

# RAIL/OFF HIGHWAY MOTIVE POWER ELECTRICAL TECHNICIAN

## Associate in Applied Science and Certificate

<http://www.sandburg.edu/Academics/Degree-Certificates/Rail-Off-Highway-Motive-Power-Electrical-Technician/index.html>

This program provides generalized knowledge of electrical technology for locomotives and off-highway motive powered technologies. Through demonstrations and applications of standard industry techniques and processes that are included / embedded in the program curriculum students will be able to assess, troubleshoot, fix and maintain the electrical components in these technologies. Content includes operation and analysis of industrial electronic circuits and devices as well as principles of automatic process control, measurement, programmable controller and distributed control.

Graduates will assemble and install electrical circuitry, perform troubleshooting to locate electrical problems in a variety of electrical instruments, control systems and equipment, plan preventive maintenance and repairs on electrical systems. Develop work plans and design standard operating procedures. Monitor breakdowns in electrical components using testing devices and equipment. Design wiring structures as per the electrical system or instrument need. Maintain and document records of electrical needs and study blueprints of electrical designs while solving electrical issues.

### Employment

The current employment projections from the Bureau of Labor Statistics (BLS) and the Illinois Department of Employment Security (IDES) show the following for the district, rail transportation workers (53-4000) IDES reports a 6.45% increase and for rail transportation workers, all other (53-4099), IDES reports a 16.67% increases by the year 2018. For Electrical/Electronic Equipment Mechanics/Installers (49-2000) the IDES indicates a .74% growth by 2018 in the district and 3.84% growth in Illinois by 2020 in the field. The BLS indicates a growth of 3% nationally by 2020. However, Helpers for Electricians (47-3013) shows better growth at 11.11% in the district by 2018 and 6.68% in Illinois by 2020.

### Admission to the Program: Open First-Time Enrollees

1. Complete an application for admission and, if desired, apply for financial aid.
2. Send an official high school transcript or GED score report to the Admissions and Records Office.
3. Complete the placement exam.
4. Meet with an advisor/counselor to select classes and complete the registration process.

### Department of Career & Corporate Development

2400 Tom L. Wilson Blvd.  
Galesburg, IL 61401  
Phone: 309.341.5313

### For Additional Information Contact:

The Welcome Center

Phone: 309.345.3500  
welcomecenter@sandburg.edu (admissions@sandburg.edu)

### For Graduation Requirements:

See the graduation policies and procedures ([http://catalog.sandburg.edu/academicinformation/#graduation\\_policies\\_and\\_procedures](http://catalog.sandburg.edu/academicinformation/#graduation_policies_and_procedures)) page for details.

## Certificate

Course	Title	Semester Hours
<b>First Year</b>		
<b>Fall Semester</b>		
ELT.100	Electrical Fundamentals	3
MAT.101	Technical Mathematics 1	3
MTL.101	Machine Tool Fundamentals 1	3
MTL.103	Manufacturing Processes	2
MFG.100	Introduction to Welding	3
MFG.130	Industrial Safety	2
<b>Spring Semester</b>		
ELT.104	Industrial Electrical Control	3
ELT.121	Rail/Off Hiway Motive Power Electrical	4
ENG.101 or RDG.120	Freshman Composition 1 or Strategies for Success in College	3
MAT.102	Technical Mathematics 2	3
MFG.125	Industrial Blueprints	3
Total Semester Hours		32

Note: Students enrolled in the Rail Off/Highway Motive Power Electrical Technician program must complete all ELT courses with a grade of C or better in order to register for subsequent courses and continue in the program. In order to graduate, each student must complete ELT, MTL and WEL courses with a grade of C or better.

(Students who do not expect to complete their degree within five years should refer to the Graduation Requirements section in this catalog.)

## Associate in Applied Science

Course	Title	Semester Hours
<b>First Year</b>		
<b>Fall Semester</b>		
ELT.100	Electrical Fundamentals	3
MAT.101	Technical Mathematics 1	3
MTL.101	Machine Tool Fundamentals 1	3
MTL.103	Manufacturing Processes	2
MFG.100	Introduction to Welding	3
MFG.130	Industrial Safety	2
<b>Spring Semester</b>		
ELT.104	Industrial Electrical Control	3
ELT.121	Rail/Off Hiway Motive Power Electrical	4
ENG.101 or RDG.120	Freshman Composition 1 or Strategies for Success in College	3
MAT.102	Technical Mathematics 2	3
MFG.125	Industrial Blueprints	3

**Second Year****Fall Semester**

BOC.107	Tech Skills for Business Environment	3
ELT.119	Industrial Electronic Control	3
ELT.120	Electrical/Electronics Troubleshooting	3
SOC.101	Introduction to Sociology	3
or PSY.101	or Introduction to Psychology	
RRT.101	History of Railroading	3
SPE.110	Interpersonal Communication	3
or SPE.120	or Introduction to Public Speaking	

**Spring Semester**

ICT.110	Computer Software Applications	3
ELT.209	AC/DC Drives and Servos	3
ELT.212	Industrial Electricity	3
ELT.213	Process Control & Instrumentation	3
PHY.110	Applied Physics	3
Total Semester Hours		65

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**Kellogg, David M**

associate dean of career & corporate development

The Center for Manufacturing Excellence (CME) offers classroom space, a computer lab, and houses Carl Sandburg College's industrial programs. Students may take courses in the following subject areas: welding, biofuels, rail, machine tooling, manufacturing or electrical. The electrical lab features a host of components to aid in student learning including AC/DC trainers. In 2014, Sandburg became a designated National Academy of Railroad Sciences (NARS) training site offering courses in locomotive electrical and locomotive mechanical. Instruction is delivered by individuals with industry-specific expertise and includes specialized coursework using technical equipment. Two diesel engines inside the CME are available for training opportunities. The College's welding lab offers 16 bay stations and soon will have an additional ten working spaces. The welding area offers a welding simulator, as well as state of the art multi-process welding machines.