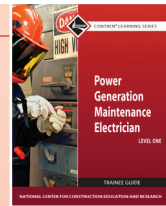


## L1 POWER GENERATION MAINTENANCE ELECTRICIAN



LEVEL 1

### Curriculum Notes

- 225 Hours (Includes 100 hours of *Power Industry Fundamentals*, which is a prerequisite for Level 1 completion and must be purchased separately. See above for more information.)
- Published: 2010
- Please note that these modules are drawn as is from other craft areas. To order modules individually, refer to the specific craft page for ISBNs.
- Instructor's Guide includes access code to download TestGen software, module exams, PowerPoints®, and performance profile sheets from [www.nccerirc.com](http://www.nccerirc.com).

| PAPERBACK                | ISBN              |
|--------------------------|-------------------|
| Trainee Guide: \$67      | 978-0-13-215421-5 |
| Instructor's Guide: \$67 | 978-0-13-215422-2 |

### MODULES

#### Tools of the Trade (5 Hours)

(Module ID 40102-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614613-1 |
| Instructor \$20 | ISBN 978-0-13-614626-1 |

#### Fasteners and Anchors (5 Hours)

(Module ID 40103-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614614-8 |
| Instructor \$20 | ISBN 978-0-13-614627-8 |

#### Oxyfuel Cutting (17.5 Hours)

(Module ID 40104-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614615-5 |
| Instructor \$20 | ISBN 978-0-13-614628-5 |

#### Gaskets and Packing (10 Hours)

(Module ID 40105-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614616-2 |
| Instructor \$20 | ISBN 978-0-13-614596-7 |

#### Craft-Related Mathematics (15 Hours)

(Module ID 40106-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614617-9 |
| Instructor \$20 | ISBN 978-0-13-614597-4 |

#### Construction Drawings (12.5 Hours)

(Module ID 40107-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614618-6 |
| Instructor \$20 | ISBN 978-0-13-614598-1 |

#### Pumps and Drivers (5 Hours)

(Module ID 40108-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614619-3 |
| Instructor \$20 | ISBN 978-0-13-614599-8 |

#### Valves (5 Hours)

(Module ID 40109-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614620-9 |
| Instructor \$20 | ISBN 978-0-13-614600-1 |

#### Introduction to Test Instruments (7.5 Hours)

(Module ID 40110-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614621-6 |
| Instructor \$20 | ISBN 978-0-13-614601-8 |

#### Material Handling and Hand Rigging (15 Hours)

(Module ID 40111-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614622-3 |
| Instructor \$20 | ISBN 978-0-13-614602-5 |

#### Mobile and Support Equipment (10 Hours)

(Module ID 40112-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614623-0 |
| Instructor \$20 | ISBN 978-0-13-614639-1 |

#### Lubrication (12.5 Hours)

(Module ID 40113-07; from *Industrial Maintenance E&I Technician Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-614624-7 |
| Instructor \$20 | ISBN 978-0-13-614640-7 |

#### SMAW Equipment and Setup (5 Hours)

(Module ID 29107-09; from *Welding Level One*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-610533-6 |
| Instructor \$20 | ISBN 978-0-13-610547-3 |

## L2 POWER GENERATION MAINTENANCE ELECTRICIAN

LEVEL 2

### Curriculum Notes

- 167.5 Hours
- Published: 2010
- Please note that these modules are drawn as is from other craft areas. To order modules individually, refer to the specific craft page for ISBNs.
- Instructor's Guide includes access code to download TestGen software, module exams, PowerPoints®, and performance profile sheets from [www.nccerirc.com](http://www.nccerirc.com).

| PAPERBACK                | ISBN              |
|--------------------------|-------------------|
| Trainee Guide: \$97      | 978-0-13-215423-9 |
| Instructor's Guide: \$97 | 978-0-13-215424-6 |

### MODULES

#### Industrial Safety for E&I Technicians

(12.5 Hours)

(Module ID 40201-08; from *Industrial Maintenance E&I Technician Level Two*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-604701-8 |
| Instructor \$20 | ISBN 978-0-13-604716-2 |

