

A.A.S. Industrial Cybersecurity Engineering Technology

(2 Years)

Program Objectives:

1. Identify and respond to security concerns relating to operational cyber-physical systems.
2. Coordinate among key stakeholders for matters dealing with the security of cyber-physical systems.
3. Promote stakeholder awareness and education relating to cyber-physical systems security.
4. Establish optimal policies for managing risk in cyber-physical systems.
5. Use security criteria to influence technology selection and deployment.

Student Outcomes:

1. Apply the fundamental principles of cyber-physical systems.
2. Explain the need and purpose of securing cyber physical systems.
3. Identify common weaknesses in cyber physical systems.
4. Evaluate the security of cyber physical systems by applying pertinent recognized standards.
5. Propose practices for managing cyber physical systems risk.
6. Implement techniques for defending cyber physical systems.

Program Admissions Requirements

Students must meet with the Program Coordinator prior to beginning course work.

Placement Test	Math
ACT	19
SAT	460
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 - Choose MATH 1143, MATH 1147, MATH 1153, MATH 1160, MATH 1170, or MGT 2216 ¹		3-5
Objective 5		4-5
CHEM 1100	Concepts of Chemistry	
or CHEM 1111 & 1111L	General Chemistry I and General Chemistry I Lab	
or CHEM 1112 & 1112L	General Chemistry II and General Chemistry II Lab	

or PHYS 1100	Essentials of Physics
or PHYS 1101 & 1101L	Elements of Physics and Elements of Physics Laboratory
or PHYS 1111 & PHYS 1113	General Physics I and General Physics I Laboratory
or PHYS 1112 & PHYS 1114	General Physics II and General Physics II Laboratory

Objective 6	3
Total Credits	16-19

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

Major Requirements

Code	Title	Credits
ESET 1121	Basic Electricity and Electronics	4
ESET 1121L	Basic Electricity and Electronics Laboratory	3
ESET 1140	Applied Technical Intermediate Algebra ¹	5
ESET 1162	Industrial Safety and Regulations	2
ESET 1181	Introduction to Cyber-Physical Systems	3
ESET 1182	Information Technology Fundamentals	3
ESET 2282	Introduction to Networking	3
CYBR 3383	Security Design for Cyber-Physical Systems	3
CYBR 3384	Risk Management for Cyber-Physical Systems	3
CYBR 4481	Defending Critical Infrastructure and Cyber Physical Systems	3
CYBR 4486	Network Security for Industrial Environments	3
CYBR 4487	Professional Development and Certification	3
INFO 4411	Intermediate Information Assurance	3
Choose a minimum of twelve (12) credits from the following:		12
ESET 1120	Introduction to Energy Systems	
ESET 1120L	Introduction to Energy Systems Laboratory	
ESET 1122	Electrical Systems and Motor Control Theory	
ESET 1122L	Electrical Systems and Motor Control Theory Laboratory	
ESET 2205	Fundamentals of Control Logic	
ESET 2220	Thermal Cycles and Heat Transfer	
ESET 2221	Nuclear Steam Supply Systems	
ESET 2222	Process Control Theory	
ESET 2226	Process Control Devices Laboratory	
ESET 2242	Practical Process Measurements and Control	

ESET 2251	Reactor Theory Safety and Design	
ESET 2292	Electrical Engineering Technology I	
ESET 2292L	Electrical Engineering Technology I Laboratory	
INST 2281	Electrical Automation Theory	
INST 2282	Electrical Automation Laboratory	
Choose one of the following Objective 1 Courses:		3
ENGL 1101	Writing and Rhetoric I	
or ENGL 1102	Writing and Rhetoric II	
Choose one of the following Objective 3 Courses:		3-5
Choose one of the following Objective 5 Courses:		4-5
MATH 1143	College Algebra	
or MATH 1147	College Algebra and Trigonometry	
or MATH 1153	Statistical Reasoning	
or MATH 1160	Survey of Calculus	
or MATH 1170	Calculus I	
or MGT 2216	Business Statistics	
CHEM 1100	Concepts of Chemistry	
or CHEM 1111 & 1111L	General Chemistry I and General Chemistry I Lab	
or CHEM 1112 & 1112L	General Chemistry II and General Chemistry II Lab	
or PHYS 1100	Essentials of Physics	
or PHYS 1101 & 1101L	Elements of Physics and Elements of Physics Laboratory	
or PHYS 1111 & PHYS 1113	General Physics I and General Physics I Laboratory	
or PHYS 1112 & PHYS 1114	General Physics II and General Physics II Laboratory	
Total Credits		63-66

¹ Apprenticeship students may substitute MATH 1147 for ESET 1140.

Degree Totals

Code	Title	Credits
	Program Admission Requirements	0
	General Education	16-19
	Major Requirements (Required General Education credits removed.)	53
	Free Electives	
Total Credits		69-72

ISU Degree Requirements (<http://coursecat.isu.edu/undergraduate/degreerequirements/>)

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

Major Academic Plan (MAP)