

ASSOCIATE OF APPLIED SCIENCE DEGREE (AAS)

The Associate of Applied Science Degree in Engineering Technology with Electronics emphasis prepares students to assist in providing support for engineering functions or to function as an Electronics Technician. Instruction includes analog and digital circuit design, implementation and testing, fabrication techniques, telecommunications, microprocessor programming and interface. Specialize concentration instruction includes topics such as in-depth analysis of analog and digital circuits, electrical and power supply troubleshooting, systems such as radar and microwaves, computer and network fundamentals, medical terminology, healthcare organizational dynamics, and fluid dynamics. Accredited by the Technology Accreditation Commission of ABET, <http://www.abet.org>.

This two-year program provides students with the methods and procedures used in engineering organizations and by electronics technicians in a bench repair, defense contractor, and biomedical equipment repair functions. Instruction takes place in a hands-on, state-of-the-art environment.

Educational Objectives - Within a few years of graduation: Graduates from CSN's Engineering Technology with Electronics emphasis program will demonstrate the ability to apply circuit analysis and design, computer programming, analog and digital electronics, and microprocessor/microcontroller principles to install, test, troubleshoot and maintain electrical and electronic systems as bench, defense contractor, and biomedical equipment technicians. Graduates will have effective technical communication skills necessary to function on professional teams as technicians or managers. Graduates are prepared to enter the working force with professional work ethic with the commitment to lifelong learning, quality and continuous improvement through the clear ability to assume increasing levels of responsibility in both industry and community.

STUDENT LEARNING OUTCOMES - Graduates of this program will have the opportunity to:

- Demonstrate knowledge of safety procedures and proper electronics fabrication techniques.
- Identify components, design, construct, and test various circuits to include filters and construct a Bode Plot of an amplifier's frequency response.
- Construct, analyze and test various types of digital circuits and microprocessor/microcontroller circuits. Demonstrate a working knowledge writing programs to control other devices.
- Demonstrate commitment to quality, timeliness, continuous improvement, while showing an understanding of the need for and an ability to engage in continuing professional development.
- For Bench and Defense Contractor concentrations, demonstrate a working knowledge of common modulation/transmission methods to include such as AM, FM and Pulse modulation. The Bench concentration will also focus upon more advanced analog/digital circuits. The Defense Contractor will focus upon circuit repair along with systems such as radar.
- For Biomedical Equipment concentration, characterize the computers/networks used in the healthcare industry, demonstrate an ability to explain fluid dynamics, common medical terminology, health-care dynamics, and the fundamentals functional characteristics of the human body.

GENERAL EDUCATION REQUIREMENTS (27 Credits):

	CR	SEMESTER
COMMUNICATIONS: COM 115, ENG 107	3	_____
ENGLISH: ENG 100, 101, 113	3-5	_____
HUMAN RELATIONS: ALS 101, ANTH 101, 112, 201, 205 HIST 105, 106, 150, 151, 210, 247, 260, HMS 130, 135B, 265B, MGT 100B, 283, PHIL 135, PSC 201, PSY 101, 102, 207, 208, 261, SOC	3	_____
MATHEMATICS: MATH 111B, 127 or higher	3	_____
SCIENCE: EGG 131, 132	8	_____
FINE ARTS/HUMANITIES/ SOCIAL SCIENCES: AM, ANTH, ART, COM, ECON, ENG 223 or above, GEOG 106 or above, HIST, International Languages, Music, PHIL, PSC, PSY, SOC, THTR, WMST 113	3	_____
U.S. AND NEVADA CONSTITUTIONS: PSC 101 or HIST 101 and HIST 102 or HIST 101 and HIST 217	4-6	_____

SPECIAL PROGRAM REQUIREMENTS (37 Credits):

	CR	SEMESTER
ET 104B Fabrication and Soldering Techniques	2	_____
ET 131B DC for Electronics	4	_____

