

INSTALL POWER SUPPLY SYSTEMS

UNIT CODE: ENG/OS/ET/CR/02/6/A

UNIT DESCRIPTION

This unit covers competencies required for installing power supply system. Competencies includes; identifying power supply system components, designing power supply system, assembling tools, equipment and materials, installing power supply system, testing installed power supply system and documenting power supply installation report.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<p>These describe the key outcomes which make up workplace function.</p>	<p>These are assessable statements which specify the required level of performance for each of the elements</p> <p><i>(Bold and italicised terms are elaborated in the Range)</i></p>
<p>1. Identify power supply system components</p>	<p>1.1 Power supply components are identified as per the nature of input current and voltage</p> <p>1.2 Power supply system components are identified as per the nature of expected current and voltage output</p> <p>1.3 Power supply system components are identified in accordance with the system configuration</p> <p>1.4 Power supply system components are identified in consideration of expected load on the system</p> <p>1.5 Power supply system components are selected in consideration of environmental factors at the installation site</p> <p>1.6 System components are identified as per sensitivity of the load devices</p> <p>1.7 Power supply protection components are identified in line with input and output requirements</p>
<p>2. Design power supply system</p>	<p>2.1 Power supply circuits are designed based on input-output requirements</p> <p>2.2 Type of supply system is selected as per the application</p> <p>2.3 Power supply system is designed in line with reliability factors</p> <p>2.4 Power supply system is designed in line with the expected performance ratings</p>

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	<p>2.5 Power supply system is designed in accordance IEE regulations</p> <p>2.6 Power supply system design is performed in consideration of maintenance requirements</p> <p>2.7 System is sized in consideration of expected power loss</p>
<p>3. Assemble tools, equipment and materials</p>	<p>3.1 Tools, equipment and materials are identified as per the tasks to be carried out</p> <p>3.2 Tools, equipment and materials are assembled basing on their functionality</p> <p>3.3 Tools, equipment and materials are assembled in line with safety standards</p> <p>3.4 Tools, equipment and materials are assembled in accordance with precision required (digital instruments and analogue)</p> <p>3.5 Printed circuit board are prepared as per circuit design</p>
<p>4. Install power supply system</p>	<p>4.1 Power supply system is installed as per design</p> <p>4.2 Power supply system is installed in accordance with IEE regulations</p> <p>4.3 Power supply system is installed in accordance with OSHA regulations</p> <p>4.4 Power supply system is installed in line with standard operating procedures</p> <p>4.5 Power supply system is installed in line with various components manufacturers manuals</p> <p>4.6 Earthing/grounding of power supply system is performed as per IEE regulations</p>
<p>5. Test power supply system</p>	<p>5.1 Power supply system components are tested in line with IEE regulations</p> <p>5.2 Power supply system components are tested as per component parameters</p> <p>5.3 Power supply system is tested based on expected functionality</p> <p>5.4 Power supply system is tested in consideration of safety standards required</p>

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6. Document power supply system installation report	6.1 Power supply system installation report is prepared in accordance with standard operating procedures 6.2 Report is documented and shared with relevant parties as per the contract.

RANGE

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

Variable	Range
1. International standard may include but not limited to:	<ul style="list-style-type: none"> • ISO 14001 • 90001

REQUIRED KNOWLEDGE AND UNDERSTANDING

The individual needs to demonstrate knowledge and understanding of:

- Transformers
- Rectifiers
- Filters
- Inverters, converters
- Silicon controlled rectifiers
- Electrical standards
- Types of power supply systems
- Electrical design software
- Design tools
- Printed circuit boards and mother boards

FOUNDATION SKILLS

The individual needs to demonstrate the following additional skills:

- Electrical fabrication
- Electrical codes
- Electrical principles
- Depth of knowledge of power supply systems
- Teamwork
- Parameters for normal/abnormal operation of equipment for climate zones
- Decision making;
- Report writing
- Knowledge of “normal” electricity usage
- Environmental regulations
- Read and understand plans and symbols
- Draw plans
- CAD and basic mechanical drafting/illustration

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and understanding and range.

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Identified power supply system components basing on input-output current and voltages 1.2 Identified power supply system components in line with system configuration 1.3 Designed power supply system in accordance to input-output parameters 1.4 Applied EHS as per standard operating procedures 1.5 Sized power supply system based on the load size 1.6 Assembled tools, equipment and material as per their functionality 1.7 Installed power supply system as per the design 1.8 Installed power supply system in accordance with system functionality 1.9 Earthed/grounded the installed system as per IEE regulations 1.10 Tested the installed system in consideration of IEE regulations 1.11 Applied testing tools and equipment in regard to their functionality 1.12 Prepared and documented design, installation and test reports as per standard operating procedures
<p>2. Resource</p>	<p>Resources the same as that of workplace are advised to be applied</p>

Implications	Included: Designing tools and materials, sizing tools, transformers, resistors, PCBs, capacitors, diodes, SCRs, inverters, batteries, cables, computers and internet.
3. Methods of Assessment	Competency may be assessed through: 3.1 Oral questioning 3.2 Written tests 3.3 Practical Tests
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During Industrial Attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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INSTALL ELECTRICAL MACHINE CONTROL SYSTEMS

UNIT CODE: ENG/OS/ET/CR/03/6/A

UNIT DESCRIPTION

This unit covers competencies required to install electrical machine control system. Competencies includes; conducting site survey, designing machine control system, assembling tools, equipment and materials, mounting electrical and electronic components, performing wiring of electrical and electronic components, terminating wiring on electrical and electronic components, configuring and testing the installed electrical machine control system, commissioning and documenting installation report.

ELEMENTS AND PERFORMANCE CRITERIA