



**Electronics Engineering Technology**  
**Credential: Associate in Applied Science Degree**  
**in Electronics Engineering Technology**  
**A4020000**

This curriculum prepares individuals to become technicians who design, build, install, test, troubleshoot, repair, and modify developmental and production electronic components, equipment, and systems such as industrial/computer controls, manufacturing systems, telecommunication systems, and power electronic systems.

A broad-based core of courses, including basic electricity, solid-state fundamentals, digital concepts and microprocessors ensures the student will master the competencies necessary to perform entry-level tasks. Emphasis is placed on developing the student's ability to think, analyze, and troubleshoot.

Graduates should qualify for employment as engineering assistants or electronic technicians with job titles including electronic engineering associate, electronic engineering technician, field service technician, maintenance technician, electronic tester, electronic systems integrator, bench technician, and production control technician.

**Program Length:** 5 semesters

**Career Pathway Options:** Associate in Applied Science Degree in Electronics Engineering Technology

**Program Sites:**

Lee Campus - Day Program

**Course Requirements for Electronics Engineering Technology**

<b>A. <u>General Education Courses</u> (16 SHC)</b>		<b>C-L-SHC</b>
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
ENG 114	Prof. Research & Reporting	3-0-3
	Humanities Elective	3-0-3
	Social Science Elective	3-0-3
MAT 121	Algebra/Trigonometry I	2-2-3
<b>B. <u>Required Major Core Courses</u> (28 SHC)</b>		
ELC 131	DC/AC Circuit Analysis	4-3-5
ELN 131	Electronic Devices	3-3-4
ELN 132	Linear IC Applications	3-3-4
ELN 133	Digital Electronics	3-3-4
ELN 232	Intro. to Microprocessors	3-3-4
MAT 122	Algebra/Trigonometry II	2-2-3
PHY 131	Physics - Mechanics	3-2-4
<b>C. <u>Other Major Hours Required for Graduation</u> (31 SHC)</b>		
CIS 111	Basic PC Literacy	1-2-2
	OR	
CIS 110	Intro to Computers	2-2-3
EGR 131	Intro. to Electronics Tech.	1-2-2
ELC 127	Software for Technicians	1-2-2
ELN 233	Microprocessor Systems	3-3-4
ELN 234	Communications Systems	3-3-4

ELN 247	Electronic Appl. Project	1-3-2
ELN 275	Troubleshooting	1-2-2
ISC 221	Statistical Quality Control	3-0-3
PHY 133	Physics-Sound & Light	3-2-4
	Major Elective	6

**Major Elective Course Listing (Select 6 SHC)**

ATR 280	Robotic Fundamentals	3-2-4
CIS 173	Network Theory	2-2-3
CIS 174	Network Sys. Manager I	2-2-3
CIS 215	Hardware Install. & Mtnce	2-3-3
CIS 246	Operating Systems-Unix	2-3-3
CSC 134	C++ Programming	2-3-3
CSC 143	Object Oriented Progr.	2-3-3
DFT 151	CAD I	2-3-3
ELC 128	Intro to PLC's	2-3-3
ELC 213	Instrumentation	3-2-4
ELN 231	Industrial Controls	2-3-3
ELN 236	Fiber Optics and Lasers	3-2-4
ELN 237	Local Area Networks	2-3-3

Total Semester Hours Credit Required for Graduation: 75

**Semester Curriculum for Electronics Engineering Technology Degree**

<b>1st Semester (Fall)</b>		<b>C-L-SHC</b>
CIS 111	Basic PC Literacy	1-2-2
	or	
CIS 110	Intro to Computers	2-2-3
EGR 131	Intro to Electronics Tech.	1-2-2
ELC 131	DC/AC Circuit Analysis	4-3-5
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
MAT 121	Algebra/Trigonometry I	2-2-3
		11-11-16
<b>2nd Semester (Spring)</b>		
ELC 127	Software for Technicians	1-2-2
ELN 131	Electronic Devices	3-3-4
ELN 133	Digital Electronics	3-3-4
MAT 122	Algebra/Trigonometry II	2-2-3
PHY 131	Physics - Mechanics	3-2-4
		12-12-17
<b>3rd Semester (Summer)</b>		
ELN 132	Linear IC Applications	3-3-4
PHY 133	Physics-Sound & Light	3-2-4
		6-5-8
<b>4th Semester (Fall)</b>		
ELN 232	Intro to Microprocessors	3-3-4
ELN 234	Communications Systems	3-3-4
ENG 114	Prof Research & Reporting	3-0-3
	Social Science Elective	3-0-3
	Major Elective	3
		14-9-17
<b>5th Semester (Spring)</b>		
ELN 233	Microprocessor Systems	3-3-4
ELN 247	Electronic App. Project	1-3-2
ELN 275	Troubleshooting	1-2-2
	Humanities Elective	3-0-3
ISC 221	Statistical Quality Control	3-0-3
	Major Elective	3
		11-8-17
<b>Total Semester Hours Credit:</b> 75		

