

ELECTRONICS TECHNOLOGY (ET)

See *Electronics Engineering Technology (EET)* or *Mechatronics (MET)* for information on related programs.

Program Description

The Electronics Technology (ET) program offers majors in Electronics Technology/RF Communication Systems, Electronics Engineering Technology (EET), and Mechatronics (MET). These majors offer similar first-year core courses with specialization occurring in the second year sequence of study. Job options in this field include computer network design, industrial instrumentation and control, home and business security system maintenance and design, as well as opportunities in avionics and marine electronics.

Sample schedules for Electronics Technology/RF and Mechatronics are shown under each individual program heading.

Computer systems are used extensively throughout this program. Courses in advanced circuit analysis will use the computer in circuit simulation and data acquisition and control. C++ programming is emphasized in computer interface systems and control applications. Students may expect to spend approximately fifty percent of their time in lab work.

All students are required to provide a basic set of hand tools for use in their first-year courses, including a graphing calculator, digital multi-meter with interface port and computer simulation software for use in their first-year courses. When advancing to the second-year application courses, the tool and equipment compliment will be augmented to meet the requirements of the major study area. Each course syllabus will provide the specifics of the required tools, equipment, and software.

Entry into the Program

Please apply to the Admissions Office. Students entering the program should complete one year of high school algebra before starting the sequence. Students lacking this preparation should consult an advisor for appropriate course work. Students with prior experience or training in electronics may apply for advanced standing. For further information, contact the Department Chair or the Admissions Office.

Tech Prep

Skagit Valley College will grant credits toward a Professional/Technical degree based on competencies gained in high school. The competencies must be agreed upon by the appropriate teachers from the high school and the college. Credit will be transcribed after verification of successful completion of the agreed upon competencies. If you are interested in taking steps to begin work in the professional/technical workplace of the future, please contact your high school counselor.

Work-Based Learning

Students will integrate classroom learning with work-based learning experience in Cooperative Education (ET 199) at a supervised work site. Department Chair approval is required. Credits and grades are based on job-hours worked, work performance and completion of the learning objectives specified in the learning contract.

Associate in Technical Arts Degree

An Associate in Technical Arts degree (ATA) is awarded upon completion of a minimum of 90 credits of specified technical and related education coursework above 100 level with both an overall 2.0 grade point average and a 2.0 grade point average in the technical major.

SUGGESTED SCHEDULE

ATA ELECTRONICS TECHNOLOGY

Includes required ATA courses. Student schedule may vary based on entry point, credit load, and prerequisites. Consult with department chair or SVC counselor for scheduling options.

FIRST YEAR

Fall.....Cr	Winter.....Cr	Spring.....Cr
ET 111.....5	ET 112.....5	ET 113.....5
ET 135.....5	ET 136.....5	ET 137.....5
ET 141.....5	ET 142.....5	ET 145.....5
PE 200.....2	SOSC 125.....2	CMST 125.....3
		*LC/GE.....5-10
Total.....17	Total.....17	Total.....23+

SECOND YEAR

Fall.....Cr	Winter.....Cr	Spring.....Cr
ET 267.....5	ET 268.....5	‡ET 199.....1-15
ET 281.....5	ET 283.....5	ET 269.....5
SOSC 113.....1	†ENGL 170.....3	ET 285.....5
Total.....11	Total.....13	Total.....11+

* Learning Community (5-10 credits) or 5 credits of General Education (culture, natural world or arts). Must be outside of technical area, approved by Department Chair. Electronics students must take CS 101. Please see INDEX regarding Learning Communities.

† Students who do not receive an appropriate test score will require additional coursework to develop necessary skills for entry into class.

‡ ET 199 may be taken at any time during the two-year program with Department Chair approval.

Program Certificates

COMPUTER REPAIR CERTIFICATE

A certificate in Computer Repair may be awarded upon completion of the courses listed in the first four quarters of the sample schedule plus ENGL 170 (with the exception that ET 199 will be taken in place of the LC/GE course) and Department Chair approval.

INDIVIDUAL TECHNICAL CERTIFICATE

A certificate in a specialized area may be tailored and customized in conjunction with other programs to meet specific goals and objectives of the prospective graduate with Department Chair approval.

Course Descriptions

ET 111 Electronic Fundamentals I (5)

Introductory DC resistive circuit analysis course. Includes Ohm's Law, Kirchoff's laws, series circuits, parallel circuits, series-parallel circuits and network theorems.

ET 112 Electronic Fundamentals II (5)

Introduction to AC circuit analysis. Topics include inductance, capacitance, reactance and associated circuitry.

