

## Career and Technical Education

### Associate of Applied Science— Electrical Systems Technology

#### Professional Skills and Career Paths

Open Pit Electrician, Underground Mine Electrician, Manufacturing Electrician, Service Electrician, I&E Industrial Electrician

#### Student Learning Outcomes

This program prepares graduates to work in diverse industries including mining, manufacturing, power plants, power distribution, construction, sales, machine control, water resource management, and gaming. Graduates of the Electrical Systems Technology AAS Degree Program will have the knowledge and skills to:

- Analyze and interpret graphical information found on schematics, blueprints, and diagrams.
- Identify, use, and maintain motor and computer-based control systems.
- Have a firm understanding of theories that apply to the electrical trade.
- Interpret and apply the National Electrical Code to electrical installations.
- Demonstrate the proper use of tools used in the electrical field and industry.
- Design, construct, and troubleshoot various electrical systems used in commercial and industrial settings.
- Perform safely in the work environment, meeting and obeying all workplace safety requirements.

**Formal admission to this program is required. Refer to page 86 for an outline of admission standards.**

General Education Requirements	Credits
English/Communications .....	6
Mathematics.....	3
MATH 116, 120, 126 or higher, or STAT 152	
Science—PHYS 107 (recommended) .....	3
Social Science—PSC 101 .....	3
Human Relations	
BUS 110 (recommended) .....	3
Humanities or Fine Arts .....	3
ART 107 or MUS 125 (recommended)	
Technology—ELM 120 (required) .....	(3)

List of courses fulfilling general education requirements is on page 81.

Program Requirements	Credits
ELM 112 Electrical Theory, DC.....	3.5
ELM 120 Low Voltage Systems.....	3
ELM 121 Circuit Design.....	2

ELM 122 AC Theory .....	4
ELM 123 Solid State .....	2
ELM 124 DC Generators, Motors, and Controls ...	2
ELM 125 AC Motors and Alternators.....	2
ELM 126 Motor Maintenance .....	2
ELM 127 Introduction to AC Controls .....	2.5
ELM 128 Transformers and Industrial Lighting ...	4
ELM 131 National Electric Code .....	2.5
ELM 132 Digital Concepts .....	2
ELM 133 Advanced AC Controls.....	4
ELM 134 Introduction to Programmable Logic Controller's .....	2.5
ELM 135 National Electric Code 430 .....	1
ELM 136 Programmable Controller's Applications.....	2.5
ELM 141 Blueprint Reading .....	2
ELM 142 Raceways.....	2.5
ELM 143 Wiring Techniques.....	3

#### SUGGESTED COURSE SEQUENCE AAS—Electrical Systems Technology

FALL—1st Semester	Credits
BUS 110	3
ELM 112	3.5
ELM 120	3
ELM 121	2
ELM 122	4
ELM 124	2
ELM 128	4
ELM 141	2
ELM 142	2.5
ENGLISH*	3
HUMANITIES/FINE ARTS*	3
MATH 116, 120, 126 or higher, or STAT 152	3
PSC 101	3
<b>TOTAL</b>	<b>38</b>

SPRING—2nd Semester	Credits
ELM 123	2
ELM 125	2
ELM 126	2
ELM 127	2.5
ELM 131	2.5
ELM 133	4
ELM 132	2
ELM 134	2.5
ELM 135	1
ELM 136	2.5
ELM 143	3
ENGLISH*	3
SCIENCE*	3
<b>TOTAL</b>	<b>32</b>

**Refer to page 81. Minimum Credits: 70  
\*Choose with advisor.**

After the AAS in Electrical Systems Technology, the next steps could be the Certificate of Achievement in Instrumentation and then the Bachelor of Applied Science in Instrumentation. See page 115.

For Employer Sponsored Pathway for the Associate of Applied Science for Electrical Systems Technology see the next page.

**Employer Sponsored Pathway  
Associate of Applied Science –  
Electrical Systems Technology**

- Students interested in this program must have instructor approval to enroll.
- This program is available only to students who are working in an electrical field.
- Student’s employer must be willing to work with GBC faculty to provide practical lab experiences.
- Students receive electrical theory instruction through online delivery and lab instruction by attending classes on campus and through their employer.
- For more information, contact the CTE department at 775.753.2175.

**Substitute the following program requirements:**

ELM	101	Electrical Workforce Training I.....	7
ELM	102	Electrical Workforce Training II .....	7
ELM	103	Electrical Workforce Training III.....	7
ELM	104	Electrical Workforce Training IV.....	7
ELM	105	Electrical Workforce Training V .....	7
EIT	233	Introduction to Instrumentation.....	4