INDUSTRIAL ENGINEERING
ELECTIVES LISTS
2024-2025

The IMSE curriculum provides students with the opportunity to obtain a greater depth of knowledge through several different elective areas: Management, Focus, Engineering Topic, and Social Sciences and Humanities.

MANAGEMENT ELECTIVES

Students will choose <u>one</u> course from the Management elective list.

Class	Description	Prerequisites	Semester
ACCT 2840	Financial Accounting		F.S.SS.
AFAS 3410	Air Force Leadership Studies I		F.
CONE 2220	Contractor Organization and Management of Construction	Credit or concurrent enrollment in (CHEM 1670 or CHEM 1770); (ABE 1600 or AERE 1600 or BME 1600 or CE 1600 or CHE 1600 or CPRE 1850 or EE 1850 or ENGR 1600 or IE 1480 or ME 1600 or SE 1850); ENGL 1500; ENGR 1010; LIB 1600; MATH 1650 or MATH 1650H; MATH 1660 or MATH 1660H; PHYS 2310 or PHYS 2310H; PHYS 2310L	F.S.
ECON 3200	Labor Economics *	ECON 1010	VARIES
ECON 3340	Entrepreneurship in Agriculture	ECON 1010	F.S.
ECON 3370	Agricultural Marketing	ECON 1010	VARIES
ECON 3440	Public Finance	ECON 1010	VARIES
ENTSP 3100	Entrepreneurship and Innovation	Sophomore classification	F.S.
IE 4500	Technical Sales for Engineers	Credit or enrollment in IE 3050	F.
MGMT 3700	Managing Organizations	Sophomore classification	F.S.SS.
MGMT 4140	International Management	Sophomore classification	F.S.
MIS 3010	Management Information Systems	COMS 1130	F.S.SS.
MKT 3400	Principles of Marketing	Credit or enrollment in ECON 1010	F.S.SS.
PSYCH 2500	Psychology of the Workplace		VARIES
PSYCH 4500	Industrial Psychology	PSYCH 1010; 1 additional PSYCH course; (STAT 1010 or STAT 1040 or STAT 2260)	F.S.
SPCM 3120	Business and Professional Speaking		F.S.

* Meets International Perspectives Requirement.   Last Updated 03/2024 JAL

^ Meets U.S. Diversity Requirement.

NOTE: Verify all prerequisites with current course catalog.

F. – Fall
S. – Spring
SS. – Summer

FOCUS ELECTIVES

Students will choose <u>two</u> classes (6 credits total) from the five focus areas: Systems Engineering & Engineering Management, Human Factors and Ergonomics, Operations Research & Analytics, Advanced Manufacturing.

Systems Engineering and Engineering Management - focuses on the strategies necessary for solving internal and external problems of a company in areas such as production, quality, project management, sales, and marketing strategies.

Class	Description	Prerequisites	Semester
ACCT 2150	Legal Environment of Business	Sophomore classification	F.S.SS.
ACCT 2850	Managerial Accounting	ACCT 2840	F.S.SS.
AERE 4520	Introduction to Systems Engineering and Analysis (IE)	Junior classification in Engineering	SS.
CONE 3800	Engineering Law	Junior classification	F.
ECON 3550	International Trade and Finance *	ECON 1010; ECON 1020	VARIES
ECON 3710	Introductory Econometrics	ECON 3010 and ECON 3020 or ECON 3503 and STAT 3260	F.S.
ECON 4160	Industrial Organization	ECON 3010	VARIES
ECON 4310	Managerial Economics	ECON 3010	VARIES
ECON 4370	Commodity Marketing and Risk Management	ECON 2350, ECON 3010, and STAT 2260	VARIES
ECON 4550	International Trade *	ECON 3010	VARIES
ECON 4570/5570	International Finance *	ECON 3020	VARIES
ECON 5320	Managerial Economics for the Global Organization		VARIES
ECON 5710	Intermediate Econometrics		S.
ENGR 4300	Entrepreneurial Product Engineering (IE)	Junior classification	F.S.
ENGR 4340X	Entrepreneurial Product Engineering Design Project (IE)	IE 4300 or ENGR 4300	S.
ENTSP 3200	Corporate Entrepreneurship (MGMT)	Sophomore classification	F.S.
FIN 3010	Principles of Finance	ECON 1010, ACCT 2840, and STAT 2260	F.S.SS.
FIN 4500	Analytical Methods in Finance	(ECON 3010 or FIN 3010); (STAT 3260 or STAT 3410)	F.S.
IE 4300	Entrepreneurial Product Engineering (ENGR)	Junior classification	F.S.
IE 4340X	Entrepreneurial Product Engineering Design Project (ENGR)	IE 4300 or ENGR 4300	S.
IE 4520	Introduction to Systems Engineering and Analysis (AERE)	Junior classification in Engineering	SS.
IE 4630X	Introduction to Engineering and Systems Management	STAT 231 or STAT 305 or equivalent, upperclassman standing and permission of instructor	S.
IE 4700/5700	Systems Engineering and Project Management	Credit or enrollment in IE 3050; Credit or enrollment in STAT 2310 or STAT 3010 or STAT 3050 or STAT 3260 or STAT 4010 or STAT 5870; or instructor permission	VARIES
IE 5600	Engineering Risk Analysis		VARIES
IE 5610	Total Quality Management		VARIES
IE 5630	Engineering and Systems Management		VARIES
IE 5640	Decision Analysis		VARIES
IE 5820	Enterprise Modeling and Integration		VARIES
IE 5850	Requirements and Architecture Engineering		VARIES
MIS 2070	Fundamentals of Programming for Business Analytics	MATH 1500 or credit or enrollment in MATH 1400 or higher	F.S.
MIS 3680	Marketing Analytics (MKT)	MKT 3400 and STAT 2260 or equivalent	F.S.

