

LANSING COMMUNITY COLLEGE

Computer, Engineering/Manufacturing Industrial Technologies

Curriculum Code: 0134
(Effective Fall 2018 –
Summer 2023)

Electrical Technology A.A.S. Pathways

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.

For More 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.

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.

CONSTRUCTION PATHWAY

Semester I	Course Title	Prerequisites	Credit/Billing Hours
Writing Core Area - <i>Select 1</i>			
ENGL 121	Composition I	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	4 / 4
ENGL 124	Technical Writing	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	3 / 3
ENGL 127	Business Writing	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	3 / 3

Program of Study Requirements

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.

CITN 115	IoT & Automation Fundamentals	Reading Level 4 and Writing Level 4	5 / 6
ELTE 102	Industrial/Construction Safety	Reading Level 3 and Writing Level 2	2 / 3
ELTE 108 <i>(1st 8 weeks)</i>	Practical Electricity I	Minimum 2.0 in (ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102 or concurrently) and Reading Level 3 and Writing Level 2 and (Math Level 3 or minimum 2.0 in MATH 105 or MATH 106)	2 / 3
ELTE 109 <i>(2nd 8 weeks)</i>	Practical Electricity II	Minimum 2.0 in ((ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102 or concurrently) and (ELTE 108 or concurrently)) and Reading Level 3 and Writing Level 2 and (Math Level 3 or minimum 2.0 in MATH 105 or MATH 106)	2 / 3
ELTE 111	Intro to Industrial Automation	Minimum 2.0 in ((ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102 or concurrently) and (ELTE 108 or concurrently)) and Reading Level 3 and Writing Level 2 and (Math Level 3 or minimum 2.0 in MATH 105 or MATH 106)	4 / 6
Credits			18-19 / 24-25

Semester II	Course Title	Prerequisites	Credit/Billing Hours
Math Core Area - <i>Select 1</i>			
ELTE 121	Electrical Mathematics	Minimum 2.0 in (ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102) and (ELTE 108 or ELTE 110) and (minimum 2.0 in MATH 107 or MATH 114 or Math Level 5) and Reading Level 5	5 / 6
Program of Study Requirements			
DCTM 101	Drafting/Intro to CAD	Reading Level 4 and Writing Level 4 and (Math Level 4 or minimum 2.0 in MATH 105 or MATH 106)	3 / 4
ELTA 105	Elect. Industry Orientation	Reading Level 3	.5 / .5
ELTE 112	Basic Wiring Installation	Minimum 2.0 in (ELTE 109 or ELTE 110 or HVAC 110) and Reading Level 3 and Writing Level 2 and Math Level 3	2 / 3
ELTE 131	Machine Controls I	Minimum 2.0 in (ELTE 108 or ELTE 110) and Reading Level 3 and Writing Level 2 and Math Level 3	4 / 5
ELTE 141	National Electrical Code I	Minimum 2.0 in (ELTE 109 or ELTE 110 or HVAC 110) and Reading Level 3 and Writing Level 2 and Math Level 3	4 / 4
Credits			18.5 / 22.5

Semester III	Course Title	Prerequisites	Credit/Billing Hours
Program of Study Requirements			
BLDT 120	Structural Framing	Minimum 2.0 in (DCTM 102 or ELTE 102 or HVAC 102 or METS 102 or WELD 102 or concurrently) and Reading Level 4 and Writing Level 4 and (Math Level 4 or minimum 2.0 in MATH 105 or MATH 106)	4 / 6
ELTA 160	PLC Overview for Electricians	Minimum 2.0 in (ELTE 130 or ELTE 131) and Reading Level 3 and Writing Level 2 and Math Level 3	1 / 2
ELTA 180	Introduction to Fire Alarms	Minimum 2.0 in (ELTE 109 or concurrently) and Reading Level 3 and Writing Level 2 and Math Level 3	1 / 1
ELTE 123	Motors and Transformers	Minimum 2.0 in ELTE 121 and Reading Level 5 and Writing Level 2 and Math Level 5	5 / 7
ELTE 145	Electrical Prints for Building	Minimum 2.0 in ELTE 141 and Reading Level 3 and Writing Level 2 and Math Level 3	4 / 5
Credits			15 / 21
Semester IV	Course Title	Prerequisites	Credit/Billing Hours
Communication Core Area - <i>Select 1</i>			
COMM 110	Oral Comm in the Workplace	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	3 / 3
COMM 120	Dynamics of Communication	Reading Level 5 and Writing Level 6	3 / 3
COMM 130	Fund of Public Speaking	Reading Level 5 and Writing Level 6	3 / 3
COMM 140	Interpersonal Communication	Reading Level 5 and Writing Level 6	3 / 3