<b>CIS 110 Intro to Computers</b>	2-2-3	<b>ELN 133 Digital Electronics</b>	3-3-4
<p>This course provides an introduction to computers and computing. Topics include the impact of computers on society, ethical issues, and hardware/software applications, including spreadsheets, databases, word processors, graphics, the Internet, and operating systems. Upon completion, students should be able to demonstrate an understanding of the role and function of computers and use the computer to solve problems. <i>This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.</i></p>		<p>This course covers combinational and sequential logic circuits. Topics include number systems, Boolean algebra, logic families, MSI and LSI circuits, AC/DC converters, and other related topics. Upon completion, students should be able to construct, analyze, verify, and troubleshoot digital circuits using appropriate techniques and test equipment.</p>	
<b>CIS 111 Basic PC Literacy</b>	1-2-2	<b>ELN 232 Intro to Microprocessors</b>	3-3-4
<p>This course provides a brief overview of computer concepts. Emphasis is placed on the use of personal computers and software applications for personal and workplace use. Upon completion, students should be able to demonstrate basic personal computer skills.</p>		<p><i>Prerequisites: ELN 133</i> This course introduces microprocessor architecture and microcomputer systems including memory and input/output interfacing. Topics include assembly language programming, bus architecture, bus cycle types, I/O systems, memory systems, interrupts, and other related topics. Upon completion, students should be able to interpret, analyze, verify, and troubleshoot fundamental microprocessor circuits and programs using appropriate techniques and test equipment.</p>	
<b>EGR 131 Intro To Electronics Tech</b>	1-2-2	<b>ELN 233 Microprocessor Systems</b>	3-3-4
<p>This course introduces the basic skills required for electrical/electronics technicians. Topics include soldering/desoldering, safety practices, test equipment, scientific calculators, AWG wire table, the resistor color code, electronic devices, problem solving, and use of hand tools. Upon completion, students should be able to solder/desolder, operate test equipment, apply problem-solving techniques, and use a scientific calculator.</p>		<p><i>Prerequisites: ELN 232</i> This course covers the application and design of microprocessor control systems. Topics include control and interfacing of systems using AD/DA, serial/parallel I/O, communication protocols, and other related applications. Upon completion, students should be able to design, construct, program, verify, analyze, and troubleshoot fundamental microprocessor interface and control circuits using related equipment.</p>	
<b>ELC 127 Software for Technicians</b>	1-2-2	<b>ELN 234 Communication Systems</b>	3-3-4
<p>This course introduces computer software which can be used to solve electrical/electronics problems. Topics include electrical/electronics calculations, applications, and controls. Upon completion, students should be able to utilize a personal computer for electrical/electronics- related applications.</p>		<p><i>Prerequisites: ELN 132 or ELN 140</i> This course introduces the fundamentals of electronic communication systems. Topics include the frequency spectrum, electrical noise, modulation techniques, characteristics of transmitters and receivers, and digital communications. Upon completion, students should be able to interpret analog and digital communication circuit diagrams, analyze transmitter and receiver circuits, and use appropriate communication test equipment.</p>	
<b>ELC 131 DC/AC Circuit Analysis</b>	4-3-5	<b>ELN 246 Cert Elect Tech Prep</b>	3-0-3
<p><i>Corequisites: MAT 121</i> This course introduces DC and AC electricity with an emphasis on circuit analysis, measurements, and operation of test equipment. Topics include DC and AC principles, circuit analysis laws and theorems, components, test equipment operation, circuit simulation software, and other related topics. Upon completion, students should be able to interpret circuit schematics; design, construct, verify, and analyze DC/AC circuits; and properly use test equipment.</p>		<p>This course covers electronic principles, theories, and concepts. Emphasis is placed on those items covered in the Certified Electronic Technician examination. Upon completion, students should be able to demonstrate competence in electronics and be prepared for the Certified Electronic Technician examination.</p>	
<b>ELN 131 Electronic Devices</b>	3-3-4	<b>ELN 247 Electronic App Project</b>	1-3-2
<p><i>Prerequisites: ELC 112, ELC 131 or ELC 140</i> This course includes semiconductor-based devices such as diodes, bipolar transistors, FETs, thermistors, and related components. Emphasis is placed on analysis, selection, biasing, and applications in power supplies, small signal amplifiers, and switching and control circuits. Upon completion, students should be able to construct, analyze, verify, and troubleshoot discrete component circuits using appropriate techniques and test equipment.</p>		<p><i>Prerequisites: ELN 131 or ELN 140</i> This course provides a structured approach to an application-oriented electronics project. Emphasis is placed on selecting, planning, implementing, testing, and presenting an application-oriented project. Upon completion, students should be able to present and demonstrate an electronics application-oriented project.</p>	
<b>ELN 132 Linear IC Applications</b>	3-3-4	<b>ELN 275 Troubleshooting</b>	1-2-2
<p><i>Prerequisites: ELN 131 or BMT 113</i> This course introduces the characteristics and applications of linear integrated circuits. Topics include op-amp circuits, differential amplifiers, instrumentation amplifiers, waveform generators, active filters, PLLs, and IC voltage regulators. Upon completion, students should be able to construct, analyze, verify, and troubleshoot linear integrated circuits using appropriate techniques and test equipment.</p>		<p><i>Prerequisites: ELN 133 and either ELN 132 or ELN 140</i> This course covers techniques of analyzing and repairing failures in electronic equipment. Topics include safety, signal tracing, use of service manuals, and specific troubleshooting methods for analog, digital, and other electronics-based circuits and systems. Upon completion, students should be able to logically diagnose and isolate faults and perform necessary repairs to meet manufacturers' specifications.</p>	

