Idaho State University

Catalog Year 2025-2026
AAS, Energy Systems Nuclear Operations Technology, Licensed Operator Concentration

(For internal use only)
☒ *No change*
☐ *UCC proposal*

A Major Academic Plan (MAP) is one way to complete a degree in a set number of semesters. The *example* below is only one strategy. Actual plans for individual students will vary based on advisor recommendations and academic needs. Official Program Requirements including Major, General Education, Electives, and university requirements (see pg.2) are based on Catalog Year.

Course Subject and Title	Cr.	Min. Grade	*GE, UU or UM	**Sem. Offered	Prerequisite	Co-Requisite
Semester One						
GE Objective 1: ENGL 1101 Writing and Rhetoric I	3	D-	GE	F, S, Su	Appropriate placement score	
GE Objective 2: COMM 1101 Fundamentals of Oral Comm	3	D-	GE	F, S		
ESET 1100: Engineering Technology Orientation	1	C-		F, S, D		
ESET 1100L: Introduction to an Industrial Environment Lab	1	C-		F, S, D	Minimum score of ALEKS 30 or equivalent	
ESET 1140: Applied Technical Intermediate Algebra **OR** MATH 1147: Precalculus	5	C-		F, S, D F, S	Appropriate placement score	
ESET 1152: Nuclear Careers and Information	1	C-		F, S		
ESET 1153: Radiological Control Fundamentals	3	C-		F, D		
Total	17					
Semester Two						
GE Objective 1: ENGL 1102 Writing and Rhetoric II	3	D-	GE	F, S, Su	ENGL 1101 with a C- or better, or equivalent	
GE Objective 3: MATH 1143 Precalculus I: Algebra **OR** MATH 1147 Precalculus **OR** MATH 1153 Statistical Reasoning **OR** MATH 1160 Survey of Calculus **OR** MATH 1170 Calculus I **OR** MGT 2216 Business Statistics	3-5	D-	GE		Appropriate placement score	
ESET 1121: Basic Electricity and Electronics	4	C-		F, S		ESET 1121L
ESET 1121L: Basic Electricity and Electronics Lab	3	C-		F, S		ESET 1121
ESET 1130: Initial Operator Training and Student Operations	4	C-			MATH 1143 or equivalent	
Total	17-19					
Semester Three						
GE Objective 5: CHEM 1101 Introduction to Chemistry **OR** CHEM 1111/L General Chemistry I and Lab	3-5	D-	GE	F, S	Appropriate placement score	
ESET 1122: Electrical Systems and Motor Control Theory	3	C-		F, S, D	ESET 1121/L or instructor approval	ESET 1122L
ESET 1122L: Electrical Systems and Motor Control Theory Lab	1	C-		F, S, D	ESET 1121/L or instructor approval	ESET 1122
ESET 2220: Thermal Cycles and Heat Transfer	2	C-		F, D		
ESET 2239: Pumps, Valves, and Fluid Flow	5	C-		F, D	ESET 1127/L, 1151/L, or 1130	ESET 2239L
ESET 2239L: Pumps, Valves, and Fluid Flow Lab	4	C-		F, D	ESET 1127/L, 1151/L, or 1130	ESET 2239
Total	18-20					
Semester Four						
GE Objective 4: TGE 1257 Applied Ethics in Technology	3	D-	GE	D		
GE Objective 5: PHYS 1101 Elements of Physics	3	D-	GE	F, S		MATH 1108 or equivalent, PHYS 1101L
GE Objective 5: PHYS 1101L Elements of Physics Lab	1	D-	GE	F, S		PHYS 1101
GE Objective 6: Any	3	D-	GE			
ESET 1152: Nuclear Careers and Information	1	C-		F, S		
ESET 2221: Nuclear Steam Supply Systems	2	C-		S, D	ESET 1102, 1122, 2220, or instructor approval	
ESET 2249: Reactor Plant Materials	3	C-		S, D	CHEM 1101 or 1111, ESET 1130 or 1151, AND 2239, or instructor approval	
ESET 2260: Nuclear Instrumentation	2	C-		S, D	ESET 1130	
Total	18					
Semester Five						
ESET 2242: Practical Process Measurements and Control	2	C-		F, D	ESET 1122 or instructor approval	
ESET 2248: Power Plant Documentation and Procedures	2	C-			ESET 1100L AND 1151 or 1130, or instructor approval	
ESET 2251: Reactor Theory Safety and Design	4	C-		F, D	ESET 1130, 2221, 2239, 2248, 2249, 2261, or instructor approval	
ESET 2279: Conduct of Operations	4	C-		F, S, D	ESET 1151/L or 1130 or instructor approval	
ESET 2280: Capstone and Case Studies in Nuclear Engineering Technology	2	C-		F, S, D	ESET 1151/L or 1130, 1153, 2220, 2249, or instructor approval	ESET 2248, 2279
Total	14					

*GE=General Education Objective, UU=Upper Division University, UM= Upper Division Major
**See Course Schedule section of Course Policies page in the e-catalog (or input F, S, Su, etc.)

