

ELECTRICAL TRADES

Associate of Applied Science, 71-77 Credit Hours, 18-Month Program

This program provides in-depth instruction in the theories and principles of electricity and electrical construction. Strong math skills are a requirement. Principles of operation for electrical devices and equipment, and correct and safe operation of tools are covered. A typical job description for an electrician may include typically working 40 hours per week. However, some jobs may require working evenings or weekends. Electricians must be physically capable of climbing and working at heights and outside. Other physical work may be required.

Students will study and learn to interpret and apply the requirements of the National Electrical Code. A solid background in the theory and technology of the electrical field will give the knowledge and ability to install, maintain, troubleshoot, and repair electrical circuits and equipment. The training gives students the flexibility to pursue different areas of employment as entry-level electricians. Most of our lab experience mimics outside work-sites and allows students to have first-hand experience in a controlled environment. The Electrical Trades program prepares students for employment as an apprentice electrician in the construction, mining, and industrial manufacturing sectors of the Trades and Construction Industry.

The South Dakota Electrical Commission requires successful completion of First Aid/CPR training in order to graduate from an electrical trades program.

Course	No.	Course Title	Credits
General Education Requirements			
CIS	105	MICROCOMPUTER SOFTWARE APPLICATIONS I	3
ECON	202	PRINCIPLES OF MACROECONOMICS <i>or</i>	3
SOC	100	INTRODUCTION TO SOCIOLOGY	
ENGL	106	WORKPLACE COMMUNICATIONS I*	3
MATH	104	TECHNICAL MATHEMATICS**	3
PSYC	103	HUMAN RELATIONS IN THE WORKPLACE	3
Total			15
Technical Requirements***			
ELT	217	COMPUTER HARDWARE INSTALLATION AND TROUBLESHOOTING	4
IEL	122	ELECTRICAL CODE STUDY I	3
IEL	123	INDUSTRIAL DATA COMMUNICATION	2
IEL	129	INTRODUCTION TO ELECTRICAL WIRING LAB	1
IEL	130	INTRODUCTION TO ELECTRICAL WIRING	2
IEL	132	ELECTRICAL FUNDAMENTALS	5
IEL	133	ELECTRICAL FUNDAMENTALS LAB	7
IEL	135	BASIC ELECTRICAL MATERIALS AND DEVICES	1
IEL	211	ELECTRICAL MOTOR CONTROL	3
IEL	213	ELECTRICAL HEATING AND APPLIANCES	2
IEL	214	ELECTRICAL CODE STUDY II	2
IEL	216	ELECTRICAL MOTOR CONTROL LAB	2
IEL	218	WIRING LAB I	3
IEL	220	WIRING LAB II	3
IEL	221	PROGRAMMABLE LOGIC CONTROLLERS	2
IEL	222	PROGRAMMABLE LOGIC CONTROLLERS LAB	3
IEL	223	ELECTRICAL MOTOR LAB	1
IEL	224	POWER DISTRIBUTION	2
IEL	226	ELECTRICAL MOTOR FUNDAMENTALS AND MAINTENANCE	2
IEL	230	BLUEPRINT READING, ELECTRICAL PLANNING AND ESTIMATING	4
IEL	299	ELECTRICIAN INTERNSHIP/CO-OP (OPTIONAL)	6
WDM	100	WELDING AND FABRICATION FOR GENERAL APPLICATIONS	2
Total			56-62

*Prerequisite: Acceptable ACCUPLACER score or Basic Writing.

**Prerequisite: Acceptable ACCUPLACER score or Basic Math.

***CPR/First Aid must be completed before graduation.

Semester Breakdown

First Semester			Second Semester		
		CR			CR
IEL 132	Electrical Fundamentals	5	ELT 217	Computer Hardware Installation/ Troubleshooting	4
IEL 133	Electrical Fundamentals Lab	7	IEL 123	Industrial Data Communication	2
CIS 105	Microcomputer Software Applications I	3	IEL 129	Introduction to Electrical Wiring Lab	1
MATH 104	Technical Mathematics	3	IEL 130	Introduction to Electrical Wiring	2
			IEL 135	Basic Electrical Materials and Devices	1
			IEL 223	Electrical Motor Lab	2
			IEL 226	Electrical Motor Fundamentals and Maintenance	1
			WDM 100	Welding & Fabrication for General Applications	2
			ENGL 106	Workplace Communications I	3
Total Credit Hours		18	Total Credit Hours		18
Third Semester			Fourth Semester		
		CR			CR
IEL 122	Electrical Code Study I	3	IEL 213	Electrical Heating & Appliances	2
IEL 211	Electrical Motor Control	3	IEL 214	Electrical Code Study II	2
IEL 216	Motor Control Lab	2	IEL 220	Wiring Lab II	3
IEL 218	Wiring Lab I	3	IEL 221	Programmable Logic Controllers	2
IEL 230	Blueprint Reading, Electrical Planning, and Estimating	4	IEL 222	PLC Lab	3
ECON 202	Principles of Macroeconomics <i>or</i>		IEL 224	Power Distribution	2
SOC 100	Introduction to Sociology	3	PSYC 103	Human Relations in the Workplace	3
Total Credit Hours		18	Total Credit Hours		17
Optional Summer Semester					
		CR			
IEL 299	Electrician Internship/CO-OP	6			
Total Credit Hours		6			