**ENG 111 Expository Writing** 3-0-3

*Prerequisites: 80 CPT reading score and 86 CPT writing score, or 18 ACT score, or 450 verbal SAT score, or satisfactory completion of developmental requirements.*

*Corequisites: ENG 111A*

This course is the required first course in a series of two designed to develop the ability to produce clear expository prose. Emphasis is placed on the writing process including audience analysis, topic selection, thesis support and development, editing, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in English composition.*

**ENG 111A Expository Writing Lab** 0-2-1

*Prerequisites: 80 CPT reading and 86 CPT writing score, or 18 ACT score, or 450 verbal SAT score, or satisfactory completion of developmental requirements.*

*Corequisites: ENG 111*

This writing laboratory is designed to apply the skills introduced in ENG 111. Emphasis is placed on the editing and revision components of the writing process. Upon completion, students should be able to apply those skills in the production of final drafts in ENG 111. *The computer is used as a writing and design tool for this course.*

**ENG 114 Prof. Research & Reporting** 3-0-3

*Prerequisites: ENG 111*

This course, the second in a series of two, is designed to teach professional communication skills. Emphasis is placed on research, listening, critical reading and thinking, analysis, interpretation, and design used in oral and written presentations. Upon completion, students should be able to work individually and collaboratively to produce well-designed business and professional written and oral presentations. The computer is used as a writing and design tool for this course. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in English composition.*

**ISC 221 Statistical Qual Control** 3-0-3

*Prerequisites: Completion of curriculum mathematics requirement*

This course covers the principles and techniques of statistical process control for the improvement of productivity. Emphasis is placed on basic statistics for quality control, organization and procedures for efficient quality control including inspections, process control, and tests of significance. Upon completion, students should be able to apply statistical principles and techniques to enhance production.

**MAT 121 Algebra/Trigonometry I** 2-2-3

*Prerequisites: CPT arithmetic score of 57 and algebra score of 38, or ACT score of 18, or SAT mathematics score of 450, or successful completion of developmental requirements*

This course provides an integrated approach to technology and the skills required to manipulate, display, and interpret mathematical functions and formulas used in problem solving. Topics include simplification, evaluation, and solving of algebraic and radical functions; complex numbers; right triangle trigonometry; systems of equations; and the use of technology. Upon completion, students should be able to demonstrate an understanding of the use of mathematics and technology to solve problems and analyze and communicate results.

**MAT 122 Algebra/Trigonometry II** 2-2-3

*Prerequisites: MAT 121*

This course extends the concepts covered in MAT 121 to include additional topics in algebra, function analysis, and trigonometry. Topics include exponential and logarithmic functions, translation and scaling of functions, Sine Law, Cosine Law, vectors and statistics. Upon completion, students should be able to demonstrate an understanding of the use of technology to solve problems and to analyze and communicate results.

**PHY 131 Physics-Mechanics** 3-2-4

*Prerequisites: MAT 121 or MAT 161*

This algebra/trigonometry-based course introduces fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, vectors, motion, forces, Newton's laws of motion, work, energy, power, momentum, and properties of matter. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields.

**PHY 133 Physics-Sound & Light** 3-2-4

*Prerequisites: PHY 131*

This algebra/trigonometry-based course is a study of fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, wave motion, sound, light, and modern physics. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields.