Viet Nam

Vietnamese-German Development Cooperation

trained in Viet Nam
Việt Nam
Được Đào Tạo Tại Việt Nam

Promotion of TVET

Module

Installation of electronic components and assemblies

MD 05

GDVT gtz COOPERATION FEDERAL REPUBLIC OF GERMANY SOCIALIST REPUBLIC OF VIETNAM

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Module description

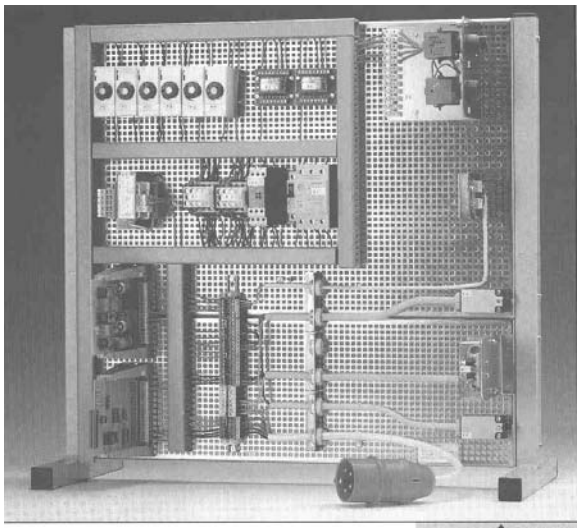
Training module: Installation of Electronic Components and Assemblies

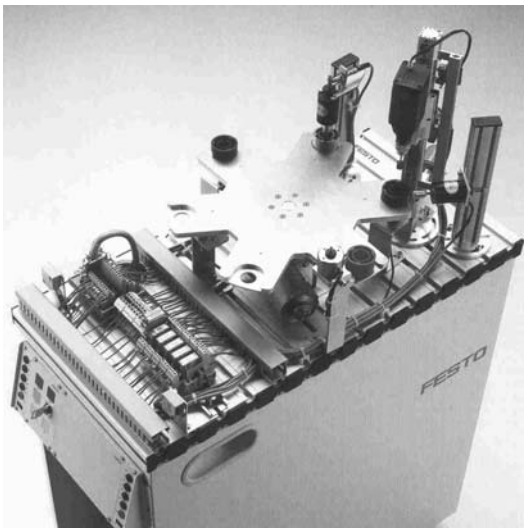
<table>
<tr><td rowspan="2">Module Code
MD05</td><td rowspan="2">Module Name
Installation of Electronic Components and Assemblies</td><td colspan="3">Training hours</td></tr>
<tr><td>Theory
20</td><td>Practice
100</td><td>Total
120</td></tr>
<tr><td>Background</td><td colspan="4">There are many separate assembling projects in this module. Each project is a part of the general project.
This module is practice-oriented, as a result, learners gain skills about making plans, assembling and testing.</td></tr>
<tr><td>Prerequisites</td><td colspan="4">To study this module, learner must have finished the following modules/subjects:
- MH13
- MH14
- MH15
- MH16
- MD 04</td></tr>
<tr><td>Module objectives</td><td colspan="4">Learners are able to install and test function of components and electronic devices; process printed circuit boards; build up an electronic circuit; find out, analyse and repair errors in the circuit.</td></tr>
<tr><td>Relationship to competency standards (as described in the DACUM chart)</td><td colspan="4">For detail tasks and works, please refer to the DACUM chart:
A4
B4
C3, C4, C33, C35, C39
D2, D3, D25, D31
E6, E7, E8, E9
F2, F6
G2, G5, G6
H31
I3, I8
J1, J3, J4</td></tr>
</table>

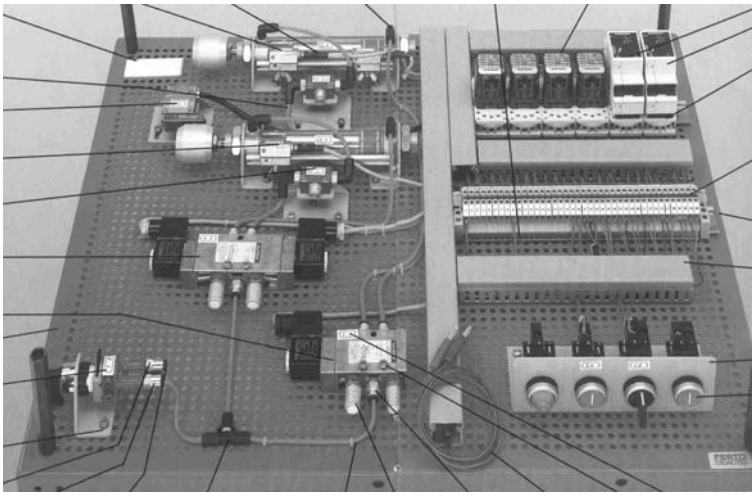
Learning outcomes	*After finishing the modules, the learners will be able to:* • Understand and apply technical documents. • Explain structures, operating principle and application of electronic components. • Analyze functions relationship of electronic circuits. • Make a list, select and test electronic components based on requirements. • Prepare necessary measurement instruments, tools and materials. • Assemble components on an existing printed circuit board • Solder a printed circuit board • Measure and test function of a circuit. • Find out and repair failures in a circuit • Follow safety rules at work • Work in groups.
Module contents	Electronic components and basic circuits: • Power circuits, function modules • Switch, buttons • Diode, transistor, thyristor, triac, Diac and other components • Warning instruments (light, buzzer, etc.) Technical documents: • Technical guide • Sketch, diagrams • Electronic components handbook Circuits: • Schematic circuit. • Pins connection circuit • Components list. Work planning: • Pre-process: Prepare necessary components, tools. • While-process: Practice • Post-process: Show the result Assembling: • Choose and test electronic components qualities. • Assemble components in a circuit. • Test functions and find out error Measuring: • Current • Voltage • Resistance • Signal Troubleshooting:

	• Observe on the whole • Follow the connections • Supply signals for testing. • Analyze the result • Repair faults Work safety: • Use safety working tools. • Use safety methods (electrical insulations, grounding)
Assessment	Evaluation of result of the module includes the following parts: 1) Results of individual exercises in module. 2) Written examination at the end of module: Learner takes a written examination at the end of module following module objective in maximum time of 90 minutes. 3) Practice examination at the end of module: In maximum time of 240 minutes, learners take a practice examination of assembling a basic electronic circuit. This circuit is part of general project. 4) Check practice results: Learner check result of practical examination. Including analysis, find out and repair error created by teacher in the maximum time of 60 minutes.
Necessary Infrastructure	**Practice Laboratory:** We suppose that there are 16 students in a class and students work in groups of two. • Minimum square is 80 m^2 • Teachers' working place, cabinet for learning and teaching materials. • Magnetic board with minimum size of 2,5 x 1,2m • Projector and screen • AC power supply: 220V/50 Hz, DC power supply: 0V÷24V. • Power supply distribution with NOT-OUT button at each practice place.
	Equipments of each practice place: • Standard working table. • Industrial electronic tools. • 02 ergonomic chairs.
	Materials • Necessary electronic components • Panel and printed circuit board • Related materials
Teaching and learning materials	• Task assignment papers • Instruction for practice exercises. • Folie sketchs

Examples of equipment:







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