Global Perspectives and Diversity Core Area - <i>Select 1</i>			
GEOG 200	World Regional Geography	Reading Level 5 and Writing Level 6 and (Math Level 4 or minimum 2.0 in MATH 105 or minimum 2.0 in MATH 106)	4 / 4
MGMT 234	Diversity in the Workplace	Reading Level 5 and Writing Level 6	3 / 3
SOCL 120	Introduction to Sociology	Reading Level 5 or (Reading Level 4 and ENGL 099 concurrently)	4 / 4
Science Core Area - <i>Select 1</i>			
BIOL 120	Environmental Science	(Reading Level 5 or ENGL 099 concurrently) and Writing Level 6	4 / 6
CHEM 151 and CHEM 161 <i>(Must sign up for lecture and lab)</i>	General Chemistry I	Reading Level 5 and Writing Level 6 and (Math Level 6 or MATH 109 concurrently or MATH 112 concurrently)	5 / 7
METM 190	Metallurgy and Heat Treatment	Reading Level 5 and Writing Level 6 and (Math Level 4 or minimum 2.0 in MATH 105 or MATH 106)	4 / 6
PHYS 120	The Art of Physics	Reading Level 5 and Writing Level 6 and (Math Level 5 or MATH 107 concurrently or MATH 109 concurrently)	4 / 5
Program of Study Requirements			
ELTE 142	National Electrical Code II	Minimum 2.0 in ELTE 141 and Reading Level 3 and Writing Level 2 and Math Level 3	4 / 4
ELTE 150	Electric Motor Maintenance	Minimum 2.0 in (ELTE 109 or ELTE 110 or HVAC 110) and Reading Level 3 and Writing Level 2 and Math Level 3	2 / 3
ELTE 240	Electrical Estimating	Minimum 2.0 in (ELTE 112 and ELTE 145) and Reading Level 3 and Writing Level 2 and Math Level 3	3 / 4
Credits			19-21 / 22-25
Total Credits			70.5-73.5 / 89.5-93.5

AUTOMATION AND CONTROL PATHWAY

Semester I	Course Title	Prerequisites	Credit/Billing Hours
Writing Core Area - <i>Select 1</i>			
ENGL 121	Composition I	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	4 / 4
ENGL 124	Technical Writing	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	3 / 3
ENGL 127	Business Writing	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	3 / 3
Science Core Area - <i>Select 1</i>			
BIOL 120	Environmental Science	(Reading Level 5 or ENGL 099 concurrently) and Writing Level 6	4 / 6
CHEM 151 and CHEM 161 <i>(Must sign up for lecture and lab)</i>	General Chemistry I	Reading Level 5 and Writing Level 6 and (Math Level 6 or MATH 109 concurrently or MATH 112 concurrently)	5 / 7
METM 190	Metallurgy and Heat Treatment	Reading Level 5 and Writing Level 6 and (Math Level 4 or minimum 2.0 in MATH 105 or MATH 106)	4 / 6
PHYS 120	The Art of Physics	Reading Level 5 and Writing Level 6 and (Math Level 5 or MATH 107 concurrently or MATH 109 concurrently)	4 / 5

Program of Study Requirements

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.