#### Managing Electrical Hazards (12.5 Hours)

(Module ID 26501-09; from *Electrical*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$22    | ISBN 978-0-13-608661-1 |
| Instructor \$22 | ISBN 978-0-13-608663-5 |

#### Introduction to the National Electrical Code®

(5 Hours)

(Module ID 40202-08; from *Industrial Maintenance E&I Technician Level Two*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-604702-5 |
| Instructor \$20 | ISBN 978-0-13-604717-9 |

#### Electrical Theory (15 Hours)

(Module ID 40203-08; from *Industrial Maintenance E&I Technician Level Two*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-604704-9 |
| Instructor \$20 | ISBN 978-0-13-604718-6 |

#### Alternating Current (20 Hours)

(Module ID 40204-08; from *Industrial Maintenance E&I Technician Level Two*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-604705-6 |
| Instructor \$20 | ISBN 978-0-13-604719-3 |

#### E&I Drawings (10 Hours)

(Module ID 40303-09; from *Industrial Maintenance E&I Technician Level Three*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-604697-4 |
| Instructor \$20 | ISBN 978-0-13-604747-6 |

#### E&I Test Equipment (10 Hours)

(Module ID 40205-08; from *Industrial Maintenance E&I Technician Level Two*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-604706-3 |
| Instructor \$20 | ISBN 978-0-13-604720-9 |

#### Conductors and Cables (10 Hours)

(Module ID 40212-08; from *Industrial Maintenance E&I Technician Level Two*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-604714-8 |
| Instructor \$20 | ISBN 978-0-13-604692-9 |

#### Conductor Terminations and Splices (10 Hours)

(Module ID 40213-08; from *Industrial Maintenance E&I Technician Level Two*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-604715-5 |
| Instructor \$20 | ISBN 978-0-13-604693-6 |

#### Motor Controls (15 Hours)

(Module ID 40304-09; from *Industrial Maintenance E&I Technician Level Three*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-604698-1 |
| Instructor \$20 | ISBN 978-0-13-604748-3 |

#### Hydraulic Controls (15 Hours)

(Module ID 40311-09; from *Industrial Maintenance E&I Technician Level Three*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-604742-1 |
| Instructor \$20 | ISBN 978-0-13-604757-5 |

#### Pneumatic Controls (15 Hours)

(Module ID 40312-09; from *Industrial Maintenance E&I Technician Level Three*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-604739-1 |
| Instructor \$20 | ISBN 978-0-13-604754-4 |

#### Programmable Logic Controllers (17.5 Hours)

(Module ID 40409-09; from *Industrial Maintenance E&I Technician Level Four*)

|                 |                        |
|-----------------|------------------------|
| Trainee \$20    | ISBN 978-0-13-609136-3 |
| Instructor \$20 | ISBN 978-0-13-610441-4 |

**L3 POWER GENERATION MAINTENANCE ELECTRICIAN**

LEVEL 3

**Curriculum Notes**

- 222.5 Hours
- Published: 2010
- Please note that these modules are drawn as is from other craft areas. To order modules individually, refer to the specific craft page for ISBNs.
- Instructor's Guide includes access code to download TestGen software, module exams, PowerPoints®, and performance profile sheets from www.nccerirc.com.

**PAPERBACK ISBN**

Trainee Guide: \$97 **978-0-13-215425-3**  
 Instructor's Guide: \$97 **978-0-13-215426-0**

**MODULES**

**Conductor Installations (10 Hours)**

(Module ID 26206-08; from *Electrical Level Two*)  
 Trainee \$20 ISBN 978-0-13-266135-5  
 Instructor \$20 ISBN 978-0-13-266146-1

**Cable Tray (7.5 Hours)**

(Module ID 26207-08; from *Electrical Level Two*)  
 Trainee \$20 ISBN 978-0-13-266136-2  
 Instructor \$20 ISBN 978-0-13-266147-8

**Grounding and Bonding (15 Hours)**

(Module ID 26209-08; from *Electrical Level Two*)  
 Trainee \$20 ISBN 978-0-13-266138-6  
 Instructor \$20 ISBN 978-0-13-266150-8