MIS 4500	Enterprise Resource Planning Systems in Supply Chain (SCM)	(MIS 3010 and SCM 3010) or (IE 1480 and IE 3410)	VARIES
MGMT 3200	Corporate Entrepreneurship (ENTSP)	Sophomore classification	F.S.
MGMT 3710	Organizational Behavior	Sophomore classification	F.S.
MGMT 4710	Introduction to Human Resource Management	MGMT 3710; STAT 2260; ENGL 2500	F.S.
MGMT 4720	Diversity, Equity, and Inclusion in Organizations ^	Junior classification and BUSAD 2030	F.S.
MKT 3680	Marketing Analytics (MIS)	MKT 3400 and STAT 2260 or equivalent	F.S.
MKT 4420	Sales Management	MKT 3400 and STAT 2260 or equivalent	F.S.
SCM 3010	Supply Chain Management	ECON 1010	VARIES
SCM 4500	Enterprise Resource Planning Systems in Supply Chain (MIS)	(IE 1480 and IE 3410) or (MIS 3010 and SCM 3010)	VARIES
SCM 4610	Principles of Transportation	SCM 3010	VARIES
SCM 4660	Global Trade Management	SCM 3010	F.S.

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Human Factors and Ergonomics - focuses on with the relationships between people and their work tasks, machines, information, environment, engineering as well as technology.

Class	Description	Prerequisites	Semester
IE 4370/5370	Reliability and Safety Engineering	STAT 2310 or STAT 3050 or STAT 5870	VARIES
IE 4720/5720	Design and Evaluation of Human-Computer Interaction	Junior classification	VARIES
IE 5710	Occupational Biomechanics		VARIES
IE 5760	Human Factors in Product Design		VARIES
IE 5770	Human Factors		VARIES
KIN 3550	Biomechanics	PHYS 1150 or PHYS 1310	F.S.SS.
PSYCH 3500	Human Factors in Technology	PSYCH 1010; Junior classification	F.

Advanced Manufacturing - focuses on the design, analysis, operation, and control of manufacturing processes and systems.

Class	Description	Prerequisites	Semester
ABE 3630	Agri-Industrial Applications of Electric Power and Electronics	ABE 2160	F.S.
ABE 4040/5040	Instrumentation for Agricultural and Biosystems Engineering	ABE 3160 and ABE 3630	F.
ABE 4510/5510	Food and Bioprocess Engineering	ABE 2160 and Credit or enrollment in ME 4360 or CHE 3570 or FSHN 3510 and MATH 2660 or MATH 2670	S.
ABE 4690/5690	Engineering for Grain Storage, Preservation, Handling, and Processing Systems	ABE 2160	S.
AERE 4230	Composite Flight Structures	EM 3240 and MATE 2730	S.
EE 2850	Problem Solving Methods and Tools for Electrical Engineering		VARIES
EE 3320	Semiconductor Materials and Devices (MATE)	CPRE and EE majors: EE 2300, MATE majors: MATE 3170	S.
EE 4320/5320	Microelectronics Fabrication Techniques (MATE)	CPRE and EE majors: EE 2300, MATE majors: MATE 3170	VARIES
EM 3620	Principles of Nondestructive Testing (MATE)	PHYS 1320 or PHYS 2320 or PHYS 2320H	S.
EM 3620L	Nondestructive Testing Laboratory (MATE)	Credit or enrollment in MATE 3620 or EM 3620	S.

Class	Description	Prerequisites	Semester
ENSCI 4800	Engineering Analysis of Biological Systems (ABE, GLOBE)	ABE 3800 or Permission of Department	F.
IE 4440/5440	Micro/Nano Scale Additive Printing		F.
IE 4450/5450	Additive Manufacturing and Rapid Production Methods		VARIES
IE 4460/5460	Geometric Variability in Manufacturing		VARIES
IE 4470/5470	Biomedical Design and Manufacturing (BME)		VARIES
IE 4490/5490	Computer Aided Design and Manufacturing	IE 2480 and MATH 2650	VARIES
IE 4810/5810	e-Commerce Systems Engineering	IE 1480	VARIES
IE 5880	Information Systems for Manufacturing		VARIES
MATE 2140	Structural Characterization of Materials	(MATE 2150 or MATE 2730 or MATE 3920); PHYS 2310	F.S.
MATE 3210	Introduction to Ceramic Science	MATE 2160	F.
MATE 3220	Introduction to Ceramic Processing	MATE 3210	S.
MATE 3320	Semiconductor Materials and Devices (EE)	CPRE and EE majors: EE 2300, MATE majors: MATE 3170	S.
MATE 3410	Metals Processing	MATE 2150 or MATE 2730 or MATE 3920	F.
MATE 3510	Introduction to Polymeric Materials	MATE 2160	F.
MATE 3620	Principles of Nondestructive Testing (EM)	PHYS 1320 OR PHYS 2320 or PHYS 2320H	S.
MATE 3620L	Nondestructive Testing Laboratory (EM)	Credit or enrollment in MATE 3620 or EM 3620	F.S.
MATE 4180	Mechanical Behavior of Materials	MATE 2160; Credit or enrollment in MATE 3190	F.
ME 2700	Introduction to Mechanical Engineering Design	ME 1600 or (ABE 1600, AERE 1600, BME 1600, CE 1600, CHE 1600, CPRE 1850, EE 1850, ENGR 1600, IE 1480, or SE 1850); ME 1700; PHYS 2310; PHYS 2310L	F.S.
ME 3240	Manufacturing Engineering	ME 2700 OR [ABE 2180 AND PHYS 2310 AND PHYS 2310L]; EM 3240; MATE 2730; ME 3240L	F.S.SS.
ME 3700	Engineering Measurements	EE 4420 and STAT 3050	F.S.
ME 4100	Mechanical Engineering Applications of Mechatronics	EE 4420, EE 4480 and Credit or enrollment in ME 4210	S.
ME 4110	Automatic Controls	ME 3700 or (Credit or enrollment in ME 4210)	F.
ME 4180/5180	Mechanical Considerations in Robotics	Credit or enrollment in ME 4210	S.
ME 4190	Computer-Aided Design	ME 3250	F.S.
ME 4210	System Dynamics and Control	EE 4420, EE 4480, ME 3450, and MATH 2670	F.S.SS.