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	CR	SEMESTER
ET 132B AC for Electronics	4	_____
ET 212B Digital Logic I	4	_____
ET 220B Solid State Devices and Circuits I	4	_____
ET 228B Data Acquisition	3	_____
ET 282B Microprocessors I	3	_____
IS 100B Core Computing Competency	0-3	_____
or		
IS 101 Introduction to Information Systems		_____
FOR BENCH TECHNICIAN:		
ET 106B Test Equipment Operation	3	_____
ET 213B Digital Logic II	4	_____
ET 222B Solid State Devices and Circuits II	4	_____
ET 293B Telecommunication Transmission Methods	3	_____
FOR DEFENSE CONTRACTOR TECHNICIAN:		
ET 205B Power Supply Theory and Repair	3	_____
ET 289B Electrical Troubleshooting	4	_____
ET 293B Telecommunication Transmission Methods	3	_____
With at least 3-4 credits from the following:		
ET 106B Test Equipment Operation	3	_____
ET 113B Introduction to Radar	3	_____
ET 125B RF and Microwave Devices	3	_____
ET 195B or higher	1-4	_____
FOR BIOMEDICAL EQUIPMENT TECHNICIAN:		
CIT 110 A+ Hardware	3	_____
CSCO 120 CCNA Internetworking Fundamentals	4	_____
HHP 123B Introduction to the Human Body	4	_____
HIT 105B Healthcare Delivery Systems	2	_____
HIT 118B Language of Medicine	3	_____
MT 108B Fluid Power (Pneumatics, Hydraulics, Instrumentation)	4	_____

NOTE: Courses with a B suffix (example - XYZ 123B) may be non-transferable for a NSHE baccalaureate degree. ETELEC-AAS Total Credits

Students may elect to graduate using the degree requirements in effect at the time of matriculation, or when they declared or changed major or the current catalog. If a program is official after a student has matriculated, the student may choose the degree requirements of the new program. In no case may a student use a catalog which is more than six years old at the time of graduation.

Detailed Guided Pathway
Associate of Applied Science Degree
Engineering Technology – Electronics Emphasis
Total Credits – 64 credits

First Fall Semester	Requirement	Credit Hours	Term
Communications	COM 115, ENG 107	3	
DC for Electronics	ET 131B	4	
Fabrication and Soldering Techniques	ET 104B	2	
Mathematics	MATH 111B, 127 or higher	3	
Human Relations	Per Degree Sheet	3	
	TOTAL	15	
First Spring Semester	Requirement	Credit Hours	Term
English	ENG 100, 101, 113	3	
AC for Electronics	ET 132B	4	
Digital Logic I	ET 212B	4	
Concentration Elective: - Bench Technician - Defense Contractor Tech - Biomedical Equip Tech	- ET 106B - ET 106B - CIT 110	3 3 3	
Prove Core Computer Competency	With either IS 100B (0 credit test) or IS 101 (3 credits)	0	
	TOTAL	14	
Summer Session	Requirement	Credit Hours	Term
Solid State Devices and Circuits I	ET 220B	4	
Data Acquisition	ET 228B	3	
	TOTAL	7	
Second Fall Semester	Requirement	Credit Hours	Term
Science	EGG 131	4	
U.S. & NV Constitutions	PSC 101 or HIST 101 and HIST 102 or HIST 101 and HIST 217	4	
Microprocessors I	ET 282B	3	
Concentration Elective: - Bench Technician - Defense Contractor Tech - Biomedical Equip Tech	- ET 213 - ET 205 - HHP 223, CSCO 120	4 3 8	
	TOTAL	14	
Second Spring Semester	Requirement	Credit Hours	Term
Science	EGG 132	4	
Concentration Elective: - Bench Technician - Defense Contractor Tech - Biomedical Equip Tech	ET 222B, ET 293B ET 289B, ET 293B HIT 105, HIT 118, MT 108B	7 7 10	
Fine Arts/Humanities/ Social Sciences <i>* Recommended course for all ET students</i>	Per Degree Sheet. <i>MUS 231 Recording Techniques I</i>	 3	
	TOTAL	14	
	Degree TOTAL	64	

More detailed information can be found on the ET Web page at <http://www.csn.edu/et>

Detailed Guided Pathway
Associate of Applied Science Degree (AAS)
Engineering Technology – Electronics Emphasis
Total Credits – 64 credits

For those with some electrical/electronic theory experience – those without see next page