**Hand Bending (10 Hours)**

(Module ID 40208-08; from *Industrial Maintenance E&I Technician Level Two*)  
 Trainee \$20 ISBN 978-0-13-604709-4  
 Instructor \$20 ISBN 978-0-13-604723-0

**Machine Bending of Conduit (15 Hours)**

(Module ID 40310-09; from *Industrial Maintenance E&I Technician Level Three*)  
 Trainee \$20 ISBN 978-0-13-604741-4  
 Instructor \$20 ISBN 978-0-13-604756-8

**Electric Lighting (15 Hours)**

(Module ID 26203-08; from *Electrical Level Two*)  
 Trainee \$20 ISBN 978-0-13-266132-4  
 Instructor \$20 ISBN 978-0-13-266143-0

**Practical Applications of Lighting (12.5 Hours)**

(Module ID 26303-08; from *Electrical Level Three*)  
 Trainee \$20 ISBN 978-0-13-293676-7  
 Instructor \$20 ISBN 978-0-13-293687-3

**Hazardous Locations (10 Hours)**

(Module ID 40301-09; from *Industrial Maintenance E&I Technician Level Three*)  
 Trainee \$20 ISBN 978-0-13-604694-3  
 Instructor \$20 ISBN 978-0-13-604744-5

**Circuit Breakers and Fuses (12.5 Hours)**

(Module ID 26210-08; from *Electrical Level Two*)  
 Trainee \$20 ISBN 978-0-13-266139-3  
 Instructor \$20 ISBN 978-0-13-266151-5

**Transformer Applications (7.5 Hours)**

(Module ID 40306-09; from *Industrial Maintenance E&I Technician Level Three*)  
 Trainee \$20 ISBN 978-0-13-604735-3  
 Instructor \$20 ISBN 978-0-13-604750-6

**Distribution Equipment (17.5 Hours)**

(Module ID 40305-09; from *Industrial Maintenance E&I Technician Level Three*)  
 Trainee \$20 ISBN 978-0-13-604734-6  
 Instructor \$20 ISBN 978-0-13-604749-0

**Power Plant Electrical Systems (12.5 Hours)**

Trainee \$18 ISBN 978-0-13-272106-6  
 Instructor \$18 ISBN 978-0-13-272107-3  
 (Module ID 50301-11) Describes how the electrical power to operate a power station is developed and distributed in normal, shutdown, and emergency situations. Covers equipment used in power stations, including circuit breakers, switchgear, and motor control centers.

**Conductor Selection and Calculations (15 Hours)**

(Module ID 40307-09; from *Industrial Maintenance E&I Technician Level Three*)  
 Trainee \$20 ISBN 978-0-13-604736-0  
 Instructor \$20 ISBN 978-0-13-604751-3

**Motors: Theory and Application (20 Hours)**

(Module ID 26202-08; from *Electrical Level Two*)  
 Trainee \$20 ISBN 978-0-13-266131-7  
 Instructor \$20 ISBN 978-0-13-266142-3

**Motor-Operated Valves (15 Hours)**

(Module ID 40313-09; from *Industrial Maintenance E&I Technician Level Three*)  
 Trainee \$20 ISBN 978-0-13-604743-8  
 Instructor \$20 ISBN 978-0-13-604758-2

**Control Systems and Fundamental Concepts (12.5 Hours)**

(Module ID 26211-08; from *Electrical Level Two*)  
 Trainee \$20 ISBN 978-0-13-266140-9  
 Instructor \$20 ISBN 978-0-13-266152-2

**Temporary Grounding (15 Hours)**

(Module ID 40308-09; from *Industrial Maintenance E&I Technician Level Three*)  
 Trainee \$20 ISBN 978-0-13-604738-4  
 Instructor \$20 ISBN 978-0-13-604753-7

**L4 POWER GENERATION MAINTENANCE ELECTRICIAN**

LEVEL 4

**Curriculum Notes**

- 197.5 Hours
- Published: 2011
- Please note that these modules are drawn as is from other craft areas. To order modules individually, refer to the specific craft page for ISBNs.
- Instructor's Guide includes access code to download TestGen software, module exams, PowerPoints®, and performance profile sheets from www.nccerirc.com.

