



Electronic Engineering Technology (EET) Program

The Electronic Engineering Technology (EET) program provides students with the technical knowledge and practical experience necessary for an exciting career in electronics, automation and controls, computer servicing/networking, medical equipment servicing, engineering support or for further education.

Designed by electronic engineering industry leaders, the program provides a comprehensive, hands-on, career-oriented curriculum. Students will obtain a solid education in electronic engineering fundamentals, automation/controls and computer servicing/networking. Full time students can obtain an electronic certificate in two semesters, and a diploma or an Applied Associate Science degree in two years. Financial assistance is available for those who qualify and there are several EET program specific scholarships available.

For students who want to continue their education and obtain their four year degree, the Electronic Engineering Technology (EET) program, has articulation agreements with Minnesota State University (Mankato), Minnesota State University (Moorhead), Bemidji State University, and University of Minnesota Crookston. Students can complete most of these four year degrees through online courses

Start Dates

Fall Semester August

Electronic Controls Technician

Tom Reid

Phone (763) 576-4905

E-mail treid@anokatech.edu

Program Advisors

Computer Servicing/Networking Technician A+ Personal Computer Support Technician

Daniel Truchon

Phone (763) 576-4904

E-mail dtruchon@anokatech.edu

Electronic Instructor

Curt Barnier

Phone (763) 576-4926

E-mail Cbarnier@anokatech.edu

Credit requirements

Electronic Certificate I	25 credits
Electronic Certificate II	14 credits
A+ Personal Computer Support Technician, Diploma	34 credits
Electronic Technician, Diploma	69 credits
Computer Servicing/Networking Technician, Diploma	69 credits
Special Electronics Technician, Diploma	69 credits
Electronic Controls Technician-AAS, Emphasis	72 credits
Computer Servicing/Networking Technician-AAS, Emphasis	72 credits
Special Electronics Technician-AAS, Emphasis	72 credits

This information is available in alternative formats by calling (763) 576-4700. TTY users can call Minnesota Relay at (800) 627-3529. Anoka Technical College • (763) 576-4700 • 1355 West Highway 10, Anoka, MN 55303 • A member of the Minnesota State Colleges and Universities System • Anoka Technical College is an equal opportunity, affirmative action employer and educator.

Electronic Certificate I

The Electronics Department offers two Electronics Certificate programs. Both certificate programs have credit transferability to the two-year diploma and the Associate of Applied Science Degree programs. Students may enroll full time or part-time in the regularly scheduled day program or in the late afternoon and evening classes, when offered.

The Electronic Certificate I and Electronic Certificate II focus on the fundamental electronic engineering skills. A person who obtains these two Certificates would have the necessary skills to work in an entry level position.

General Education

5 Credits

MATH1400* Algebra and Trigonometry

Credits

5

*MATH1700 Pre-Calculus, approved MnTC Goal Area four, may be substituted for MATH 1400 5 credits

* **IMPORTANT** ACCUPLACER Test Requirement: ACCUPLACER testing in math, reading and writing. Any needed developmental courses must be completed before receiving a diploma or an A.A.S. award.

Technical Education

20 Credits

ETEC1101 DC Electrical Theory/Lab

5

ETEC1111 AC Electrical Theory/Lab

5

ETEC1201 Solid State Electronic Devices

5

ETEC1250 Digital I

3

ETEC1300 Op-Amps and Linear Integrated Circuits

2

Electronic Certificate II

(Electronics Technician Certificate I and 14 additional credits)

Prerequisite: Electronic(s) Technician - Certificate I

Technical Education

14 Credits

*ETEC1240 Introduction to Computers for Technical Users

3

ETEC2147 Data Acquisition and Signal Conditioning

4

ETEC2070 Programmable Logic Controllers (PLCs)

2

ETEC2161 Automation and Industrial Controls

5

*ETEC2137 Computer Controlled Systems Integrating LabVIEW, 4 credits, may be substituted for ETEC1240.

A+ Personal Computer Support Technician, Diploma

This diploma program is a solid education in electronic engineering technology fundamentals and prepares students for the A+ certification exam. Students completing the program will gain skills in troubleshooting personal computers (PCs) and electronic systems.

