Energy Systems Engineering, BS

University of Wyoming, 2016-17

Freshman Fall Semester			Hrs	Min Grade	Notes
		USP First-Year Seminar	3	C	FY
		USP US & Wyoming Constitutions	3		V
CHEM	1020	General Chemistry I *	4		PN
ENGL	1010	College Composition and Rhetoric	3	C	C1
MATH	2200	Calculus I ^ **	4		Q
		Credit hours subtotal:	17		

Freshman Spring Semester			Hrs	Min Grade	Notes
		USP Human Culture	3		H
COJO	2010	Public Speaking	3	C	C2
ES	2110	Statics ^	3		
LIFE	1010	General Biology I	4		PN
MATH	2205	Calculus II ^	4		
		Credit hours subtotal:	17		

Sophomore Fall Semester			Hrs	Min Grade	Notes
ES	1060	Introduction to Engineering Problem Solving ^	3		
ES	2120	Dynamics ^	3		
ES	2210	Electric Circuit Analysis ^	3		
MATH	2210	Calculus III ^	4		
PHYS	1220	Engineering Physics II	4		
		Credit hours subtotal:	17		

Sophomore Spring Semester			Hrs	Min Grade	Notes
ATSC	2100	Atmospheric Change: Composition & Climate	3		
ES	2310	Thermodynamics I ^	3		
ES	2330	Fluid Dynamics ^	3		
ES	2410	Mechanics of Materials ^	3		
MATH	2310	Applied Differential Equations I	3		
		Math/Science Elective ***	3		
		Credit hours subtotal:	18		

This is a guide for course work in the major; actual course sequence may vary by student. Please refer to the online student degree evaluation, and consult with an academic advisor. • Not all courses are offered every semester and some electives may have prerequisites. Students should review the course descriptions in the *University Catalog* and consult with their academic advisor to plan accordingly.

University of Wyoming requirements:

Students must have a minimum cumulative GPA of 2.0 to graduate. • Students must complete 42 hours of upper division (3000-level or above) coursework, 30 of which must be from the University of Wyoming. • Courses must be taken for a letter grade unless offered only for S/U. • University Studies Program (USP) Human Culture (H) and Physical & Natural World (PN) courses must be taken outside of the major subject, but can be cross-listed with the major.

College of Engineering and Applied Science requirements:

Students must have a minimum cumulative GPA of 2.0 in all engineering courses for graduation. • A grade of C or higher is required for all prerequisite courses. Students must also achieve a grade of C or better in all required mathematics courses.

Energy Systems Engineering Program Notes:

Degree candidates must meet academic requirements of the college and have an minimum grade point average of 2.00 (C) in all energy systems and mechanical engineering courses completed at UW. A grade of C- or better must be earned in all engineering science, math, and basic science courses in order to fulfill prerequisites in mechanical and energy systems courses. • Five electives (15 credit hours) from the business, energy system engineering, and technical electives must be at least at the 3000-level to meet the upper division coursework requirement of UW.

Energy Systems Engineering Program Notes con't on page 2.

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Junior Fall Semester			Hrs	Min Grade	Notes
ESE	3005	Engineering Experimentation	3		
ESE	3020	System Dynamics	3		
ESE	3040	Thermodynamics II	3		
ESE	3060	Numerical Methods for Engineers	3		
		Energy Systems Engineering Elective ****	3		
		Credit hours subtotal:	**15**		

Junior Spring Semester			Hrs	Min Grade	Notes
ESE	3160	Thermal/Fluids Science Lab	3		
ESE	3360	Fundamentals of Transport Phenomena	3		
PHIL	2330	Environmental Ethics	3		Cross listed with ENR 2300; can substitute PHIL 2345 (Natural Resource Ethics).
		Technical Elective *****	3		
		Law Elective ******	3		
		Credit hours subtotal:	**15**		

Senior Fall Semester			Hrs	Min Grade	Notes
ENR	3000	Approaches to ENR Problem Solving	3		H
ESE	4060	Energy Systems Design I	3		C3
		Technical Electives *****	6		
		Elective	3		
		Credit hours subtotal:	**15**		

Senior Spring Semester			Hrs	Min Grade	Notes
ESE	4070	Energy Systems Design II	3	C	
ENR	4900	ENR Policy in Practice	3		
		Business Elective *******	3		
		Energy Systems Engineering Elective ****	3		
		Technical Elective *****	3		
		Credit hours subtotal:	**15**		

TOTAL CREDIT HOURS: **129**

Energy Systems Engineering Program Notes con't:

^ **Mechanical Engineering Success Curriculum**. The Mechanical Engineering Success Curriculum must be successfully completed by all undergraduate students in mechanical engineering and energy systems engineering prior to enrolling in any upper division (3000-level or above) courses taught by the Mechanical Engineering Department. A student must earn a minimum 3.0 gpa in these 10 courses. AP courses are excluded from the gpa calculation, but grades transferred from other institutions will be used in evaluating the success curriculum gpa.

* Requires MATH ACT ≥ 23, MATH SAT ≥ 600, Math Placement Exam ≥ 3, or concurrent enrollment in MATH 1400, 1405, or 1450. (University standard)

** Requires MATH ACT ≥ 27, MATH SAT ≥ 600, Math Placement Exam ≥ 5, or ≥ C in MATH 1405 or 1450. (University standard)

*** The **math/science elective** must be chosen from a department approved list. The list can be viewed at *www.uwyo.edu/mechanical/undergraduate%20students/2014-2015/electives%202014-2015.pdf*. Please consult with an academic advisor.

**** **Energy Systems Engineering Electives**. Two (2) courses to be chosen from the following:

ECON 1300	Oil: Business, Culture, and Power	GEOL 3650	Energy for Society
ENR 2000	Environment and Society	PETE 4000	Environment, Technology and Society
ENR 4890	Topics in Environment & Natural Resources	POLS 4051	Environmental Politics
GEOL 3500	Global Change: A Geological Perspective	POLS 4350	Sustainable Development & Global Policy

Energy Systems Engineering Program Notes con't on page 3.

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Energy Systems Engineering Program Notes con't:

***** **Technical Electives.** Four (4) courses to be chosen from the following:

CE	3400	Introduction to Environmental Engineering	ME	3450	Properties of Materials
CE	4430	Environmental Engineering Chemistry	ME	4020	Design of Mechanical/Electrical Systems
ESE	4330	Internal Combustion Engines	ME	4340	Gas Turbine Engines
ESE	4360	Introduction to Nuclear Energy	ME	4460	Solar and Geothermal Engineering
ESE	4380	Steam Plant Engineering I	ME	4470	Wind and Ocean Energy Engineering
GEOL	4190	Petroleum Geology	PETE	2050	Introduction to Petroleum Engineering

****** **Law Electives.** Courses should be selected from ENR 4890 (Topics in Environment & Natural Resources). Please consult with an academic advisor.

******* The **business elective** must be chosen from department approved list. Please consult with an academic advisor.