Operations Research and Analytics - focuses on the design and analysis of quantitative models and methods having applications in production and service systems such as inventory control, scheduling, transportation, and logistics.

Class	Description	Prerequisites	Semester
COMS 2070	Fundamentals of Computer Programming Credit may not be applied toward graduation for both COMS 2070 and COMS 2270.	MATH 1500 or Credit or enrollment in MATH 1400 or higher	F.S.SS.
COMS 2270	Object-oriented Programming Credit may not be applied toward graduation for both COMS 2070 and COMS 2270.	Credit or enrollment in MATH 1430 or higher; (COMS 1270 or CPRE 1850 or SE 1850 or EE 2850)	F.S.SS.
COMS 2280	Introduction to Data Structures	Minimum of C- in COMS 2270; Credit or enrollment in MATH 1650	F.S.SS.
COMS 3420	Principles of Programming Languages (SE)	Minimum of C- in COMS 2280 and MATH 1650; COMS 2300 or CPRE 3100	F.S.
ECON 2070	Applied Economic Optimization	MATH 1510; MATH 1600; MATH 1650	F.S.

IE 3130X	Crisis Decision Making and Risk Management with Defense Applications	MATH 151 or MATH 160 or MATH 166	VARIES
IE 4030/5030	Introduction to Sustainable Production Systems	Credit or enrollment IE 3410	VARIES
IE 4050/5050	Advanced Engineering Economy for Complex Engineering Projects	MATH 2650, MATH 2670, STAT 2310 and IE 3050	VARIES
IE 4200/5200	Engineering Problem Solving with R	STAT 2310	S.
IE 4830/5830	Data Mining	IE 1480, IE 3120, STAT 2310	VARIES
IE 4870/5870	Big Data Analytics and Optimization	IE 3120 and STAT 2310	S.
IE 5080	Design and Analysis of Allocation Mechanisms		VARIES
IE 5100	Network Analysis		VARIES
IE 5130	Analysis of Stochastic Systems		VARIES
IE 5140	Production Scheduling		VARIES
IE 5190	Simulation Modeling and Analysis		VARIES
IE 5340	Linear Programming		VARIES
IE 5410	Inventory Control and Production Planning		VARIES
MIS 2070	Fundamentals of Programming for Business Analytics	MATH 1500 or Credit or enrollment in MATH 1400 or higher	F.S.
MATH 2070	Matrices and Linear Algebra Only one of MATH 2070 and MATH 3170 may be counted toward graduation.	MATH 1660 or MATH 1660H	F.S.SS.
MATH 3170	Theory of Linear Algebra Only one of MATH 2070 and MATH 3170 may be counted toward graduation.	Credit or enrollment in MATH 2010 or COMS 2300 or CPRE 3100	F.S.
MATH 4350	Geometry I	(COMS 2300 or CPRE 3100 or MATH 2010); (MATH 2070 or MATH 3170)	F.
SE 3420	Principles of Programming Languages (COMS)	Minimum of C- in COMS 2280 and MATH 1650; COMS 2300 or CPRE 3100	F.S.
STAT 4750/5750	Introduction to Multivariate Data Analysis	STAT 3010 or STAT 3260 or STAT 5870	F.

Last Updated 03/2024 JAL

NOTE: Verify all prerequisites with current course catalog.

F. – Fall
S. – Spring
SS. – Summer

ENGINEERING TOPIC ELECTIVES

Students will choose <u>two</u> classes (6 credits total) from the Engineering Topic elective list.

