

## Transit Electric Power Equipment Technician Program Outline

### *Basic Data*

Program Name: Transit Electric Power/Equipment Technician

Program Award Level: Diploma

Program Credit Hours: 50 Credit Hours

Program Length: 4 Terms

CIP Code: 47.0101

### Description:

The Transit Electric Power/Equipment Technician program is designed to train technicians to service transit related electrical power systems. The program encompasses both theory and practical applications and emphasizes circuit theory, industrial wiring, motor controls and programmable logic controllers related to transit equipment. This program is intended to prepare graduates for a position in the transit industry.

### *Occupational Analysis*

#### Duty Description

##### 1 Maintain Safety Systems

Task Order	Task Description
1	Implement first aid procedures
2	Update MSDS Database
3	Implement lockout/tagout procedure
4	Implement evacuation procedures
5	Determine hazardous storage areas
6	Implement PPE procedures
7	Select guarding gates, chains and interlocks
8	Verify pressure release operation
9	Maintain clean work environment

##### 2 Install Machinery and Equipment

Task Order	Task Description
1	Review equipment installation project
2	Identify tool/parts for equipment installation
3	Select and prepare equipment installation and layout
4	Implement equipment rigging
5	Level and anchor installed equipment
6	Connect utilities to installed equipment
7	Test installed equipment functions

##### 3 Perform Equipment Preventative Maintenance

Task Order	Task Description
1	Perform vibration analysis
2	Perform thermography analysis
3	Verify pressure gauge operation settings
4	Verify safety system operations
5	Maintain required equipment fluids and grease levels
6	Verify belt and filter conditions
7	Check tube fitting conditions
8	Confirm operation of back-up systems

- |    |   |
|----|---|
| 9  | Verify cylinder operations                    |
| 10 | Check drive chain sprockets                   |
| 11 | measure coupler alignments                    |
| 12 | Confirm fasteners proper torque               |
| 13 | Verify equipment switch operation             |
| 14 | Perform scheduled motor and pump replacements |
| 15 | Confirm equipment operational performances    |
- 4 Perform Record Keeping
- |            |   |
|------------|---|
| Task Order | Task Description  |
| 1          | Implement work orders   |
| 2          | Implement hot work permits  |
| 3          | Implement confined space permit   |
| 4          | Document lockout/tagout procedure                                       |
| 5          | Implement hazardous work clearance permit                               |
| 6          | Complete incident report  |
| 7          | Record thermography histories   |
| 8          | Record vibration history  |
| 9          | Document flow chart readings  |
| 10         | Update machine piping, mechanical drawing and electrical specifications |
| 11         | Update log book   |
- 5 Develop Equipment Design Improvements
- |            |   |
|------------|---|
| Task Order | Task Description  |
| 1          | Evaluate functionality of existing equipment                    |
| 2          | Modify existing parts/equipment                                 |
| 3          | Adapt replacement parts/equipment                               |
| 4          | Test functionality of modified and adapted parts/equipment      |
| 5          | Implement new change of parts/equipment                         |
| 6          | Verify proper operation of modified or improved parts/equipment |
| 7          | Document change of parts/equipment                              |
- 6 Maintain and repair electronic equipment
- |            |  |
|------------|--|
| Task Order | Task Description   |
| 1          | Define terms associated with fiber testing                   |
| 2          | State specific tests that must be performed on fiber systems |
| 3          | Demonstrate proper use of testing equipment                  |

### **Order Description**

- 1 The graduate will have developed the knowledge and skills to interpret and solve blueprint reading problems.
- 2 The graduate will have developed the knowledge and skills to solve basic DC, AC and digital circuitry problems.
- 3 The graduate will have developed the knowledge and skills to inspect, maintain, troubleshoot and repair industrial and mechanical systems.
- 4 The graduate will have developed the knowledge and skills to inspect, maintain, troubleshoot and repair industrial motor control systems.
- 5 The graduate will have developed the knowledge and skills to inspect, maintain, troubleshoot and diagnose basic and advanced PLC systems.

6 The graduate will have developed the knowledge and skills to inspect, maintain, troubleshoot and repair industrial wiring.

7 The graduate will have developed the knowledge and skills to inspect, maintain, troubleshoot and diagnose industrial instrumentation systems.

8 The graduate will have developed the necessary skills to inspect, maintain, service, remove, install and repair all types of electronic equipment

*Program Curriculum*

Course Number	Courses	Credits
<b>General Studies Courses</b>		
EMPL 1000	Interpersonal Relations & Professional Development	2
ENGL 1010	Fundamentals of English I	3
MATH 1013	Algebraic Concepts	3
MATH 1015	Geometry and Trigonometry	3
<b>Technical Courses</b>		
COMP 1000	Introduction to Computers	3
ELCR 1005	Soldering Technology	1
IDFC 1007	Industrial Safety Procedures	2
IDSY 1101	DC Circuit Analysis	3
IDSY 1105	AC Circuit Analysis	3
IDSY 1130	Industrial Wiring	5
IDSY 1110	Industrial Motor Controls I	5
IDSY 1120	Basic Industrial PLC's	5
IDSY 1210	Industrial Motor	5
IDSY 1220	Intermediate Industrial PLC's	5
TRST 1040	Transit Fiber Optics Control	2
TRST 1000	Transit Industry Fundamentals	1
<b>Plus choose one of the following</b>		
ELCR 2190	Networking <b>OR</b>	3
CIST 1401	Computer Networking Fundamentals	(4)

**REQUIRED CREDIT HOURS:** 54-55

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