



## **Electrical Technology A.A.S.**

Career Community: Electrical and Manufacturing

Curriculum Code: 0134

Effective: Fall 2024 – Summer 2029

### **Description**

Students in this program select one of three subspecialties; 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 subspecialties require mechanical aptitude, logical thinking and problem-solving skills. Employment opportunities vary with each specialty.

### **Milestone**

In addition to the required General Education courses in Math and English, completion of ELTE 110 with a 2.0 or higher is a key component for success in completing this program. Knowledge obtained in these courses is the foundation for learning in other required courses. Students are encouraged to contact their faculty if they need additional assistance with learning the concepts presented in these courses.

### **Additional Information**

- Students in this program choose one subspecialty pathway: 1) Construction, 2) Automation and Control, or 3) Power Generation, to determine the courses to take each semester.
- Upon completion of a subspecialty, any additional subspecialty courses will not count toward the student's enrollment level for determining financial aid eligibility.
- If students have already completed DCTM 102, ELTE 102, HVAC 102, METS 102, or WELD 102 with a grade of 2.0 or higher, that will satisfy the TECH 102 requirement. Any of these courses will fulfill the prerequisite for ELTE 110, ELTE 111 and ELTE 121.

### **Contact Information**

For further information, including career options, course substitutions and waivers, etc., 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 - Applied Degrees, Recommended Courses

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

- English Composition or Applied English – *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
- English Composition (second course)/Communication or Applied 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, Fundamentals Public Speaking, 3 credits / 3 billing hours
- Humanities and Fine Arts or Social Sciences or Applied Social Sciences – *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
- Mathematics or Applied Mathematics – *Select one*  
Program of Study Required Courses will fulfill this requirement.
- Natural Sciences Lab or Applied Science and Technology Lab – *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

## Construction Subspecialty 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 110	Practical Electricity	4 / 6
ELTE 111	Intro to Industrial Automation	4 / 6
ELTE 112	Basic Wiring Installation	2 / 3
ELTE 121	Electrical Mathematics	5 / 6

Course Code	Course Title	Credit/ Billing Hours
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
TECH 102	General Industry Safety	2 / 3

### Additional Credits

After completing the course and credit requirements as noted on this pathway, students who fall short of the 60-credit minimum required for an Associate Degree may select any course(s) needed to reach 60 credits, except those courses noted in number 7 in the [Institutional Requirements for Associate Degrees](#). Students are encouraged to use Degree Works and meet with an Advisor to ensure all requirements are met and for course recommendations.

### Minimum Total Credit Hours

67.5 credits / 85.5 billing hours

### Recommended Course Sequence

Semester I
Gen Ed – English Composition or Applied English
CITN 115
ELTE 110
ELTE 111
TECH 102

Semester II
DCTM 101
ELTA 105
ELTE 112
ELTE 121
ELTE 131
ELTE 141

Semester III
BLDT 120
ELTA 160
ELTA 180
ELTE 123
ELTE 145

Semester IV
Gen Ed – English Composition (second course)/ Communication or Applied Communication
Gen Ed - Humanities and Fine Arts or Social Sciences or Applied Social Sciences
Gen Ed – Natural Sciences Lab or Applied Science and Technology Lab
ELTE 142
ELTE 150

## Automation and Control Subspecialty Pathway

### Program of Study Required Courses

Course Code	Course Title	Credit/ Billing Hours
ELTE 110	Practical Electricity	4 / 6
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 131	Machine Controls I	4 / 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
TECH 102	General Industry Safety	2 / 3

### 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

### Additional Credits

After completing the course and credit requirements as noted on this pathway, students who fall short of the 60-credit minimum required for an Associate Degree may select any course(s) needed to reach 60 credits, except those courses noted in number 7 in the [Institutional Requirements for Associate Degrees](#). Students are encouraged to use Degree Works and meet with an Advisor to ensure all requirements are met and for course recommendations.

### Minimum Total Credit Hours

70 credits / 95.5 billing hours

## Recommended Course Sequence

Semester I
Gen Ed – English Composition or Applied English
ELTE 110 – Milestone course
ELTE 111
METS 160
TECH 102

Semester II
ELTE 121
ELTE 131
ELTE 132
Limited Choice

Semester III
Gen Ed – Natural Sciences Lab or Applied Science and Technology Lab
ELTE 123
ELTE 232
ELTE 260
METS 115

Semester IV
Gen Ed – English Composition (second course)/ Communication or Applied Communication
Gen Ed – Humanities and Fine Arts or Social Sciences or Applied Social Sciences
ELTE 122
ELTE 261
Limited Choice

## Power Generation Subspecialty Pathway

### Program of Study Required Courses

Course Code	Course Title	Credit/ Billing Hours
ELTE 110	Practical Electricity	4 / 6
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

Course Code	Course Title	Credit/ Billing Hours
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
TECH 102	General Industry Safety	2 / 3

### Additional Credits

After completing the course and credit requirements as noted on this pathway, students who fall short of the 60-credit minimum required for an Associate Degree may select any course(s) needed to reach 60 credits, except those courses noted in number 7 in the [Institutional Requirements for Associate Degrees](#). Students are encouraged to use Degree Works and meet with an Advisor to ensure all requirements are met and for course recommendations.

### Minimum Total Credit Hours

72 credits / 92 billing hours

### Recommended Course Sequence

Semester I
Gen Ed – English Composition or Applied English
ELTE 110 – Milestone course
ELTE 111
ELTE 173 (First 8 weeks)
ELTE 174 (Second 8 weeks)
TECH 102

Semester II
Gen Ed – English Composition (second course)/ Communication or Applied Communication
ELTE 121
ELTE 131
ELTE 132
ELTE 150
ELTE 154

Semester III
Gen Ed – Humanities and Fine Arts or Social Sciences or Applied Social Sciences
ELTE 123
ELTE 136

Semester III
ELTE 251
ELTE 260

Semester IV
Gen Ed – Natural Sciences Lab or Applied Science and Technology Lab
ELTE 252
ELTE 255
ELTE 261

*LCC makes every effort to limit revisions to the pathways during their effective timeframe. However, the College reserves the right to update certificate and degree title changes, and make course changes as needed, without prior notice.*