General Education

Credits

5 Credits

*MATH1400 Algebra and Trigonometry

5 credits

*MATH1700 Pre-Calculus, approved MnTC Goal Area four, may be substituted for MATH 1400, 5 credits

IMPORTANT ACCUPLACER Test Requirement: ACCUPLACER testing in math, reading and writing. Any needed developmental courses must be completed before receiving a diploma or an A.A.S. award.

Technical Education

Credits

29 Credits

ETEC1101 DC Electrical Theory/Lab

5

ETEC1111 AC Electrical Theory/Lab

5

ETEC1201 Solid State Electronic Devices

5

ETEC1240* Introduction to Computers for Technical Users

3

ETEC1250 Digital I

3

ETEC1300 Op-Amps and Linear Integrated Circuits

2

ETEC2251 A+ Certification and Computer Troubleshooting

6

*ETEC2137 Computer Controlled Systems Integrating LabVIEW, 4 credits, may be substituted for ETEC1240.

Electronic Controls Technician, Diploma

This 69-credit curriculum prepares students for a wide range of employment opportunities as well as for continued academic study. Students will learn how to integrate software design with hardware design and how to analyze and implement feedback control systems (automation). Students will have a thorough understanding of how computers and machines communicate. Students will also have a good understanding of system level troubleshooting.

General Education

12 Credits of Minnesota Transfer Curriculum

Students are required to take 12 credits in courses from the Minnesota Transfer Curriculum. One course must be MATH 1400 – Algebra and Trigonometry. The remainder of the general education courses must be from two or more additional Minnesota Transfer Curriculum goal areas. A list of the Minnesota Transfer Curriculum (MNTC) courses and the corresponding goal areas is on the Anoka Technical College Web site at http://www.anokatech.edu/current_students/transfer/

*MATH1400 Algebra and Trigonometry. Note, this is not a MNTC course 5 credits

*MATH1700 Pre-Calculus, approved MNTC goal Area four, may be substituted for MATH 1400 5 credits

IMPORTANT ACCUPLACER Test Requirement: ACCUPLACER testing in math, reading and writing. Any needed developmental courses must be completed before receiving a diploma or an A.A.S. award.

Electronic Technician Core

Credits

37 Credits

ETEC1101	DC Electrical Theory/Lab	5
ETEC1111	AC Electrical Theory/Lab	5
ETEC1201	Solid State Electronic Devices	5
ETEC1240	Introduction to Computers for Technical Users	3
ETEC1250	Digital I	3
ETEC1270	Technical Documentation Lab	2
ETEC1300	Op-Amps and Linear integrated Circuits	2
ETEC2010	Basic Wireless Communications	2
ETEC2147	Data Acquisition and Signal Conditioning	4
ETEC2070	Programmable Logic Controllers (PLCs)	2
ETEC2137	Computer Controlled Systems Integrating LabVIEW	4

Electronic Controls Technician Emphasis

20 Credits

ETEC2275	A+ Computer Troubleshooting & Networking for Automation	4
ETEC2142	C++ Programming Incorporating Microcontrollers	4
ETEC2161	Automation and Industrial Controls	5
ETEC2171	Electronic(s) Capstone Project	5
MACH1090	Machining Fundamentals	2

Special Electronic Technical Emphasis

20 Credits

The Special Electronic Technical Emphasis is an individualized degree program that requires pre-approval from the electronic engineering department chairperson. See your program advisor for more information.

Computer Servicing/Networking Technician, Diploma

In this program students will gain core electronic engineering technology skills, along with a broad background in computer support and networking. After completing the program, students have an advantage able to apply computer and networking skills in an industrial automation environment. They will also have the skills to begin a career as a computer and networking professional supporting industrial, business, or consumer oriented employers.

General Education

12 Credits of Minnesota Transfer Curriculum

Students are required to take 12 credits in courses from the Minnesota Transfer Curriculum. One course must be MATH 1400 – Algebra and Trigonometry. The remainder of general education courses must be from two or more additional Minnesota Transfer Curriculum goal areas. A list of the Minnesota Transfer Curriculum (MNTC) courses and the corresponding goal areas is on the Anoka Technical College Web site at http://www.anokatech.edu/current_students/transfer/

*MATH1400 Algebra and Trigonometry. Note, this is not a MNTC course 5 credits

*MATH1700 Pre-Calculus, approved MNTC goal Area four, may be substituted for MATH 1400 5 credits

IMPORTANT ACCUPLACER Test Requirement: ACCUPLACER testing in math, reading and writing. Any needed developmental courses must be completed before receiving a diploma or an A.A.S. award.