ELTE 102	Industrial/Construction Safety	Reading Level 3 and Writing Level 2	2 / 3
ELTE 108 <i>(1st 8 weeks)</i>	Practical Electricity I	Minimum 2.0 in (ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102 or concurrently) and Reading Level 3 and Writing Level 2 and (Math Level 3 or minimum 2.0 in MATH 105 or MATH 106)	2 / 3
ELTE 109 <i>(2nd 8 weeks)</i>	Practical Electricity II	Minimum 2.0 in ((ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102 or concurrently) and (ELTE 108 or concurrently)) and Reading Level 3 and Writing Level 2 and (Math Level 3 or minimum 2.0 in MATH 105 or MATH 106)	2 / 3
ELTE 111	Intro to Industrial Automation	Minimum 2.0 in ((ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102 or concurrently) and (ELTE 108 or concurrently)) and Reading Level 3 and Writing Level 2 and (Math Level 3 or minimum 2.0 in MATH 105 or MATH 106)	4 / 6
Credits			17-19 / 23-26
Semester II	Course Title	Prerequisites	Credit/Billing Hours
Math Core Area - <i>Select 1</i>			
ELTE 121	Electrical Mathematics	Minimum 2.0 in (ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102) and (ELTE 108 or ELTE 110) and (minimum 2.0 in MATH 107 or MATH 114 or Math Level 5) and Reading Level 5	5 / 6

Program of Study Requirements			
ELTE 131	Machine Controls I	Minimum 2.0 in (ELTE 108 or ELTE 110) and Reading Level 3 and Writing Level 2 and Math Level 3	4 / 5
ELTE 132	Control Panel Assembly	Minimum 2.0 in (ELTE 130 or ELTE 131 or concurrently) and Reading Level 3 and Writing Level 2 and Math Level 3	2 / 3
ELTE 141	National Electrical Code I	Minimum 2.0 in (ELTE 109 or ELTE 110 or HVAC 110) and Reading Level 3 and Writing Level 2 and Math Level 3	4 / 4
METS 160	Introduction to Robotics	Minimum 2.0 in (ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102 or concurrently) and Reading Level 3 and Writing Level 2 and (Math Level 3 or minimum 2.0 in MATH 105 or MATH 106)	3 / 4.5
Credits			18 / 22.5
Semester III	Course Title	Prerequisites	Credit/Billing Hours
Program of Study Requirements			
ELTE 123	Motors and Transformers	Minimum 2.0 in ELTE 121 and Reading Level 5 and Writing Level 2 and Math Level 5	5 / 7
ELTE 232	Machine Controls II	Minimum 2.0 in (ELTE 131 or (ELTE 129 and (ELTE 130 or concurrently))) and Reading Level 3 and Writing Level 2 and Math Level 3	4 / 6
ELTE 260	Programmable Controllers I	Minimum 2.0 in (ELTE 131 or (ELTE 129 and (ELTE 130 or concurrently))) and Reading Level 3 and Writing Level 2 and Math Level 3	4 / 6
METS 115	Intro to Mechanical Systems	Reading Level 4 and Writing Level 4 and (Math Level 4 or minimum 2.0 in MATH 105 or MATH 106)	4 / 6
Credits			17 / 25