**PAPERBACK ISBN**

Trainee Guide: \$97 **978-0-13-215428-4**  
 Instructor's Guide: \$97 **978-0-13-215429-1**

**MODULES**

**Load Calculations – Branch and Feeder**

**Circuits (17.5 Hours)**  
 (Module ID 26301-08; from *Electrical Level Three*)  
 Trainee \$20 ISBN 978-0-13-609290-2  
 Instructor \$20 ISBN 978-0-13-609302-2

**Motor Calculations (12.5 Hours)**

(Module ID 26309-08; from *Electrical Level Three*)  
 Trainee \$20 ISBN 978-0-13-609299-5  
 Instructor \$20 ISBN 978-0-13-609276-6

**Overcurrent Protection (25 Hours)**

(Module ID 26305-08; from *Electrical Level Three*)  
 Trainee \$20 ISBN 978-0-13-609294-0  
 Instructor \$20 ISBN 978-0-13-609307-7

**Specialty Transformers (10 Hours)**

(Module ID 26406-08; from *Electrical Level Four*)  
 Trainee \$20 ISBN 978-0-13-609319-0  
 Instructor \$20 ISBN 978-0-13-609333-6

**Advanced Controls (20 Hours)**

(Module ID 26407-08; from *Electrical Level Four*)  
 Trainee \$20 ISBN 978-0-13-609320-6  
 Instructor \$20 ISBN 978-0-13-609334-3

**Motor Operation and Maintenance (10 Hours)**

(Module ID 26410-08; from *Electrical Level Four*)  
 Trainee \$20 ISBN 978-0-13-609324-4  
 Instructor \$20 ISBN 978-0-13-609337-4

**Generator Maintenance (20 Hours)**

Trainee \$20 ISBN 978-0-13-266211-6  
 Instructor \$20 ISBN 978-0-13-266213-0  
 (Module ID 50401-10) Covers the operating characteristics and major components of AC and DC generators. Topics include generator connection methods; voltage regulators; auxiliary systems; and maintenance procedures.

**Switchgear and Breaker Maintenance (25 Hours)**

Trainee \$20 ISBN 978-0-13-266212-3  
 Instructor \$20 ISBN 978-0-13-266215-4  
 (Module ID 50402-11) Reviews the safety practices associated with power station electrical work. Explains how medium-voltage and low-voltage sources are developed and used in the power station, and how the station power system functions in a blackout or shutdown situation. Also describes the circuit breakers, switchgear, and motor control centers used in power stations, and provides instructions for maintenance of these devices.

**Preventive and Predictive Maintenance**

(10 Hours)  
 (Module ID 32401-09; from *Industrial Maintenance Mechanic Level Four*)  
 Trainee \$20 ISBN 978-0-13-610445-2  
 Instructor \$20 ISBN 978-0-13-610456-8

**Medium Voltage Terminations/Splices**

(10 Hours)  
 (Module ID 26411-08; from *Electrical Level Four*)  
 Trainee \$20 ISBN 978-0-13-609325-1  
 Instructor \$20 ISBN 978-0-13-609338-1

**Fire Alarm Systems (15 Hours)**

(Module ID 26405-08; from *Electrical Level Four*)  
 Trainee \$20 ISBN 978-0-13-609283-4  
 Instructor \$20 ISBN 978-0-13-609332-9

## Power Generation Maintenance Electrician Level 4

### **Heat Tracing and Freeze Protection** (10 Hours)

(Module ID 26409-08; from *Electrical Level Four*)

Trainee \$20

ISBN 978-0-13-609323-7

Instructor \$20

ISBN 978-0-13-609336-7

### **Standby and Emergency Systems** (12.5 Hours)

(Module ID 40401-09; from *Industrial Maintenance E&I*)

*Technician Level Four*

Trainee \$20

ISBN 978-0-13-609163-9

Instructor \$20

ISBN 978-0-13-609139-4