Electronic Technician Core

Credits

37 Credits

ETEC1101	DC Electrical Theory/Lab	5
ETEC1111	AC Electrical Theory/Lab	5
ETEC1201	Solid State Electronic Devices	5
ETEC1240	Introduction to Computers for Technical Users	3
ETEC1250	Digital I	3
ETEC1270	Technical Documentation Lab	2
ETEC1300	Op-Amps and Linear integrated Circuits	2
ETEC2010	Basic Wireless Communications	2
ETEC2147	Data Acquisition and Signal Conditioning	4
ETEC2070	Programmable Logic Controllers (PLCs)	2
ETEC2137	Computer Controlled Systems Integrating LabVIEW	4

Computer Servicing/Networking Technician Emphasis

20 Credits

ETEC2181	Automation and Control Concepts	4
ETEC2251	A+ Certification and Computer Troubleshooting	6
ETEC2260	Advanced Wireless Communications	3
ETEC2281	Advanced Network Setup and Troubleshooting	7

Special Electronic Technical Emphasis

20 Credits

The Special Electronic Technical Emphasis is an individualized degree program that requires pre-approval from the electronic engineering department chairperson. See your program advisor for more information.

Electronic Controls Technician Emphasis

Associate of Applied Science

In the 72-credit Electronic Controls Technician program, students will learn how to integrate software design with hardware design and how to analyze and implement feedback control systems (automation). Students will have a thorough understanding of how computers and machines communicate as well as system level troubleshooting, modular machine design, and a solid education in electronic engineering technology fundamentals.

Students will also learn about:

- LabVIEW programming applications
- Digital control circuits
- Analog control circuits
- Computer control systems
- Motor control
- Microcontrollers
- Advanced troubleshooting
- Project management
- Soft skills – customer service, team work
- Visual Basic programming applications
- C++ programming applications
- Programmable Logic Controllers (PLCs)

General Education

18 Credits of Minnesota Transfer Curriculum

Students are required to take 18 credits from the MN Transfer Curriculum courses. One course must be a Minnesota Transferable *math course, goal area four. The remainder of general education courses must be from two or more additional MN Transfer Curriculum goal areas. A list of the Minnesota Transfer Curriculum (MNTC) courses and the corresponding goal areas is on the Anoka Technical College Web site at http://www.anokatech.edu/current_students/transfer/

*MATH1700 Pre-Calculus, approved MNTC goal area four

5 credits

IMPORTANT ACCUPLACER Test Requirement: ACCUPLACER testing in math, reading and writing. Any needed developmental courses must be completed before receiving a diploma or an A.A.S. award.

Note: MATH 1500 does **NOT** satisfy the required Math for the program, but it can be a part of the remaining General Education course requirement. See your program advisor for additional information.

Electronic Technician Core

Credits

34 Credits

ETEC1101	DC Electrical Theory/Lab	5
ETEC1111	AC Electrical Theory/Lab	5
ETEC1201	Solid State Electronic Devices	5
ETEC1250	Digital I	3
ETEC1270	Technical Documentation Lab	2
ETEC1300	Op-Amps and Linear Integrated Circuits	2
ETEC2010	Basic Wireless Communications	2
ETEC2147	Data Acquisition and Signal Conditioning	4
ETEC2070	Programmable Logic Controllers (PLCs)	2
ETEC2137	Computer Controlled Systems Integrating LabVIEW	4

Electronic Controls Technician Emphasis**Credits****20 Credits**

ETEC2275	A+ Computer Troubleshooting & Networking for Automation	4
ETEC2142	C++ Programming Incorporating Microcontrollers	4
ETEC2161	Automation and Industrial Controls	5
ETEC2171	Electronic(s) Capstone Project	5
MACH1090	Machining Fundamentals	2

Special Electronic Technical Emphasis**20 Credits**

The Special Electronic Technical Emphasis is an individualized degree program that requires pre-approval from the electronic engineering department chairperson. See your program advisor for more information.

Computer Servicing/Networking Technician Emphasis

Associate of Applied Science

In the computer servicing/networking program emphasis, students will complete 72 credits in core electronic engineering technology skills, along with a broad background in computer support and networking. After completing the program, students have the ability to apply computer and networking skills in an industrial automation environment. They will also have the skills to begin a career as a computer and networking professional supporting industrial, business, or consumer oriented employers.