ET 113 Active Electronic Circuits(5)

Analysis of linear and switching power supply systems. Prerequisite: ET 112.

ET 117 AC/DC Electronic Fundamentals (5)

Introduction to electronics and direct current analysis of resistive circuits and semiconductors including fundamental laws of DC and the operation of different types of solid state devices.

ET 121 A+ Core Preparation (5)

Introduction to computer components, concepts and hardware. Provides the opportunity to identify, assemble, configure, upgrade and troubleshoot a typical personal computer system. Covers fundamentals, requirements, and specifications of typical network systems. Successful completion of this course will help prepare for the core part of the CompTIA A+ certification examination.

ET 122 A+ Operating System Technologies Preparation (5)

Preparation for the Operating System Technologies segment of the A+ certification examination.

ET 135 Introduction to Semiconductor Devices (5)

Basic semiconductor theory and operation, including diodes, LEDs, bipolar transistors, FETs and operational amplifiers.

ET 136 Advanced Semiconductor Devices (5)

Advanced solid state. Includes theory and operation of FETs, UJT, SCR, DIAC, TRIAC, and other similar devices. Prerequisite: ET/TNT 135.

ET 137 Computer Aided Design for Electronics (5)

Using Computer Aided Design software in preparing schematic diagrams and printed circuit layouts.

ET 141 Algebra for Electronics (5)

Application of algebra to electronics.

ET 142 Trigonometry for Electronics (5)

Application of algebra and trigonometry to alternating current problems. Prerequisite: ET 141.

ET 143 Calculus for Electronics (5)

Study of advanced mathematics including calculus.

ET 145 Advanced Mathematics for Electronics (5)

Related electronic mathematics including logarithms, numbering systems for computers, Boolean algebra, and logic diagrams.

ET 199 Cooperative Work Experience (1-15)

Supervised work experience in the field. Includes a weekly seminar. Instructor permission required.

ET 212 Network Analysis (3)

Study of advanced AC/DC circuit analysis using network theorems and complex numbers. Included will be the study of logarithms and their applications to electronics. Boolean algebra and digital logic will be discussed.

ET 222 Introduction to Microprocessors (4)

Study of microprocessor fundamentals. Analysis of architecture and bus structure.

ET 223 Designing with Microprocessors (4)

Using the microprocessor as the integral part of digital control systems.

ET 224 Microprocessor Interfacing (4)

Using the microprocessor to control external operations and processes.

ET 244 Calculus for Electronics II (5)

Integrals, trigonometric functions, logarithmic and exponential functions.

ET 260 Technician License Preparation (3)

Preparation and study for technician FCC license examinations. For students experienced in electronics.

ET 261 Associate CET Review (3)

Review of fundamental electronic principles essential to passing the Associate Certified Electronics Technician Examination.

ET 262 Journeyman CET Review (3)

Review of troubleshooting techniques, equipment usage and waveform analysis to pass the ISCET Journeyman Level examination.

ET 263 Industrial Electronics and System Components (5)

Electronic principles, programming examples and applications related to the industrial and instrumentation fields. Covers variables such as temperature, pressure, level and flow.

ET 264 Industrial Measurement and Monitoring (5)

Transducers, flow measurement, temperature measurement in a computer controlled industrial and instrumentation system. Use LabVIEW software to monitor flow, temperature, proximity, pressure, level and toxic gas sensors in a hostile environment. Prerequisite: ET 263.

ET 265 Process Control Systems (5)

Overview of microprocessor and computer based instrumentation and process control. Microprocessor and computer programming applications for instrumentation and process monitoring control. LabView and Rockwell Automation PLC software are used to develop real-time control applications. Prerequisite: ET 264.

ET 267 Analysis of Op-Amp Circuits (5)

Fundamentals of operational amplifiers and linear ICs.

ET 268 Linear Circuits for Microprocessor Systems (5)

Laboratory experiences in design, analysis and construction of integrators, comparators, oscillators, and regulated power supplies. Prerequisite: ET 267.

ET 269 Designing with Linear Circuits (5)

Techniques of interfacing linear devices to a microcomputer.

ET 281 Digital Circuits for Microprocessors (5)

Theory and laboratory experiences involving the use of digital integrated circuits. Prerequisite: ET 113.

ET 283 Microprocessor Support Circuits (5)

Theory and operation of microprocessors. Prerequisite: ET 281.

ET 285 Computer Interfacing (5)

Advanced computing and control systems using a Personal Computer. Prerequisite: ET 283.