



Electrical Technology A.A.S.

Curriculum Code: 0134

Effective: Fall 2019 – Summer 2024

Description

Students in this program may select one of three specialties; Construction, Automation and Control, or Power Generation. Construction electricians install electrical wiring and systems in homes, offices, stores or industrial plants. Automation and machine control designers are responsible for designing control systems that operate automated work cells in manufacturing facilities. Industrial electricians work in industry maintaining and troubleshooting power and control circuits on machinery. Power Generation technicians operate and maintain engine or turbine-driven generators in stand-alone or integrated facilities. All three specialties require mechanical aptitude, logical thinking and problem-solving skills. Employment opportunities vary with each specialty.

Additional Information

Students in this program choose one of three pathways: 1) Construction, 2) Automation and Control, or 3) Power Generation to determine the courses to take each semester.

Students who have already completed DCTM 102, HVAC 102, METS 102 or WELD 102 with a grade of 2.0 or higher may substitute one of these courses for ELTE 102. Any of these courses may also be used to fulfill the prerequisite for ELTE 108, ELTE 109, ELTE 111 and ELTE 121.

Students may substitute ELTE 131 where ELTE 129 and ELTE 130 are required.

Contact Information

Contact the Electrical Technology Program at the West Campus Building, Room M127, telephone number 517-483-1570 or Student Services West Campus, West Campus Building, Room M106, telephone number 517-267-5452.

General Education Core Courses, Recommended Choices

(For the full list of options, see [General Education Core](#))

- Communication – *Select one*
COMM 110, Communication in the Workplace, 3 credits / 3 billing hours
COMM 120, Dynamics of Communication, 3 credits / 3 billing hours
COMM 130, Fund of Public Speaking, 3 credits / 3 billing hours
COMM 140, Interpersonal Communication, 3 credits / 3 billing hours

- Global Perspective and Diversity – *Select one*
GEOG 200, World Regional Geography, 4 credits / 4 billing hours
MGMT 234, Diversity in the Workplace, 3 credits / 3 billing hours
SOCL 120, Introduction to Sociology, 4 credits / 4 billing hours

- Math – *Select one*
Program of Study Required Courses will fulfill this requirement.
- Science – *Select one*
BIOL 120, Environmental Science, 4 credits / 6 billing hours
CHEM 151 and CHEM 161, General Chemistry I and Lab I, total 5 credits / 7 billing hours
METM 190, Metallurgy and Heat Treatment, 4 credits / 6 billing hours
PHYS 120, The Art of Physics, 4 credits / 5 billing hours
- Writing – *Select one*
ENGL 121, Composition I, 4 credits / 4 billing hours
ENGL 124, Technical Writing, 3 credits / 3 billing hours
ENGL 127, Business Writing, 3 credits / 3 billing hours

Construction Pathway

Program of Study Required Courses

Course Code	Course Title	Credit / Billing Hours
BLDT 120	Structural Framing	4 / 6
CITN 115	IoT & Automation Fundamentals	5 / 6
DCTM 101	Drafting/Intro to CAD	3 / 4
ELTA 105	Elect. Industry Orientation	.5 / .5
ELTA 160	PLC Overview for Electricians	1 / 2
ELTA 180	Introduction to Fire Alarms	1 / 1
ELTE 102	Industrial/Construction Safety	2 / 3
ELTE 108	Practical Electricity I	2 / 3
ELTE 109	Practical Electricity II	2 / 3
ELTE 111	Intro to Industrial Automation	4 / 6
ELTE 112	Basic Wiring Installation	2 / 3
ELTE 121	Electrical Mathematics	5 / 6
ELTE 123	Motors and Transformers	5 / 7
ELTE 131	Machine Controls I	4 / 5
ELTE 141	National Electrical Code I	4 / 4
ELTE 142	National Electrical Code II	4 / 4
ELTE 145	Electrical Prints for Building	4 / 5
ELTE 150	Electric Motor Maintenance	2 / 3

Total Credit Hours

67.5-70.5 credits / 85.5-89.5 billing hours

Recommended Course Sequence

Semester I	Semester II
Writing Core	DCTM 101
CITN 115	ELTA 105
ELTE 102	ELTE 112
ELTE 108 (First 8 weeks)	ELTE 121
ELTE 109 (Second 8 weeks)	ELTE 131
ELTE 111	ELTE 141

