

**Computer Aided Design  
Engineering Technology  
Short-Term Certificate** 151301 DDT

Available: Shoals Campus  
 Advisor: A. Rice (5257) [rice@nwsc.edu](mailto:rice@nwsc.edu)  
 M. Hubka (5270) [hubka@nwsc.edu](mailto:hubka@nwsc.edu)

This short-term certificate is open to drafting and design industry personnel with a minimum of one year experience in manual drafting, design, or engineering. The program provides upgrade training in the use of computer aided drafting and design (CADD) technology.

**Entering students are required to complete ORI 101. Transfer students are exempt from this requirement.**

	Semester		Hours
	Theory	Lab	
DDT 104 Basic Computer Aided Drafting and Design	1	4	3
DDT 127 Intermediate Computer Aided Drafting and Design	1	4	3
DDT 231 Advanced CAD Drafting and Design Elective	2	3	3
	X	X	6

**Total Semester Credit Hours ..... 15**

NOTE: Two Drafting electives totaling 6 semester hours is required. Students should consult advisor concerning other possible electives from other program areas.

**Electrical Technology  
AOT Degree** 309999

Available: Shoals Campus  
 Advisors: J. Bonner (5244) [ndt1@nwsc.edu](mailto:ndt1@nwsc.edu)  
 J. Hackworth (5335) [joehackworth@nwsc.edu](mailto:joehackworth@nwsc.edu)

Students desiring to receive the AOT Award must complete all major certificate courses, one minor certificate course of study, and the required credit hours of general education courses in Areas I, II, III, and IV. Upon completion of all the courses listed, students are eligible to receive the Associate in Occupational Technology Degree. Students desiring to take general education courses for transfer to another institution should consult an advisor for proper general education course selection.

**Core Degree Requirements for the Associate in Occupational Technology Degree**

**Entering students are required to complete ORT 100. Transfer students are exempt from this requirement.**

	Semester Hours
Area I: Written Composition ..... English Composition I and/or Technical Writing	3
Area II: Humanities and Fine Arts .....	3
Area III: Natural Science and Mathematics ..... A minimum of 3 hours in degree creditable mathematics is required. The additional 6 hours of degree creditable coursework may be taken from disciplines of math, biology, chemistry, physical science, physics, environmental technology and computer science.	9
Area IV: History, Social and Behavioral Sciences ..... Courses may be taken from the disciplines of history, economics, geography, political science, psychology, and sociology.	3

**Minimum General Requirements ..... 18**

**Major Requirements Semester Hours**

ELT 114 Residential Wiring Methods .....	3
ELT 117 AC/DC Machines .....	3
ELT 118 Commercial/Industrial Wiring I .....	3
ELT 119 Concepts of Solid State .....	5
ELT 121 Concepts of Digital Electronics .....	5
ELT 122 Advanced AC/DC Machines .....	3
ELT 132 Commercial/Industrial Wiring II .....	3
ELT 209 Motor Control I .....	3
ELT 212 Motor Control II .....	3
ELT 219 Fluid Power Systems .....	3
ELT 231 Programmable Controls I .....	3
ELT 232 Programmable Controls II .....	3
ELT 242 Journeyman Master Prep Exam .....	3

**Total Major Requirements ..... 43**

**Minor Requirements 309999 EAC**

**Air Conditioning/Refrigeration Technology**

ACR 111 Refrigeration Principles .....	3
ACR 121 Principles of Electricity for HVACR (or ELT 111) .....	3-5
ACR 122 HVACR Electrical Circuits (or ELT 112) .....	3-5
ACR Elective .....	1-3
<b>Total Minor Requirements .....</b>	<b>12</b>

**General Requirements ..... 18**

**Total Requirements for AOT Degree ..... 73**

\*Computer competency skills are embedded within one or more courses required in this curriculum.