Class	Description	Prerequisites	Semester
AERE 2610	Introduction to Performance and Design	MATH 1660 or MATH 1660H; PHYS 2310 or PHYS 2310H; PHYS 2310L; Credit or enrollment in AERE 1610	F.S.
AERE 3100	Aerodynamics I: Incompressible Flow	Grade of C- or better in AERE 2610 and MATH 2650	F.S.
AERE 4230	Composite Flight Structures	EM 3240, and MATE 2730	S.
AERE 4520	Introduction to Systems Engineering & Analysis (IE)	Junior classification in Engineering	SS.
AERE 4680/5680	Large-Scale Complex Engineered Systems (IE)	Senior classification in Engineering or Permission of Instructor	S.
ABE 2160	Fundamentals of Agricultural and Biosystems Engineering	ABE 1600 or Permission of Department	F.
ABE 3630	Agri-Industrial Applications of Electric Power and Electronics	ABE 2160	F.S.
ABE 3800	Principles of Biological Systems Engineering	ABE 3160	S.
ABE 4040/5040	Instrumentation for Agricultural and Biosystems Engineering	ABE 3160 and ABE 3630	F.
ABE 4130	Fluid Power Engineering (ME)	ABE 2160 or ME 2700 and Credit or enrollment in EM 3780 or ME 3350	F.
ABE 4150	Agricultural & Biosystems Engineering Design I	ABE 3160 (majors only)	F.S.
ABE 4510/5510	Food and Bioprocess Engineering	ABE 2160 and Credit or enrollment in ME 4360 or CHE 3570 or FSHN 3510 and MATH 2660 or MATH 2670	S.
ABE 4690/5690	Engineering for Grain Storage, Preservation, Handling, and Processing Systems	ABE 2160	S.
ABE 4720/5720	Controlled Environments for Animals and Plants	ABE 2160 and ME 2310	S.
ABE 4800/5800	Engineering Analysis of Biological Systems (ENSCI, GLOBE)	ABE 3800 or Permission of Department	F.
ABE 5110	Bioprocessing and Bioproducts		S.
CHE 2100	Material and Energy Balances	CHEM 1780, MATH 1660, CHE 1600	F.S.
CHE 3100	Computational Methods in Chemical Engineering	CHE 1600, CHE 2050, CHE 2100, MATH 2650	F.S.
CHE 3560	Transport Phenomena I	CHE 2050; CHE 2100; PHYS 2310 or PHYS 2310H; PHYS 2310L; credit or enrollment in MATH 2670	F.S.
CHE 3570	Transport Phenomena II	CHE 3560	F.S.
CHE 3580	Separations	CHE 3100, CHE 3570, and CHE 3810	F.S.
CHE 3810	Chemical Engineering Thermodynamics	CHE 2020, MATH 2670, PHYS 2320, CHE 3250 and Credit or enrollment in CHE 3100 and PHYS 2320L	F.S.
CHE 3820	Chemical Reaction Engineering	CHE 3100, CHE 3810; credit or enrollment in CHE 3570	F.S.
CHE 4150/5150	Biochemical Engineering	CHE 3570, CHEM 3310; BBMB 3010 or BBMB 3030 or BBMB 4040	VARIES
CPRE 2810	Digital Logic	Sophomore classification	F.S.
CPRE 2880	Embedded Systems I: Introduction	CPRE 2810, COMS 2070 or COMS 2270 or EE 2850	F.S.
CPRE 3080	Operating Systems: Principles and Practice	COMS 3210 or CPRE 3810	F.S.
CPRE 4890	Computer Networking and Data Communications	CPRE 2880 or COMS 3270	F.S.

CONE 3520	Mechanical Systems in Buildings	(CONE 2220; CONE 2510; PHYS 2320; PHYS 2320L) or Permission of Department	F.S.
CONE 3530	Electrical Systems in Buildings	([Credit or enrollment in CONE 3520]; PHYS 2320 or PHYS 2320H; PHYS 2320L) or Permission of Department	F.S.
CONE 3540	Building Energy Performance	CONE 3520 or Permission of Department	F.
EE 2240	Signals and Systems I	EE 2010; MATH 2670	F.S.
EE 2300	Electronic Circuits and Systems	EE 2010; MATH 2670	F.S.
EE 3030	Energy Systems and Power Electronics	MATH 2670; PHYS 2320 or PHYS 2320H; credit or enrollment in EE 2300	F.S.
EE 3110	Electromagnetic Fields and Waves	EE 2010, MATH 2650, PHYS 2320, PHYS 2320L and Credit or enrollment in MATH 2670	F.S.
EE 3320	Semiconductor Materials and Devices (MATE)	CPRE and EE majors: EE 2300, MATE majors: MATE 3170	S.
EE 3330	Electronic Systems Design	CPRE 2810, EE 2300	F.
EE 3510	Analysis of Energy Systems *		VARIES
EE 4320/5320	Microelectronics Fabrication Techniques (MATE)	CPRE and EE majors: EE 2300, MATE majors: MATE 3170	VARIES
EE 4480	Introduction to AC Circuits and Motors (2 credits)	EE 4420	F.S.
EE 4520	Electrical Machines and Power Electronic Drives	EE 3030, EE 3240	S.
EE 4550	Introduction to Energy Distribution Systems	EE 3030 and Credit or enrollment in EE 3240	F.
EE 4560	Power System Analysis I	EE 3030 and Credit or enrollment in EE 3240	F.
EE 4570	Power System Analysis II	EE 3030 and Credit or enrollment in EE 3240	S.
EE 4590/5590	Electromechanical Wind Energy Conversion and Grid Integration	Credit or enrollment in EE 4520 and EE 4560	VARIES
EE 5540	Power System Dynamics		S.
EE 5550	Advanced Energy Distribution Systems		VARIES
EE 5560	Power Electronic Systems		VARIES
EM 3240	Mechanics of Materials	CE 2740	F.S.SS.
EM 3620	Principles of Nondestructive Testing (MATE)	PHYS 1320 or PHYS 2320 or PHYS 2320H	S.
EM 3620L	Nondestructive Testing Laboratory (MATE)	Credit or enrollment in MATE 3620 or EM 3620	S.
IE 3130X	Crisis Decision Making and Risk Management with Defense Applications	MATH 1510, MATH 1600, or MATH 1660	VARIES
IE 4030/5030	Introduction to Sustainable Production Systems	Credit or enrollment IE 3410	VARIES
IE 4050/5050	Advanced Engineering Economy for Complex Engineering Projects	MATH 2650, MATH 2670, STAT 2310 and IE 3050	VARIES
IE 4200/5200	Engineering Problem Solving with R	STAT 2310	S.
IE 4220X	Design and Analysis Applications for System Improvement	IE 2220, IE 2710, IE 3050, IE 3610 and credit or enrollment in IE 4130 or Permission of Instructor	VARIES
IE 4370/5370	Reliability and Safety Engineering	STAT 2310 or STAT 3050 or STAT 5870	VARIES
IE 4440/5440	Micro/Nano Scale Additive Printing		F.
IE 4450/5450	Additive Manufacturing and Rapid Production Methods		VARIES
IE 4460/5460	Geometric Variability in Manufacturing		VARIES
IE 4470/5470	Biomedical Design and Manufacturing (BME)		VARIES
IE 4490/5490	Computer Aided Design and Manufacturing	IE 2480 and MATH 2650	VARIES
IE 4520	Introduction to Systems Engineering & Analysis (AERE)	Junior classification in Engineering	SS.

