

LANSING COMMUNITY COLLEGE

CURRICULUM GUIDE

Electrical Technology
Associate in Applied Science Degree

Curriculum Code: 0134 (Effective Fall 2015 – Summer 2020)

Students in this program may select one of four specialties; construction, machine control and maintenance, utility/lineworker, or power generation. Construction electricians install electrical wiring and systems in homes, offices, stores or industrial plants. Machine control designers are responsible for designing control circuits which operate machinery in plants. Maintenance electricians work in industry maintaining and troubleshooting power and control circuits on machinery. Lineworkers install and service power lines and power line connections between electrical power plants and the customers using the electricity. These lines may be above ground on utility poles or underground. Power Generation technicians operate and maintain engine or turbine-driven generators in stand-alone or integrated facilities. All four specialties require mechanical aptitude, logical thinking and problem-solving skills. The lineworker specialization requires the ability to work at heights and underground as well as departmental approval for certain courses (see Note 3). Employment opportunities vary with each specialty.

PREREQUISITES

Students should see [Course Descriptions](#) for course prerequisite information. See [Academic Assessment and Placement Testing for Student Success](#) for skills assessment and advising information.

INFORMATION

Contact the Utility & Energy Systems Program, West Campus Building, Room M127, telephone number (517) 483-1570 (Website: www.lcc.edu/utility/electrical/) or Student Services West Campus, West Campus Building, Room M106, telephone number (517) 267-5452.

REQUIREMENTS

TOTAL: 39 CREDITS

CODE	TITLE	CREDIT HOURS
ELTE 102	Industrial/Construction Safety (See Note 1)	2
ELTE 110	Practical Electricity (See Note 1)	3
ELTE 111	Intro to Industrial Automation	4
ELTE 112	Basic Wiring Installation	2
ELTE 121	Electrical Mathematics (See Note 1)	5
ELTE 123	Motors and Transformers	5
ELTE 131	Machine Controls I	4
ELTE 141	National Electrical Code I	4
ELTE 145	Electrical Prints for Building	4
ELTE 150	Electric Motor Maintenance	2
ELTE 260	Programmable Controllers I	4

LIMITED CHOICE REQUIREMENTS**TOTAL: 31–39 CREDITS**Complete the indicated number of credits from **EACH CHOICE** listed below.**CHOICE 1: [General Education Core Areas](#)****13–17 Credits**

(Click the link above for information on how to fulfill these requirements. Core area proficiency exams, where appropriate, are available for each core area.)

Communication Core Area	3–4
Global Perspectives and Diversity Core Area	3–4
Mathematics Core Area (See Note 2)	0
Science Core Area	4–5
Writing Core Area	3–4

CHOICE 2: Electrical Specialization (Choose one Subchoice)**18–22 Credits****Subchoice 2A: Construction Specialization (18 credits)**

BLDT 120	Structural Framing	4
DCTM 101	Drafting/Intro to CAD	3
ELTE 142	National Electrical Code II	4
ELTE 143	National Electrical Code III	4
ELTE 240	Electrical Estimating	3

Subchoice 2B: Machine Control and Maintenance Specialization (21 credits)

ELTE 122	Industrial Control Electronics	5
ELTE 132	Control Panel Assembly	2
ELTE 232	Machine Controls II	4
ELTE 261	Programmable Controllers II	6
METS 130	Industrial Hydraulics (See Note 1)	4

Subchoice 2C: Utility/Lineworker Specialization (See Note 3) (22 Credits)

ELTE 270	Lineworker Orientation (See Notes 4 and 5)	1
ELTE 272	Electric Basic Line Climbing (See notes 4 and 6)	4
ELTE 274	Ground/Utility Worker (See Notes 4 and 6)	5
ELTE 276	Energized Secondary Worker (See Notes 4 and 6)	5
METS 140	Rigging (See Note 1)	3
MGMT 201	Time Management for Business	1
PFFT 180	Lineworker Fitness A (See Note 5)	1
PFFT 180	Lineworker Fitness C (See Note 6)	2

Subchoice 2D: Power Generation Specialization (20 Credits)

ELTE 132	Control Panel Assembly	2
ELTE 251	Energy Generation & Control I	4
ELTE 252	Energy Generation & Control II	4
ELTE 255	Power Instrumentation	4
ELTE 261	Programmable Controllers II	6

MINIMUM TOTAL**70**

NOTES:

1. 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 110, ELTE 121, METS 130 and METS 140.
2. Students completing "REQUIREMENTS" have fulfilled the requirements for this Core area.
3. To be considered officially enrolled in the Utility/Lineworker Specialization, students must have an application on file and been given department approval. Interested students should contact the Utility and Energy Systems program at Lansing Community College for information before pursuing this option.
4. ELTE 270, ELTE 272, ELTE 274 and ELTE 276 are typically offered at the Consumers Energy Training Facility in Marshall, Michigan. Students will need to make their own transportation arrangements.
5. ELTE 270 is a one week course that typically meets each year in August before Fall Semester starts. Enrollment is restricted to students who have received department approval and have completed PFFT 180–Lineworker Fitness A with a 3.0 grade. This course is graded on a Pass/Fail basis and students must receive a passing grade in order to continue with the Utility/Lineworker Specialization.
6. ELTE 272, ELTE 274 and ELTE 276 are scheduled in a nine week block typically offered at the end of Spring Semester each year during May, June and July. (The nine week block may be scheduled at different times of the year depending on training facility availability.) Enrollment is restricted to students who have received department approval and who have completed all other courses on the curriculum with a minimum 2.0 grade except for both PFFT 180 sections which must be passed with a minimum 3.0 grade. Students must receive a 3.5 in ELTE 272, ELTE 274 and ELTE 276 in order to successfully complete the program.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor for help with adjustments.

Subchoice 2A: Construction Specialty

I	II	III	IV
ELTE 102	ELTE 112	DCTM 101	BLDT 120
ELTE 110	ELTE 121	ELTE 123	ELTE 143
ELTE 111	ELTE 131	ELTE 142	ELTE 240
Lim.Ch.1	ELTE 141	ELTE 145	Lim.Ch.1
Lim.Ch.1	ELTE 150	ELTE 260	Lim.Ch.1

Subchoice 2B: Control and Maintenance Specialty

I	II	III	IV
ELTE 102	ELTE 112	ELTE 123	ELTE 122
ELTE 110	ELTE 121	ELTE 145	ELTE 132
ELTE 111	ELTE 131	ELTE 232	ELTE 261
Lim.Ch.1	ELTE 141	ELTE 260	METS 130
Lim.Ch.1	ELTE 150	Lim.Ch.1	Lim.Ch.1

Subchoice 2C: Utility/Lineworker Specialty

I	II	III (Summer)	IV
ELTE 102	ELTE 121	ELTE 112	ELTE 123
ELTE 110	ELTE 131	MGMT 201	ELTE 145
ELTE 111	ELTE 141	PFFT 180	ELTE 260
Lim.Ch.1	Lim.Ch.1		ELTE 270

V**VI (Summer)**

ELTE 150	ELTE 272
METS 140	ELTE 274
PFFT 180	ELTE 276
Lim.Ch.1	
Lim.Ch.1	

Subchoice 2D: Power Generation Specialty

I	II	III (Summer)	IV
ELTE 102	ELTE 121	ELTE 112	ELTE 123
ELTE 110	ELTE 131	Lim.Ch.1	ELTE 145
ELTE 111	ELTE 141		ELTE 251
Lim.Ch.1	ELTE 150		ELTE 260
	Lim.Ch.1		

V

ELTE 132
ELTE 252
ELTE 255
ELTE 261
Lim.Ch.1