First Fall Semester	Requirement	Credit Hours	Term
Communications	COM 115, ENG 107	3	
DC for Electronics	ET 131B	4	
Fabrication and Soldering Techniques	ET 104B	2	
Mathematics	MATH 111B, 127 or higher	3	
Human Relations	Per Degree Sheet	3	
	TOTAL	15	
First Spring Semester	Requirement	Credit Hours	Term
English	ENG 100, 101, 113	3	
AC for Electronics	ET 132B	4	
Digital Logic I	ET 212B	4	
Concentration Elective:			
- Bench Technician	- ET 106B	3	
- Defense Contractor Tech	- ET 106B	3	
- Biomedical Equip Tech	- CIT 110	3	
	TOTAL	14	
Summer Session	Requirement	Credit Hours	Term
Solid State Devices and Circuits I	ET 220B	4	
Data Acquisition	ET 228B	3	
	TOTAL	7	
Second Fall Semester	Requirement	Credit Hours	Term
Science	EGG 131	4	
U.S. & NV Constitutions	PSC 101 or HIST 101 and HIST 102 or HIST 101 and HIST 217	4	
Microprocessors I	ET 282B	3	
Concentration Elective:			
- Bench Technician	- ET 213	4	
- Defense Contractor Tech	- ET 205	3	
- Biomedical Equip Tech	- HHP 223	4	
	TOTAL	14	
Second Spring Semester	Requirement	Credit Hours	Term
Science	EGG 132	4	
Concentration Elective:			
- Bench Technician	ET 222B, ET 293B	7	
- Defense Contractor Tech	ET 289B, ET 293B	7	
- Biomedical Equip Tech	HIT 105, HIT 118, MT 108B	10	
Fine Arts/Humanities/ Social Sciences	Per Degree Sheet.		
* <i>Recommended course for all ET students</i>	<i>MUS 231 Recording Techniques I</i>	3	
	TOTAL	14	
	Degree TOTAL	64	

Detailed Guided Pathway
Associate of Applied Science Degree (AAS)
Engineering Technology – Electronics Emphasis

Guided Pathway for those without any electric/electronics theory experience

First Fall Semester	Requirement	Credit Hours	Term
Communications	COM 115, ENG 107	3	
Survey of Electronics	ET 100B	3	
Fabrication & Soldering Techniques	ET 104B	2	
Mathematics	MATH 111B, 127 or higher	3	
Human Relations	Per Degree Sheet	3	
	TOTAL	14	
First Spring Semester	Requirement	Credit Hours	Term
English	ENG 100, 101, 113	3	
DC for Electronics	ET 131B	4	
Digital Logic I	ET 212B	4	
Concentration Elective: - Bench Technician - Defense Contractor Tech - Biomedical Equip Tech	- ET 106B - ET 106B - CIT 110	3 3 3	
	TOTAL	14	
Summer Session	Requirement	Credit Hours	Term
AC for Electronics	ET 132B	4	
Science	EGG 131	4	
	TOTAL	8	
Second Fall Semester	Requirement	Credit Hours	Term
Solid State Devices and Circuits I	ET 220B	4	
Data Acquisition	ET 228B	3	
Microprocessors I	ET 282B	3	
Concentration Elective: - Bench Technician - Defense Contractor Tech - Biomedical Equip Tech	- ET 213 - ET 205 - HHP 223	4 3 4	
	TOTAL	13	
Second Spring Semester	Requirement	Credit Hours	Term
Science	EGG 132	4	
Concentration Elective: - Bench Technician - Defense Contractor Tech - Biomedical Equip Tech	ET 222B, ET 293B ET 289B, ET 293B HIT 105, MT 108B	7 7 6	
Fine Arts/Humanities/ Social Sciences * <i>Recommended course</i>	Per Degree Sheet. <i>MUS 231</i>	 3	
	TOTAL	14	
Third Fall or 2nd Summer	Requirement	Credit Hours	Term
U.S. & NV Constitutions	PSC 101 or HIST 101 and HIST 102 or HIST 101 and HIST 217	4	
Biomedical Equip Tech Concentration	HIT 118	3	
	TOTAL	7	
	Degree TOTAL	67	

Note: * Elective course