IE 4680/5680	Large-Scale Complex Engineered Systems (AERE)	Senior classification in Engineering or Permission of Instructor	S.
IE 4700/5700	Systems Engineering and Project Management	Credit or enrollment in IE 3050 and (STAT 2310 or STAT 3010 or STAT 3050 or STAT 3260 or STAT 4010 or STAT 5870); or Permission of Instructor	VARIES
IE 4720/5720	Design and Evaluation of Human-Computer Interaction	Junior classification	VARIES
IE 4810/5810	e-Commerce Systems Engineering	IE 1480	VARIES
IE 4830/5830	Data Mining	IE 1480, IE 3120, STAT 2310	VARIES
IE 4870/5870	Big Data Analytics and Optimization	IE 3120 and STAT 2310	S.
IE 5080	Design and Analysis of Allocation Mechanisms		VARIES
IE 5100	Network Analysis		VARIES
IE 5130	Analysis of Stochastic Systems		VARIES
IE 5140	Production Scheduling		VARIES
IE 5190	Simulation Modeling and Analysis		VARIES
IE 5340	Linear Programming		VARIES
IE 5410	Inventory Control and Production Planning		VARIES
IE 5600	Engineering Risk Analysis		VARIES
IE 5610	Total Quality Management		VARIES
IE 5630	Engineering and Systems Management		VARIES
IE 5640	Decision Analysis		VARIES
IE 5710	Occupational Biomechanics		VARIES
IE 5760	Human Factors in Product Design		VARIES
IE 5770	Human Factors		VARIES
IE 5820	Enterprise Modeling and Integration		VARIES
IE 5850	Requirements and Architecture Engineering		VARIES
IE 5880	Information Systems for Manufacturing		VARIES
MATE 2140	Structural Characterization of Materials	(MATE 2150 or MATE 2730 or MATE 3920); PHYS 2310	F.S.
MATE 2160	Introduction to Materials Science and Engineering II	MATE 2150, MATE 2730 or MATE 3920; Credit or enrollment in PHYS 2320	F.S.
MATE 3110	Thermodynamics in Materials Engineering	CHEM 1780, MATE 2150 or MATE 2730 or MATE 3920, and credit or enrollment in MATE 2160 and MATH 2670	F.
MATE 3210	Introduction to Ceramic Science	MATE 2160	F.
MATE 3220	Introduction to Ceramic Processing	MATE 3210	S.
MATE 3320	Semiconductor Materials and Devices (EE)	CPRE and EE majors: EE 2300, MATE majors: MATE 3170	S.
MATE 3410	Metals Processing	MATE 2150 or MATE 2730 or MATE 3920	F.
MATE 3510	Introduction to Polymeric Materials	MATE 2160	F.
MATE 3620	Principles of Nondestructive Testing (EM)	PHYS 1320 OR PHYS 2320 or PHYS 2320H	S.
MATE 3620L	Nondestructive Testing Laboratory (EM)	Credit or enrollment in MATE 3620 or EM 3620	S.
MATE 4180	Mechanical Behavior of Materials	MATE 2160; Credit or enrollment in MATE 3190	F.
MSE 5200	Thermodynamics and Kinetics in Multicomponent Materials		F.
ME 3240	Manufacturing Engineering	ME 2700 or [ABE 2180 and PHYS 2310 and PHYS 2310L]; EM 3240; MATE 2730; ME 3240L	F.S.SS.
ME 3320	Engineering Thermodynamics II	ME 2310	F.S.SS.
ME 3450	Engineering Dynamics	CE 2740 and Credit or enrollment in MATH 2660 or MATH 2670	F.S.

ME 3700	Engineering Measurements	EE 4420 and STAT 3050	F.S.
ME 4100	Mechanical Engineering Applications of Mechatronics	EE 4420, EE 4480 and Credit or enrollment in ME 4210	S.
ME 4110	Automatic Controls	ME 3700 or (credit or enrollment in ME 4210)	F.
ME 4130	Fluid Power Engineering (ABE)	ABE 2160 or ME 2700 and Credit or enrollment in EM 3780 or ME 3350	F.
ME 4150	Mechanical Systems Design	ME 3240, ME 3250	F.S.
ME 4180/5180	Mechanical Considerations in Robotics	Credit or enrollment in ME 4210	S.
ME 4190	Computer-Aided Design	ME 3250	F.S.
ME 4210	System Dynamics and Control	EE 4420, EE 4480, ME 3450, and MATH 2670	F.S.SS.
ME 4330	Alternative Energy	CHEM 1670; PHYS 2320 or PHYS 2320H; PHYS 2320L	F.
ME 4360	Heat Transfer	ME 3350	F.S.SS.
ME 4370	Introduction to Combustion Engineering	ME 3250	S.
ME 4410	Fundamentals of Heating, Ventilating, and Air Conditioning	ME 3250	F.
ME 4420	Heating and Air Conditioning Design	(ME 4410; credit or enrollment in ME 4360) or Permission of Instructor	S.
ME 4440	Elements and Performance of Power Plants	ME 3320, credit or enrollment in ME 3350	S.
ME 4490	Internal Combustion Engines	ME 3250	F.
ME 5300	Advanced Thermodynamics		F.
ME 5420	Advanced Combustion		S.
ME 5450	Thermal Systems Design		S.

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NOTE: Verify all prerequisites with current course catalog.   **F. – Fall**
S. – Spring
SS. – Summer

Social Sciences and Humanities Electives

The Industrial Engineering program has created a list of Social Science and Humanities (SSH) courses for students to choose from to meet the 12 credits required for graduation. Six credits in the SSH area must be 200-level or above, and six credits must form a sequence of prerequisite or related courses. This list contains numerous US Diversity and International Perspectives courses: students must have 3 credits in each for graduation as a part of the 12 credit SSH requirement. Please check these courses with your adviser prior to completing the course.