## Electrical Technology Career Certificate

460302 ELT

Available: Shoals Campus

Advisors: J. Bonner (5244) [ndt1@nwsc.edu](mailto:ndt1@nwsc.edu)J. Hackworth (5335) [joehackworth@nwsc.edu](mailto:joehackworth@nwsc.edu)

The increased use of electricity and society's dependence upon it has created a vast number of occupational opportunities for the trained electrical technician. Great strides have been made in every line of electrical development. The increased use of automation in industrial plants has increased the need for trained industrial electricians. The Electrical Technology Program is designed to fulfill the needs of a demanding industry. The course includes electrical fundamentals, equipment and machine installation, maintenance and troubleshooting of motors, transformers and industrial controls, wiring methods, modern control methods, hydraulic, pneumatic, and electro-mechanical systems. The future brings increased demand for electricians who possess the skills of the trade and a working knowledge of the principles of electricity. The length of the curriculum is 4 semesters full-time day, or full-time night.

**All entering students are required to complete ORT 100 unless transferred from another university or college.**

	Semester		
	Theory	Lab	Hours
COM 100 Introductory Technical English I	3	0	3
MAH 101 Introductory Mathematics I	2	6	3
ELT 111 Concepts of Direct Current	3	6	5
ELT 112 Concepts of Alter. Current	3	6	5
ELT 114 Residential Wiring Methods	2	3	3
ELT 115 Residential Wiring Methods II	2	3	3
ELT 117 AC/DC Machines	1	6	3
ELT 118 Commercial/Industrial Wiring I	1	6	3
ELT 119 Concepts of Solid State Electronics	3	6	5
ELT 121 Concepts of Digital Electronics	3	6	5
ELT 122 Advanced AC/DC Machines	2	3	3
ELT 132 Commercial/Industrial Wiring II	2	3	3
ELT 209 Motor Control I	1	6	3
ELT 212 Motor Control II	2	3	3
ELT 231 Programmable Controls I	2	3	3
ELT 232 Programmable Controls II	2	3	3
ELT 242 Journeyman Master Prep Exam	3	0	3
ELT 206 OSHA Safety Standards	3	0	3
<b>Total Semester Credit Hours</b> .....	<b>62</b>		

\*Transfer Credit: Students may receive up to one semester of Advanced Placement for Career Technical coursework completed at another institution.

### ELECTRICAL ELECTIVES

ELT 104 Distribution Systems
ELT 200 Special Projects
ELT 206 OSHA Safety Standards
ELT 214 Hydraulics
ELT 215 Pneumatics
ELT 219 Fluid Power Systems
ELT 223 Cable Splicing and Installation
ELT 233 Applied Programmable Controls
ELT 244 Conduit Bending and Installation

Contact hours are not shown for electives since they may vary and combine both theory and lab.

## Electronics Technology

470105 ILT

## Associate in Applied Science Degree

Available: Shoals Campus

Advisors: S. McGouyrk (5246) [stevem@nwsc.edu](mailto:stevem@nwsc.edu)R. Reaves (5201) [rgr@nwsc.edu](mailto:rgr@nwsc.edu)S. Harrison (5250) [sam@nwsc.edu](mailto:sam@nwsc.edu)

This degree is designed to provide the student with proficiency in electronic devices and equipment. Theory and laboratory courses in basic electronics, electronic circuits, communications, computers, and industrial electronics, as well as general education courses in math, English, physics, psychology, and humanities provide the knowledge and skills necessary to gain employment in electronics with opportunities to advance to positions of greater responsibility.

The degree prepares the student to observe necessary safety precautions; assemble, install, operate, troubleshoot, repair, maintain, calibrate, and modify electronic circuitry, equipment and systems; construct breadboards, and mock-ups; set up test apparatus, conduct tests, and analyze test results; prepare reports, sketches, graphs, and schematic drawings; and perform necessary mathematical calculations.