Semester IV	Course Title	Prerequisites	Credit/Billing Hours
Communication Core Area - <i>Select 1</i>			
COMM 110	Oral Comm in the Workplace	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	3 / 3
COMM 120	Dynamics of Communication	Reading Level 5 and Writing Level 6	3 / 3
COMM 130	Fund of Public Speaking	Reading Level 5 and Writing Level 6	3 / 3
COMM 140	Interpersonal Communication	Reading Level 5 and Writing Level 6	3 / 3
Global Perspectives and Diversity Core Area - <i>Select 1</i>			
GEOG 200	World Regional Geography	Reading Level 5 and Writing Level 6 and (Math Level 4 or minimum 2.0 in MATH 105 or minimum 2.0 in MATH 106)	4 / 4
MGMT 234	Diversity in the Workplace	Reading Level 5 and Writing Level 6	3 / 3
SOCL 120	Introduction to Sociology	Reading Level 5 or (Reading Level 4 and ENGL 099 concurrently)	4 / 4
Program of Study Requirements			
ELTE 122	Industrial Control Electronics	Minimum 2.0 in ((ELTE 108 or ELTE 110) and ELTE 111) and Reading Level 5 and Writing Level 2 and Math Level 5	5 / 7
ELTE 150	Electric Motor Maintenance	Minimum 2.0 in (ELTE 109 or ELTE 110 or HVAC 110) and Reading Level 3 and Writing Level 2 and Math Level 3	2 / 3
ELTE 261	Programmable Controllers II	Minimum 2.0 in (ELTE 260 or ELTA 160) and Reading Level 3 and Writing Level 2 and Math Level 3	6 / 8
Credits			19-20 / 24-25
Total Credits			71-74 / 94.5-98.5

POWER GENERATION PATHWAY

Semester I	Course Title	Prerequisites	Credit/Billing Hours
Writing Core Area - <i>Select 1</i>			
ENGL 121	Composition I	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	4 / 4
ENGL 124	Technical Writing	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	3 / 3
ENGL 127	Business Writing	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	3 / 3

Program of Study Requirements

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.

ELTE 102	Industrial/Construction Safety	Reading Level 3 and Writing Level 2	2 / 3
ELTE 108 <i>(1st 8 weeks)</i>	Practical Electricity I	Minimum 2.0 in (ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102 or concurrently) and Reading Level 3 and Writing Level 2 and (Math Level 3 or minimum 2.0 in MATH 105 or MATH 106)	2 / 3
ELTE 109 <i>(2nd 8 weeks)</i>	Practical Electricity II	Minimum 2.0 in ((ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102 or concurrently) and (ELTE 108 or concurrently)) and Reading Level 3 and Writing Level 2 and (Math Level 3 or minimum 2.0 in MATH 105 or MATH 106)	2 / 3
ELTE 111	Intro to Industrial Automation	Minimum 2.0 in ((ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102 or concurrently) and (ELTE 108 or concurrently)) and Reading Level 3 and Writing Level 2 and (Math Level 3 or minimum 2.0 in MATH 105 or MATH 106)	4 / 6
ELTE 173 <i>(1st 8 weeks)</i>	Energy Industry Fundamentals I	Reading Level 4 and Writing Level 4 and (Math Level 4 or minimum 2.0 in MATH 105 or MATH 106)	2 / 2
ELTE 174 <i>(2nd 8 weeks)</i>	Energy Industry Fundamentals II	Minimum 2.0 in (ELTE 173 or concurrently) and Reading Level 4 and Writing Level 4 and (Math Level 4 or minimum 2.0 in MATH 105 or MATH 106)	2 / 2
Credits			17-18 / 22-23

Semester II	Course Title	Prerequisites	Credit/Billing Hours
Communication Core Area - <i>Select 1</i>			
COMM 110	Oral Comm in the Workplace	Reading Level 5 and Writing Level 6 or (Reading Level 4 and Writing Level 4 and ENGL 099 concurrently)	3 / 3
COMM 120	Dynamics of Communication	Reading Level 5 and Writing Level 6	3 / 3
COMM 130	Fund of Public Speaking	Reading Level 5 and Writing Level 6	3 / 3
COMM 140	Interpersonal Communication	Reading Level 5 and Writing Level 6	3 / 3
Math Core Area - <i>Select 1</i>			
ELTE 121	Electrical Mathematics	Minimum 2.0 in (ELTE 102 or DCTM 102 or HVAC 102 or METS 102 or WELD 102) and (ELTE 108 or ELTE 110) and (minimum 2.0 in MATH 107 or MATH 114 or Math Level 5) and Reading Level 5	5 / 6
Program of Study Requirements			
ELTE 131	Machine Controls I	Minimum 2.0 in (ELTE 108 or ELTE 110) and Reading Level 3 and Writing Level 2 and Math Level 3	4 / 5
ELTE 132	Control Panel Assembly	Minimum 2.0 in (ELTE 130 or ELTE 131 or concurrently) and Reading Level 3 and Writing Level 2 and Math Level 3	2 / 3
ELTE 150	Electric Motor Maintenance	Minimum 2.0 in (ELTE 109 or ELTE 110 or HVAC 110) and Reading Level 3 and Writing Level 2 and Math Level 3	2 / 3
ELTE 154	Utility Prints and Diagrams	Minimum 2.0 in (ELTA 120 or ELTE 121 or concurrently) and Reading Level 3 and Writing Level 2 and (minimum 2.0 in ELTA 106 or Math Level 5)	3 / 3
Credits			19 / 23