** Be sure to check the current catalog for prerequisites. **

African and African American Studies (AFAM):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2010 - Introduction to African American Studies	X		
3300 - Ethnic and Race Relations (SOC)	X		
3340 - Africana Religions (RELIG)	X		
3470 - African American Literature (ENGL)			X
3500 - Women of Color in the U.S. (WGS)			X
3530 - History of African Americans I (HIST)	X		
3540 - History of African Americans II (HIST)	X		
4600 - Seminar in African American Culture			X

Agronomy (AGRON):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
3420 - World Food Issues: Past and Present (ENVS, FSHN)		X	

American Indian Studies (AMIN):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2100 - Introduction to American Indian Studies	X		
2400 - Introduction to American Indian Literature (ENGL)	X		
3100 - Contemporary Topics in American Indian Studies			X
3150 - Archaeology of North America (ANTHR)			X
3220 - Peoples and Cultures of Native North America (ANTHR)	X		
3320/5320 - Current Issues in Native North America (ANTHR)			X
3460 - American Indian Literature (ENGL)	X		

Anthropology (ANTHR):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2010 - Introduction to Cultural Anthropology		X	
2300 - Globalization and the Human Condition		X	
3060 - Cultural and Interpretation		X	
3080 - Archaeology			X
3090 - Introduction to Culture and Language (LING)		X	
3130/5130 - Kinship and Marriage in a Global Perspective		X	
3150/5150 - Archeology of North America (AMIN)			X
3220/5220 - Peoples and Cultures of Native North America (AMIN)	X		
3230/5230 - Topics in Latin American Anthropology (USLS)		X	
3320/5320 - Current Issues in Native North America (AMIN)			X
3400/5400 - Magic, Witchcraft, and Religion (RELIG)		X	
3690 - Ancient Egypt (CLST)		X	
3760 - Classical Archeology (CLST)		X	
4110/5110 - Anthropology for Global Professionals		X	

Apparel, Merchandising and Design (AMD):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
1650 - Dress, Appearance, and Diversity in U.S. Society	X		
3540 - Euro-American Dress History: Prehistoric to Mid-19th Century		X	
3620 - Global Dress in the Fashion System and Society		X	

Architecture (ARCH):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2210 - Histories and Theories of Architecture to 1750		X	
3210 - History of the American City	X		
4200 - Topics in American Architecture			X
4270/5270 - History, Theory, and Criticism of Chinese Architecture		X	

Art History (ARTH):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2800 - History of Art I		X	
2810 - History of Art II		X	
3820 - Art and Architecture of Asia		X	
3830 - Greek and Roman Art (CLST)			X
3850 - Renaissance Art			X
3880 - Modern Art and Theory			X
3950 - Art and Theory Since 1945			X
3960 - History of Photography			X
4870 - Nineteenth-Century Art			X
4940 - Women/Gender in Art (WGS)			X

Biology (BIOL):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
3070 - Women in Science and Engineering (WGS, WISE)	X		

Classical Studies (CLST):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2730 - Greek and Roman Mythology		X	
2750 - The Ancient City		X	
3100 - Ancient Philosophy (PHIL)			X
3530 - World Literature: Western Foundations through Renaissance (ENGL)		X	
3690 - Ancient Egypt (ANTHR)		X	
3720 - Greek and Roman Tragedy and Comedy		X	
3730 - Heroes of Greece, Rome, and Today		X	
3740 - Sex, Gender, and Culture in the Ancient Mediterranean World (HIST, WGS)		X	
3760 - Classical Archaeology (ANTHR)		X	
3830 - Greek and Roman Art (ARTH)			X
3940 - The Archaeology of Greece: An Introduction (Only 2 credit course)		X	
3950 - Study Abroad: The Archaeology of Greece		X	
4020 - Greek Civilization (HIST)			X
4030 - Roman Civilization (HIST)			X
4300/5300 - Foundations of Western Political Thought (POLS)			X

Communication Studies (COMST):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
1010 - Introduction to Communication Studies			X
2100 - Communication and U.S. Diversity	X		
2110 - Interpersonal Communication			X
3100 - Intercultural Communication		X	
3140 - Organizational Communication			X
3250 - Nonverbal Communication			X

Community and Regional Planning (CRP):	U.S Diversity	Intl. Persp.	IE SSH ONLY
2910 - World Cities and Globalization		X	
3760 - Rural, Urban and Regional Economics (ECON)			X

Criminal Justice (CJ):	U.S Diversity	Intl. Persp.	IE SSH ONLY
2410 - Youth and Crime (SOC)			X
3200 - American Judicial Process (POLS)			X
3320 - Philosophy of Law (PHIL)			X
3400 - Deviant and Criminal Behavior (SOC)			X
4840 - Topical Studies in Criminal and Juvenile Justice			X

Design Studies (DSNS):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
1830 - Design in Context			X

Economics (ECON):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
1010 - Principles of Microeconomics			X
1020 - Principles of Macroeconomics			X
2300 - Farm Business Management			X
2350 - Introduction to Agricultural Markets			X
3010 - Intermediate Microeconomics			X
3020 - Intermediate Macroeconomics			X
3130 - Economics of Sports			X
3200 - Labor Economics		X	
3210 - Economics of Discrimination (WGS)	X		
3320 - Cooperatives			X
3530 - Money, Banking, and Financial Institutions			X
3550 - International Trade and Finance		X	
3620 - Applied Ethics in Agriculture Business			X
3710 - Introductory Econometrics			X
3760 - Rural, Urban and Regional Economics (CRP)			X
3800 - Energy, Environmental and Resource Economics (ENVS)			X
3850 - Economic Development (GLOBE)		X	
3870 - Economies of China and India		X	
4010 - Topics in Microeconomics			X
4020 - Topics in Macroeconomics			X
4160 - Industrial Organization			X
4180 - Introduction to Game Theory			X
4550 - International Trade		X	
4570/5570 - International Finance		X	