**All entering students are required to complete ORI 101 unless transferred from another university or college.**

General Education Requirements	Semester		
	Theory	Lab	Hours
***ENG 101 English Composition I	3	0	3
*ENG 130 Technical Report Writing	3	0	3
MTH 103 Introduction to Technical Mathematics	3	0	3
MTH 118 Technical Mathematics	3	0	3
PHY 115 Technical Physics	3	2	4
PSY 200 General Psychology	3	0	3
Humanities or Fine Arts Elective	3	0	3
<b>Total General Education Requirements</b> .....	<b>22</b>		
<b>Major Requirements</b>			
ILT 106 Concepts of Direct Current	3	6	5
ILT 107 Concepts of Alternating Current	3	6	5
ILT 112 Concepts of Digital Circuits	3	6	5
ILT 113 Concepts of Electronic Circuits	3	6	5
ILT 125 Digital Communications	3	0	3
ILT 126 Digital Communications Lab	0	6	2
ILT 133 Electronic Drafting	0	3	1
ILT 164 Circuit Fabrication I	0	3	1
ILT 194 Programmable Logic Controllers I	2	3	3
ILT 201 Industrial Electronics	3	0	3
ILT 202 Industrial Electronics Lab	0	6	2
ILT 205 Microprocessors	3	0	3
ILT 206 Microprocessors Lab	0	6	2
ILT 234 Microprocessor Systems Troubleshooting	1	3	2
ILT 267 RF Communications	3	0	3
ILT 268 RF Communications Lab	0	6	2
Electronics Electives	X	X	6
<b>Total Major Requirements</b> .....	<b>53</b>		
<b>Total Semester Credit Hours</b> .....	<b>75</b>		

**Electronics Electives**

- ILT 129 Personal Computer Hardware
- ILT 130 Personal Computer Software Installation and Maint.
- ILT 131 Personal Computer Problem Determination I L T
- 132 Programming Survey for Technicians
- ILT 135 Local Area Networks
- ILT 169 Hydraulics/Pneumatics
- ILT 175 Computer Fundamentals for Technology Students
- ILT 180 Special Topics
- ILT 196 Programmable Logic Controllers II
- ILT 203 Biomedical Electronics I
- ILT 204 Biomedical Electronics II
- ILT 216 Industrial Robotics
- ILT 228 FCC General Radiotelephone License Prep I L T
- 232 PC Repair Clinical
- ILT 239 Certification Preparation
- ILT 271 Independent Study
- ILT 272 Independent Study
- ILT 273 Independent Study
- ILT 274 Independent Study
- ILT 280 Special Topics
- ILT 280A A+ Certification Preparation
- ILT 280B Network+ Certification Preparation
- ILT 280E EEI Test Preparation
- ILT 294 Biomedical Electronics Clinical I
- ILT 295 Biomedical Electronics Clinical II

NOTE: Two Electronics Electives totaling 6 sem. hours are required.

Student should consult advisor concerning possible electives from other program areas.

\*Students who have completed ENG 130 prior to Spring 2000, and students substituting ENG 102 must take Speech.

\*\*Computer competency skills are embedded within one or more courses required in this curriculum.

\*\*\*Keyboarding skills are essential for the successful completion of English 101.

**Biomedical Equipment Technology 470105 BET  
Advanced Option for AAS Degree or  
Short-Term Certificate**

Available: Shoals Campus  
Advisor: R. Reaves (5201) [rgr@nwscc.edu](mailto:rgr@nwscc.edu)

This advanced option, in addition to the Electronics Technology Associate in Applied Science Degree, will prepare the student for employment in both the medical and industrial settings as biomedical equipment technicians. The increasing complexity of biomedical equipment demands the availability of highly skilled technicians, knowledgeable in the theory of application, underlying physiological principles, and safe application of biomedical equipment. To enter this certificate program, the student must have program advisor approval and have satisfactorily completed the requirements for the Electronics Technology AAS Degree at the College.

	Semester		
	Theory	Lab	Hours
BIO 103 Principles of Biology I	3	2	4
ILT 169 Hydraulics/Pneumatics	3	0	3
ILT 203 Biomedical Electronics I	3	0	3
ILT 204 Biomedical Electronics II	3	0	3
ILT 226 BMET Certification Preparation or Certification Preparation Elect.	3	0	3
ILT 294 Biomedical Electronics Clinical I	0	10	3
ILT 295 Biomedical Electronics Clinical II	0	10	3
<b>Total Semester Credit Hours</b>			<b>22</b>