

## Engineering Technology – Operations Emphasis

REQUIRED CREDITS: 60

DEGREE CODE: ETOPER-AAS

### PROGRAM DESCRIPTION

This degree provides students with classroom and laboratory experiences in electricity, mechanical power, pneumatics, hydraulics and ferrous and non-ferrous material. The Operations Emphasis focuses on those skills used in operational settings. Academic skills emphasizing related math, science and human relations are stressed to prepare students to meet the challenges common in the workplace.

### STUDENT LEARNING OUTCOMES

- Demonstrate the knowledge and ability to follow guidelines for safe operation and maintenance of various mechanical, electrical, and fluid power systems.
- Explain and show the skills to design and operate basic electrical, mechanical, and fluid power systems and to use computer-based programmable logic controller devices to monitor their operation and performance.
- Apply the skills and knowledge to various troubleshooting techniques for identification and correction of faults in electrical circuits and mechanical and high pressure fluid power systems.
- Utilize knowledge and skills in mathematics, written and oral communication, and teamwork.
- Demonstrate skills necessary for further education and managerial positions.

**PLEASE NOTE** - The courses listed below may require a prerequisite or corequisite. Read course descriptions before registering for classes. All MATH and ENG courses numbered 01-99 must be completed before reaching 30 total college-level credits. No course under 100-level counts toward degree completion.

### GENERAL EDUCATION REQUIREMENTS (27 CREDITS)

	CR	SEMESTER
<b><u>MATHEMATICS</u></b> ET 111B; or MATH 116 or 124 or 126 or 127	3	_____
<b><u>ENGLISH COMPOSITION</u></b> ENG 100 or 101 or 107 or 113	3-5	_____
<b><u>COMMUNICATIONS</u></b> BUS 108; or COM 101 or 115	3	_____
<b><u>HUMAN RELATIONS</u></b> ALS 101; ANTH 101, 112, 201, 205; HIST 105, 106, 107, 150, 151, 210, 247, 260; HMS 130, 135B, 265B; MGT 100B, 283; PHIL 135; PSC 201; PSY 101, 102, 207, 208, 261; SOC 101 or above	3	_____
<b><u>NATURAL SCIENCE</u></b> EGG 131 and 131L; and MT 102B or ET 131B	8	_____
<b><u>FINE ARTS/HUMANITIES/ SOCIAL SCIENCES</u></b> AM 145 or above; ANTH 101 or above (except 102); ART 101 or above; COM 101 or above; ECON 100 or above; ENG 223 or above; GEOG 106 or above; HIST 101 or above; International Languages 101B or above; MUS 101 or above; PHIL 101 or above; PSC 101 or above; PSY 101 or above; SOC 101 or above; THTR 100 or above; WMST 113	3	_____
<b><u>U.S. AND NEVADA CONSTITUTIONS</u></b> PSC 101; or HIST 101 and HIST 102; or HIST 101 and HIST 217	4-6	_____

### SPECIAL PROGRAM REQUIREMENTS (33 CREDITS)

	CR	SEMESTER
<b><u>CORE REQUIREMENTS (30 credits)</u></b>		
AC 103B Introduction to HVAC Mechanical Theory and Application	5	_____
CONS 120B Printreading and Specifications	3	_____
MT 104B Industrial Electricity	4	_____
MT 106B Mechanical Power Transmission	4	_____
MT 108B Fluid Power (Pneumatics, Hydraulics, Instrumentation)	4	_____
MT 110B Material Science I (Ferrous and Non-Ferrous)	4	_____
MT 115B Programmable Logic Controllers I	3	_____
MT 116B Programmable Logic Controllers II	3	_____
<b><u>Choose one from the following (0-3 credits)</u></b>		
IS 100B Core Computing Competency	0	_____
IS 101 Introduction to Information Systems	3	_____
<b><u>ELECTIVES (choose 3-4 credits)</u></b>		
Any course with ET or MT prefix		
_____	_____	_____
_____	_____	_____

- NOTE**
- Course numbers with the “B” suffix may be non-transferable for a NSHE baccalaureate degree.
  - Course numbers with the “H” suffix are designated Honors-level courses and can be used to fulfill equivalent general education requirements. For more information visit [www.csn.edu/honors](http://www.csn.edu/honors).
  - In no case, may one course be used to meet more than one requirement except for the Values and Diversity general education requirement (only AA, AS, and AB degrees) which may be used to fulfill the corresponding general education or emphasis requirement.
  - 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.



**ASSOCIATE OF APPLIED SCIENCE  
 ENGINEERING TECHNOLOGY – OPERATIONS EMPHASIS**
**2015-2016**

The following is a suggested pathway, or course sequence by term, for this academic program. The following factors may affect the time it takes to complete the pathway as listed:

- The term (fall, spring, summer) in which the student enters the program because class availability varies by term.
- Where the student placed in the Math and English course sequence (i.e. taking courses below 100) and completion of course pre-requisites.
- Meeting with the student's designated program counselor or advisor to determine academic readiness to succeed in a particular course. Use of appropriate services (writing center, math resource center, etc.) may be in order to support successful course completion.

First Semester	Requirement	Credit Hours	Term
Gen. Ed. Mathematics Requirement	ET 111B; or MATH 116 or 124 or 126 or 127	3	
Gen. Ed. Natural Science Requirement	MT 102B or ET 131B	4	
Special Program Core Requirements	AC 103B Introduction to HVAC Mechanical Theory and Application	5	
	CONS 120B Printreading and Specifications	3	
Special Program Choose One From the Following	IS 100B or IS 101	0-3	
<b>Semester Total</b>		<b>15-18</b>	
Second Semester	Requirement	Credit Hours	Term
Gen. Ed. English Composition Requirement	ENG 100 or 101 or 107 or 113	3-5	
Gen. Ed. Communications Requirement	BUS 108; or COM 101 or 115	3	
Gen. Ed. Natural Science Requirement	EKG 131 Technical Physics I	3	
	EKG 131L Technical Physics I – Lab	1	
Special Program Core Requirements	MT 104B Industrial Electricity	4	
<b>Semester Total</b>		<b>14-16</b>	
Third Semester	Requirement	Credit Hours	Term
Gen. Ed US/NV Constitutions Requirement	See degree sheet for course choices	4-6	
<b>Semester Total</b>		<b>4-6</b>	
Fourth Semester	Requirement	Credit Hours	Term
Special Program Core Requirements	MT 106B Mechanical Power Transmission	4	
	MT 110B Material Science I (Ferrous and Non-Ferrous)	4	
	MT 115B Programmable Logic Controllers I	3	
Special Program Elective Requirement	See a counselor to select courses	3-4	
<b>Semester Total</b>		<b>14-15</b>	
Fifth Semester	Requirements	Credit Hours	Term
Gen. Ed. Human Relations Requirement	See degree sheet for course choices	3	
Gen. Ed. Fine Arts/Humanities/Social Sciences Req.	See degree sheet for course choices <sup>1</sup>	3	
Special Program Core Requirements	MT 108B Fluid Power (Pneumatics, Hydraulics, Instrumentation)	4	
	MT 116B Programmable Logic Controllers II	3	
<b>Semester Total</b>		<b>13</b>	
<b>Pathway Course Total</b>		<b>60-68</b>	
<b>Degree Total</b>		<b>60</b>	

Revised May 2015

<sup>1</sup>MUS 231 Recording Techniques I - Recommended