Semester III	Course Title	Prerequisites	Credit/Billing Hours
Global Perspectives and Diversity Core Area - <i>Select 1</i>			
GEOG 200	World Regional Geography	Reading Level 5 and Writing Level 6 and (Math Level 4 or minimum 2.0 in MATH 105 or minimum 2.0 in MATH 106)	4 / 4
MGMT 234	Diversity in the Workplace	Reading Level 5 and Writing Level 6	3 / 3
SOCL 120	Introduction to Sociology	Reading Level 5 or (Reading Level 4 and ENGL 099 concurrently)	4 / 4
Program of Study Requirements			
ELTE 123	Motors and Transformers	Minimum 2.0 in ELTE 121 and Reading Level 5 and Writing Level 2 and Math Level 5	5 / 7
ELTE 136	Digital Basics	Minimum 2.0 in (ELTE 130 or ELTE 131) and Reading Level 5 and Writing Level 2 and Math Level 3	2 / 3
ELTE 251	Energy Generation & Control I	Minimum 2.0 in (ELTE 121 and (ELTE 130 or ELTE 131) and (ELTE 123 or concurrently)) and Reading Level 5 and Writing Level 2 and Math Level 5	4 / 5
ELTE 260	Programmable Controllers I	Minimum 2.0 in (ELTE 131 or (ELTE 129 and (ELTE 130 or concurrently))) and Reading Level 3 and Writing Level 2 and Math Level 3	4 / 6
Credits			18-19 / 24-25

Semester IV	Course Title	Prerequisites	Credit/Billing Hours
Science Core Area - <i>Select 1</i>			
BIOL 120	Environmental Science	(Reading Level 5 or ENGL 099 concurrently) and Writing Level 6	4 / 6
CHEM 151 and CHEM 161 <i>(Must sign up for lecture and lab)</i>	General Chemistry I	Reading Level 5 and Writing Level 6 and (Math Level 6 or MATH 109 concurrently or MATH 112 concurrently)	5 / 7
METM 190	Metallurgy and Heat Treatment	Reading Level 5 and Writing Level 6 and (Math Level 4 or minimum 2.0 in MATH 105 or MATH 106)	4 / 6
PHYS 120	The Art of Physics	Reading Level 5 and Writing Level 6 and (Math Level 5 or MATH 107 concurrently or MATH 109 concurrently)	4 / 5
Program of Study Requirements			
ELTE 252	Energy Generation & Control II	Minimum 2.0 in (ELTE 123 and ELTE 251) and Reading Level 5 and Writing Level 2 and Math Level 5	4 / 5
ELTE 255	Power Instrumentation	Minimum 2.0 in (ELTE 251 and ELTE 260) and Reading Level 5 and Writing Level 2 and Math Level 5	4 / 5
ELTE 261	Programmable Controllers II	Minimum 2.0 in (ELTE 260 or ELTA 160) and Reading Level 3 and Writing Level 2 and Math Level 3	6 / 8
Credits			18-19 / 23-25
Total Credits			72-75 / 92-96