2025-2026 Major Requirements	CR
MAJOR REQUIREMENTS	**58**
ESET 1100: Engineering Technology Orientation	1
ESET 1100L: Introduction to an Industrial Environment Lab	1
ESET 1121: Basic Electricity and Electronics	4
ESET 1121L: Basic Electricity and Electronics Lab	3
ESET 1122: Electrical Systems and Motor Control Theory	3
ESET 1122L: Electrical Systems and Motor Control Theory Lab	1
ESET 1130: Initial Operator Training and Student Operations	4
ESET 1140: Applied Technical Intermediate Algebra **OR** MATH 1147: Precalculus	5
ESET 1152: Nuclear Careers and Information	1
ESET 1153: Radiological Control Fundamentals	3
ESET 2220: Thermal Cycles and Heat Transfer	2
ESET 2221: Nuclear Steam Supply Systems	2
ESET 2239: Pumps, Valves, and Fluid Flow	5
ESET 2239L: Pumps, Valves, and Fluid Flow Lab	4
ESET 2242: Practical Process Measurements and Control	2
ESET 2248: Power Plant Documentation Procedures	2
ESET 2249: Reactor Plant Materials	3
ESET 2251: Reactor Theory Safety and Design	4
ESET 2260: Nuclear Instrumentation	2
ESET 2279: Conduct of Operations	4
ESET 2280: Capstone and Case Studies in Nuclear Engineering Technology	2
ENGL 1101: Writing and Rhetoric I (counted in GE Obj. 1)	
ENGL 1102: Writing and Rhetoric II (counted in GE Obj. 1)	
MATH 1143: Precalculus I: Algebra **OR** MATH 1147: Precalculus **OR** MATH 1153: Statistical Reasoning **OR** MATH 1160: Survey of Calculus **OR** MATH 1170: Calculus I **OR** MGT 2216: Business Statistics (counted in GE Obj. 3)	
TGE 1257: Applied Ethics in Technology (counted in GE Obj. 4)	
CHEM 1101: Introduction to Chemistry **OR** CHEM 1111: General Chemistry I AND CHEM 1111L: General Chemistry I Lab (counted in GE Obj. 5)	
PHYS 1101: Elements of Physics (counted in GE Obj. 5)	
PHYS 1101: Elements of Physics Lab (counted in GE Obj. 5)	

GENERAL EDUCATION OBJECTIVES Satisfy Objectives 1,2,3,4,5,6 (7 or 8) and 9		**15 cr. min**
1. Written English	ENGL 1101	3
	ENGL 1102	3
2. Spoken English	COMM 1101	3
3. Mathematics	MATH 1143 or 1147 or 1153 or 1160 or 1170 or MGT 2216	3-5
4. Humanities, Fine Arts, Foreign Lang.		
TGE 1257: Applied Ethics in Technology		3
5. Natural Sciences		
CHEM 1101 or CHEM 1111/L		3-5
PHYS 1101: Elements of Physics		3
PHYS 1101L: Elements of Physics Lab		1
6. Behavioral and Social Science		
Any		3
One Course from EITHER Objective 7 OR 8		
7. Critical Thinking		
8. Information Literacy		
9. Cultural Diversity		
General Education Elective to reach 36 cr. min.		
Total GE		**25-29**
Undergraduate Catalog and GE Objectives by Catalog Year *http://coursecat.isu.edu/undergraduate/programs/*		

MAP Credit Summary	**CR**
Major	58
General Education	25-29
Upper Division Free Electives to reach 36 credits	0
Free Electives to reach 120 credits	0
TOTAL	83-87

Graduation Requirement Minimum Credit Checklist	**Confirmed**
Minimum 36 cr. General Education Objectives (15 cr. AAS)	**X**
Minimum 15 cr. Upper Division in Major (0 cr. Associate)	**X**
Minimum 36 cr. Upper Division Overall (0 cr. Associate)	**X**
Minimum of 120 cr. Total (60 cr. Associate)	**X**

Advising Notes

MAP Completion Status (for internal use only)

	Date
CAA or COT:	GR 07/03/2025

Complete College American Momentum Year

Math and English course in first year-Specific GE MATH course identified

9 credits in the Major area in first year

15 credits each semester (or 30 in academic year)

Milestone courses

Form Revised 2.14.2023