometer correctly 	
Competences	
<ul style="list-style-type: none"> - The student is able to service their tools - The student is able to anticipate material needs - The student is able to estimate the accuracy of assembling results - The student is able to work in a team 	



Learning Outcome:	Underpinning Knowledge
Knowledge	
<ul style="list-style-type: none"> - understanding drawings and instructions - quality management skills - skills in science and mathematics - English language skills 	
Skills	
<ul style="list-style-type: none"> - able to use the drawings to determine the function of the equipment - able to know work-related names and terms in English and understands key items - able to know work-related quality requirements (e.g.no damages to windings and axles) 	
Competences	
<ul style="list-style-type: none"> - able to read instructions in English that may be necessary for their work - able to understand how to use thermal expansion during assembling/disassembling 	

Learning Outcome:	Key competences for lifelong learning
Knowledge	
<ul style="list-style-type: none"> - health, safety and ability to function - learning and problem solving - interaction and co-operation - vocational ethics 	
Skills	
<ul style="list-style-type: none"> - The student Is able to ensure occupational safety at the work place in all situations - The student Is able to manage in work-related interactive situations, also in a foreign language - The student Is able to ensure that the work environment is clean and tidy 	
Competences	
<ul style="list-style-type: none"> - The student Is able to check the proper function of machines and equipment's before starts working - The student Is able to solve problems - The student Is able to express some ideas to improve his/her working process - The student Is able to work in a team - The student does not make same mistakes twice 	