Course topics include:

- Repair and maintain computers
- A+ Certification preparation
- Software support
- Network operating systems
- Basic and advanced network setup and troubleshooting
- Soft skills – customer service, team work
- Telecommunications skills
- Basic and advance wireless skills
- Construction of wireless networks
- Fiber optics
- electronic engineering technology skills
- System troubleshooting skills
- Programmable Logic Controllers

General Education

18 Credits of Minnesota Transfer Curriculum

Students are required to take 18 credits in courses from the Minnesota Transfer Curriculum. One course must be a Minnesota Transferable *math course, goal area four. The remainder of general education courses must be from two or more additional Minnesota Transfer Curriculum goal areas. A list of the Minnesota Transfer Curriculum (MNTC) courses and the corresponding goal areas is on the Anoka Technical College Web site at http://www.anokatech.edu/current_students/transfer/

*MATH1700 Pre-Calculus, approved MNTC goal area four

5 credits

IMPORTANT ACCUPLACER Test Requirement: ACCUPLACER testing in math, reading and writing. Any needed developmental courses must be completed before receiving a diploma or an A.A.S. award.

Note: MATH 1500 does **not** satisfy the required Math for the program, but it can be a part of the remaining General Education course requirement. See your program advisor for additional information.

Electronic Technician Core

34 Credits

	Credits
EETEC1101 DC Electrical Theory/Lab	5
EETEC1111 AC Electrical Theory/Lab	5
EETEC1201 Solid State Electronic Devices	5
EETEC1250 Digital I	3
EETEC1270 Technical Documentation Lab	2
EETEC1300 Op-Amps and Linear Integrated Circuits	2
EETEC2010 Basic Wireless Communications	2
EETEC2147 Data Acquisition and Signal Conditioning	4
EETEC2070 Programmable Logic Controllers (PLCs)	2

ETEC2137	Computer Controlled Systems Integrating LabVIEW	4
----------	---	---

Computer Servicing/Networking Technician Emphasis

20 Credits

ETEC2181	Automation and Controls Concepts	4
ETEC2251	A+ Certification & Computer Troubleshooting	6
ETEC2260	Advanced Wireless Communications	3
ETEC2281	Advanced Network Setup and Troubleshooting	7

Special Electronics Technician Emphasis Associate of Applied Science

In the computer servicing/networking program emphasis, students will complete 72 credits in core electronic engineering technology skills, along with a broad background in computer support and networking.

Special Electronic Technical Emphasis – 20 Credits

The Special Electronic Technical Emphasis is an individualized degree program that requires pre-approval from the electronic engineering department chairperson. See your program advisor for more information.

General Education

18 Credits of Minnesota Transfer Curriculum

Students are required to take 18 credits in courses from the Minnesota Transfer Curriculum. One course must be a Minnesota Transferable *math course, goal area four. The remainder of general education courses must be from two or more additional Minnesota Transfer Curriculum goal areas. A list of the Minnesota Transfer Curriculum (MNTC) courses and the corresponding goal areas is on the Anoka Technical College Web site at http://www.anokatech.edu/current_students/transfer/

*MATH1700 Pre-Calculus, approved MNTC goal area four

5 credits

IMPORTANT ACCUPLACER Test Requirement: ACCUPLACER testing in math, reading and writing. Any needed developmental courses must be completed before receiving a diploma or an A.A.S. award.

Note: MATH 1500 does **not** satisfy the required Math for the program, but it can be a part of the remaining General Education course requirement. See your program advisor for additional information.

Electronic Technician Core

Credits

34 Credits

ETEC1101	DC Electrical Theory/Lab	5
ETEC1111	AC Electrical Theory/Lab	5
ETEC1201	Solid State Electronic Devices	5
ETEC1250	Digital I	3
ETEC1270	Technical Documentation Lab	2
ETEC1300	Op-Amps and Linear Integrated Circuits	2
ETEC2010	Basic Wireless Communications	2
ETEC2147	Data Acquisition and Signal Conditioning	4
ETEC2070	Programmable Logic Controllers (PLCs)	2
ETEC2137	Computer Controlled Systems Integrating LabVIEW	4