	U.S. Diversity	Intl. Persp.	IE SSH ONLY
4600/5600 - Agricultural, Food, and Trade Policy			X
4660 - Agricultural Finance			X
4800/5800 - Intermediate Environmental and Resource Economics			X

Electrical Engineering (EE):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
4580 - Economic Systems for Electrical Power Planning			X

English (ENGL):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2010 - Introduction to Literature			X
2270 - Survey of American Literature to 1865			X
2280 - Survey of American Literature since 1865			X
2370 - Survey of Film History			X
2400 - Introduction to American Indian Literature (AMIN)	X		
2750 - Analysis of Popular Culture Texts (SPCM)			X
3300 - Science Fiction			X
3350 - Studies in Film			X
3390 - Literary Theory and Criticism			X
3450 - Women and Literature: Selected Topics (WGS)			X
3460 - American Indian Literature (AMIN)	X		
3470 - Studies in African American Literature (AFAM)			X
3490 - Topics in Multicultural Literatures of the United States			X
3530 - World Literature: Western Foundations through Renaissance (CLST)		X	
3540 - World Literature: Seventeenth Century to the Present		X	
3600 - Studies in American Literature to 1800			X
3620 - Studies in 19th Century American Literature			X
3640 - Studies in American Literature: 1900 to the Present			X
3700 - Shakespeare		X	
3730 - Studies in British Literature: The Middle Ages			X
3750 - Studies in British Literature: The Restoration and 18th Century		X	
3760 - Studies in British Literature		X	
3890 - Postcolonial Literature		X	
3930 - The History of Children's Literature			X
4200 - History of the English Language (LING)			X
4220 - Women, Men, and the English Language (LING, WGS)			X

Environmental Science (ENSCI):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
3240 - Energy and the Environment (ENVS, GEOL, MTEOR)			X

Environmental Studies (ENVS):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2010 - Introduction to Environmental Issues (BIOL, ENSCI) (Only 2 credit course)			X
3240 - Energy and the Environment (ENSCI, GEOL, MTEOR)			X
3340 - Environmental Ethics (PHIL)			X
3420 - World Food Issues: Past and Present (AGRON, FSHN)		X	
3450 - Population and Society (SOC)		X	
3800 - Energy, Environmental and Resource Economics (ECON)			X
3820 - Environmental Sociology (SOC)		X	
4840 - Sustainable Communities (CRP)			X

Foreign Languages & Literatures:	U.S. Diversity	Intl. Persp.	IE SSH ONLY
Note: Students having a native language(s) other than English may not use elementary, intermediate or advanced-level grammar, conversational or composition courses in that language(s).			
ASL 1010 - American Sign Language I			X
ASL 1020 - American Sign Language II			X
CHIN 1010 - Elementary Mandarin Chinese I			X
CHIN 1020 - Elementary Mandarin Chinese II		X	
CHIN 2010 - Intermediate Mandarin Chinese I		X	
CHIN 2020 - Intermediate Mandarin Chinese II		X	
CHIN 3010 - Advanced Mandarin Chinese I		X	
CHIN 3020 - Advanced Mandarin Chinese II		X	
CHIN 3040 - Chinese for Global Professionals		X	
CHIN 3700 - Chinese Literature in English Translation		X	
CHIN 3750 - China Today		X	
FRNCH 1010 - Elementary French I			X
FRNCH 1020 - Elementary French II		X	
FRNCH 2010 - Intermediate French I		X	
FRNCH 2020 - Intermediate French II		X	
FRNCH 3010 - Language, Culture, Contexts		X	
FRNCH 3040 - French for Global Professionals		X	
FRNCH 3200 - France Today		X	
FRNCH 3700 - French Studies in English		X	
FRNCH 3780 - French Cinema		X	
GER 1010 - Elementary German I			X
GER 1020 - Elementary German II		X	
GER 2010 - Intermediate German I		X	
GER 2020 - Intermediate German II		X	
GER 3010 - Reading		X	
GER 3050 - Conversation		X	
GER 3200 - Germany Today		X	
GER 3300 - German Literature and Culture		X	
GER 3700 - German Studies in English		X	
GER 3710 - The Holocaust in Text, Image, and Memory		X	
GER 3750 - Grimms' Tales		X	
GER 3780 - German Film and Media Studies		X	
GER 3950 - Study Abroad		X	
GER 4760 - Topics in German Cultural Studies		X	
LATIN 1010 - Elementary Latin I			X
LATIN 1020 - Elementary Latin II		X	
PORT 1010 - Elementary Portuguese I			X
PORT 1020 - Elementary Portuguese II		X	
PORT 1120 - Elementary Portuguese, Accelerated II		X	
RUS 1010 - Introduction to Russian Language and Culture I			X
RUS 1020 - Introduction to Russian Language and Culture II		X	
RUS 2010 - Intermediate Russian I		X	
RUS 2020 - Intermediate Russian II		X	
RUS 3010 - Composition and Conversation		X	
RUS 3040 - Russian for Global Professionals		X	
RUS 3140 - Reading Russian Literary and Cultural Texts		X	
RUS 3700 - Russian Studies in English Translation		X	