Semester III	Semester IV
BLDT 120	Communication Core
ELTA 160	Global Perspectives and Diversity Core
ELTA 180	Science Core
ELTE 123	ELTE 142
ELTE 145	ELTE 150

Automation and Control Pathway

Program of Study Required Courses

Course Code	Course Title	Credit / Billing Hours
ELTE 102	Industrial/Construction Safety	2 / 3
ELTE 108	Practical Electricity I	2 / 3
ELTE 109	Practical Electricity II	2 / 3
ELTE 111	Intro to Industrial Automation	4 / 6
ELTE 121	Electrical Mathematics	5 / 6
ELTE 122	Industrial Control Electronics	5 / 7
ELTE 123	Motors and Transformers	5 / 7
ELTE 129	Machine Controls I – A	2 / 2.5
ELTE 130	Machine Controls I – B	2 / 2.5
ELTE 132	Control Panel Assembly	2 / 3
ELTE 232	Machine Controls II	4 / 6
ELTE 260	Programmable Controllers I	4 / 6
ELTE 261	Programmable Controllers II	6 / 8
METS 115	Intro to Mechanical Systems	4 / 6
METS 160	Introduction to Robotics	3 / 4.5

Program of Study Required Courses, Limited Choice – *Select one or two for a minimum of 5 credits*

Course Code	Course Title	Credit / Billing Hours
ELTE 141	National Electrical Code I	4 / 4
ELTE 150	Electric Motor Maintenance	2 / 3
ELTE 262	Programmable Controllers III	5 / 8

Total Credit Hours

70-74 credits / 94.5-99.5 billing hours

Recommended Course Sequence

Semester I	Semester II
Writing Core	ELTE 109 (Second 8 weeks)
ELTE 102	ELTE 121
ELTE 108 (First 8 weeks)	ELTE 130 (First 8 weeks)
ELTE 111	ELTE 132
ELTE 129 (Second 8 weeks)	ELTE 232
METS 160	ELTE 260

Semester III	Semester IV
Science Core	Communication Core
ELTE 123	Global Perspectives and Diversity Core
ELTE 261	ELTE 122
METS 115	Limited Choice

Power Generation Pathway

Program of Study Required Courses

Course Code	Course Title	Credit / Billing Hours
ELTE 102	Industrial/Construction Safety	2 / 3
ELTE 108	Practical Electricity I	2 / 3
ELTE 109	Practical Electricity II	2 / 3
ELTE 111	Intro to Industrial Automation	4 / 6
ELTE 121	Electrical Mathematics	5 / 6
ELTE 123	Motors and Transformers	5 / 7
ELTE 131	Machine Controls I	4 / 5
ELTE 132	Control Panel Assembly	2 / 3
ELTE 136	Digital Basics	2 / 3
ELTE 150	Electric Motor Maintenance	2 / 3
ELTE 154	Utility Prints and Diagrams	3 / 3
ELTE 173	Energy Industry Fundamentals I	2 / 2
ELTE 174	Energy Industry Fundamentals II	2 / 2
ELTE 251	Energy Generation & Control I	4 / 5
ELTE 252	Energy Generation & Control II	4 / 5
ELTE 255	Power Instrumentation	4 / 5
ELTE 260	Programmable Controllers I	4 / 6
ELTE 261	Programmable Controllers II	6 / 8

Total Credit Hours

72-75 credits / 92-96 billing hours

Recommended Course Sequence

Semester I	Semester II
Writing Core ELTE 102 ELTE 108 (First 8 weeks) ELTE 109 (Second 8 weeks) ELTE 111 ELTE 173 (First 8 weeks) ELTE 174 (Second 8 weeks)	Communication Core ELTE 121 ELTE 131 ELTE 132 ELTE 150 ELTE 154
Semester III	Semester IV
Global Perspectives and Diversity Core ELTE 123 ELTE 136 ELTE 251 ELTE 260	Science Core ELTE 252 ELTE 255 ELTE 261