

A.A.S. Energy Systems Mechanical Engineering Technology

(2.5 Years)

Program Objectives:

1. Solve technical problems typical of those encountered in the energy systems mechanical engineering technology discipline.
2. Work and communicate effectively in multidisciplinary teams.
3. Stay current on industry standards, challenges and innovations.

Student Outcomes:

1. Demonstrate safe work practices in laboratory and industrial environments.
2. Be aware and familiar with society and government codes, standards, and regulations with their typical format and application.
3. Demonstrate written and verbal communication skills.
4. Utilize test equipment to troubleshoot and analyze electrical, electronic, instrumentation, and motor control related circuits.
5. Analyze systems through the understanding of mechanical principles, fluid mechanics, thermodynamics, material science, and equipment design.
6. Identify the correct pump or valve for a given process condition and apply a comprehensive understanding of pumps and valves to troubleshoot systems.
7. Interpret and utilize technical documentation.
8. Demonstrate basic structural welding.
9. Demonstrate basic computer-aided drafting and design.
10. Demonstrate commissioning practices for equipment setup and alignment.
11. Recognize specific equipment applications for reactive, preventive, predictive, and proactive maintenance.

Students must register concurrently for the lab course associated with each theory course. Students must pass ESET prefix courses with a C- or better.

Program Admissions Requirements

Official test scores must be dated within one year of program admission.

Placement Test	Math
ALEKS	30

General Education

The listing below includes program requirements that also fulfill General Education requirements.

Code	Title	Credits
Objective 1 - ENGL 1101 or ENGL 1102 ¹		3
Objective 2		3
Objective 3 - MATH 1143, MATH 1147, MATH 1153, MATH 1160 or MATH 1170 ¹		3-5
Objective 5 - CHEM 1100 or PHYS 1101 & PHYS 1101L		4

Objective 6 3

Total Credits 16-18

¹ "P" courses are equivalent to the original course.

Major Requirements

Code	Title	Credits
Choose 2 credits from the following:		2
ESET 1100 & 1100L	Engineering Technology Orientation and Introduction to an Industrial Environment Laboratory	
or ESET 1162	Industrial Safety and Regulations	
Choose from the following:		2-3
ESET 1117 & 1117L	Introduction to Industrial Thermal Systems and Introduction to Industrial Thermal Systems Lab	
or ESET 2220	Thermal Cycles and Heat Transfer	
ESET 1118	Industrial Maintenance Mechanic I	2
ESET 1118L	Industrial Maintenance Mechanic Lab I	1
ESET 1119	Industrial Maintenance Mechanic II	2
ESET 1119L	Industrial Maintenance Mechanic Lab II	1
ESET 1121	Basic Electricity and Electronics	4
ESET 1121L	Basic Electricity and Electronics Laboratory	3
ESET 1122	Electrical Systems and Motor Control Theory	3
ESET 1122L	Electrical Systems and Motor Control Theory Laboratory	1
ESET 1123	Mechanical Power Transmission I	2
ESET 1123L	Mechanical Power Transmission Laboratory I	2
ESET 1125	Introduction to Structural Welding	1
ESET 1126	Introduction to Mechanical Drafting and Computer Aided Design	1
ESET 1127	Mechanical Power Transmission II	2
ESET 1127L	Mechanical Power Transmission Laboratory II	2
ESET 1140	Applied Technical Intermediate Algebra	5
ESET 2239	Pumps, Valves, and Fluid Flow	5
ESET 2239L	Pumps, Valves, and Fluid Flow Laboratory	4
ESET 2242	Practical Process Measurements and Control	2
ESET 2243	Hydraulic and Pneumatic Power	2
ESET 2243L	Hydraulic and Pneumatic Power Laboratory	2

ESET 2244	Rotating Equipment and Millwright Maintenance	4
ESET 2244L	Rotating Equipment and Millwright Maintenance Laboratory	3
ESET 2245	Industrial Thermal Systems	2
ESET 2245L	Industrial Thermal Systems Lab	1
ESET 2246	Materials and Metallurgy	2
TGE 1159	Internship Strategies	1
Choose one of the following Objective 1 Courses:		3
ENGL 1101 or ENGL 1102	Writing and Rhetoric I Writing and Rhetoric II	
Choose one of the following Objective 3 Courses:		3-5
MATH 1143 or MATH 1147 or MATH 1153 or MATH 1160 or MATH 1170	Precalculus I: Algebra Precalculus Statistical Reasoning Survey of Calculus Calculus I	
Choose one of the following Objective 5 Courses:		4
CHEM 1100 or PHYS 1101/1101L	Concepts of Chemistry Elements of Physics	
Total Credits		74-77

Degree Totals

Code	Title	Credits
	Program Admission Requirements	0
	General Education	16-18
	Major Requirements (General Education Credits not included)	64-65
	Free Electives	0
Total Credits		80-83

ISU Degree Requirements (<https://coursecat.isu.edu/undergraduate/degree requirements/>)

ISU General Education for College of Technology (<https://coursecat.isu.edu/undergraduate/technology/#text>)

Major Academic Plan (MAP)