	U.S. Diversity	Intl. Persp.	IE SSH ONLY
RUS 3750 - Russia Today		X	
RUS 3950 - Study Abroad		X	
SPAN 1010 - Elementary Spanish I			X
SPAN 1020 - Elementary Spanish II		X	
SPAN 2010 - Intermediate Spanish I		X	
SPAN 2020 - Intermediate Spanish II		X	
SPAN 2970 - Intensive Intermediate Spanish		X	
SPAN 3030 - Spanish Conversation and Composition		X	
SPAN 3040 - Spanish for Global Professionals		X	
SPAN 3140 - Textual and Media Analyses		X	
SPAN 3210 - Spanish Civilization		X	
SPAN 3220 - Latin American Civilization		X	
SPAN 3230 - Spain Today		X	
SPAN 3260/5260 - Studies in Hispanic Art or Film		X	
SPAN 3300 - Studies in Spanish Literature		X	
SPAN 3320 - Studies in Latin American Literature		X	
SPAN 3510 - Introduction to Spanish-English Translation (LING, USLS)		X	
SPAN 3520 - Spanish Pronunciation (LING)		X	
SPAN 3700 - Hispanic Topics in English Translation		X	
SPAN 3950 - Study Abroad		X	
SPAN 4010/5010 - Advanced Composition and Grammar		X	
SPAN 4400/5400 - Seminar on the Literatures and Cultures of Spain		X	
SPAN 4410/5410 - Seminar on Cervantes and the Golden Age		X	
SPAN 4450/5450 - Seminar on the Literatures and Cultures of Latin America		X	
SPAN 4620 - Contrastive Analysis of Spanish/English for Translators (LING)			X
SPAN 4630/5630 - Contemporary Spanish Linguistics (LING)		X	

Note: Students having a native language(s) other than English may not use elementary, intermediate or advanced-level grammar, conversational or composition courses in that language(s).

Geology (GEOL):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
3240 - Energy and the Environment (ENSCI, ENVS, MTEOR)			X

Gerontology (GERON):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
3730 - Death as a Part of Living (HDFS)			X
3770 - Aging and the Family (HDFS)			X
3780 - Retirement Planning and Employee Benefits (HDFS)			X

Global Resource Systems (GLOBE):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
3850 - Economic Development (ECON)		X	

History (HIST):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2010 - Introduction to Western Civilization I		X	
2020 - Introduction to Western Civilization II		X	
2070 - Chinese Civilization		X	
2210 - Survey of United States History I			X
2220 - Survey of United States History II			X
2800 - Introduction to History of Science I		X	
2810 - Introduction to History of Science II		X	

	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2840 - Wonders of the World, Global History of Innovation		X	
3070 - American Popular Culture			X
3250 - Society and Politics in England, 1525-1700			X
3360 - Ancient China		X	
3370 - Modern China		X	
3390 - US-Asian Relations		X	
3400 - Colonial Latin America			X
3410 - Modern Latin America		X	
3530 - History of African Americans I (AFAM)	X		
3540 - History of African Americans II (AFAM)	X		
3740 - Sex, Gender, and Culture in the Ancient Mediterranean World (CLST, WGS)		X	
3800 - History of Women in Science, Technology, and Medicine (WGS)	X		
3860 - History of Women in America (WGS)	X		
3890 - American Military History		X	
3900 - World Military History		X	
4020 - Greek Civilization (CLST)			X
4030 - Roman Civilization (CLST)			X
4050 - Transformations of the Early Medieval World			X
4060 - The Birth of Europe in the High Middle Ages			X
4140 - European Cultural and Intellectual History			X
4190 - History of Modern France			X
4210 - History of Russia I		X	
4220 - History of Russia II		X	
4240 - History of Modern Germany			X
4280 - Punishment, Mentalities, and Society in England, 1550-1868			X
4310 - Modern England		X	
4410 - History of Modern Mexico and Central America			X
4500 - Colonial America			X
4510 - American Revolutionary Era			X
4550 - U.S. Civil War and Reconstruction Era			X
4580 - U.S. 1900 to 1945			X
4590 - U.S. 1945 to the Present			X
4600 - The Great Plains			X
4610 - The American South			X
4650 - The American West			X
4680 - History of Rural America			X
4730 - Civil Rights and Ethnic Power (AFAM, USLS)	X		
4820 - Birth, Death, Medicine, and Disease			X
4880 - American Stuff, Colonial Times to the Present			X

Human Development and Family Studies (HDFS):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
1020 - Human Development			X
2390 - Consumer Issues	X		
2400 - Literature for Children	X		
2490 - Parenting and Family Diversity Issues			X
2760 - Human Sexuality	X		
3730 - Death as a Part of Living (GERON)			X
3770 - Aging and the Family (GERON)			X
3780 - Retirement Planning and Employee Benefits (GERON)			X

International Studies (INTST):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2350 - Introduction to International Studies		X	

Journalism and Mass Communication (JLMC):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
1010 - Mass Media and Society			X
4010/5010 - Mass Communication Theory			X
4610 - History of American Journalism			X
4620 - Media Ethics, Freedom, Responsibility			X
4640 - Journalism and Literature			X
4740/5740 - Communication Technology and Social Change		X	
4760/5760 - World Communication Systems		X	
4770 - Diversity in the Media	X		

Kinesiology (KIN):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
3650 - Sport Psychology			

Landscape Architecture (LA):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
3710 - History of Modern Landscapes, 1750 to Present			X
3730 - Gardens and Landscapes from Antiquity to 1750		X	

Linguistics (LING):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
3090 - Introduction to Culture and Language (ANTHR)		X	
3510 - Introduction to Spanish-English Translation (SPAN, USLS)		X	
3520 - Spanish Pronunciation (SPAN)		X	
4200 - History of the English Language (ENGL)			X
4220 - Women, Men, and the English Language (ENGL, WGS)			X
4620 - Contrastive Analysis of Spanish/English for Translators (SPAN)			X
4630/5630 - Contemporary Spanish Linguistics (SPAN)		X	

Meteorology (MTEOR):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
3240 - Energy and the Environment (ENSCI, ENVS, GEOL)			X

Music (MUSIC):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
1020 - Introduction to Music Listening		X	
3830 - History of Music I		X	
3840 - History of Music II		X	
4720 - History of American Music	X		
4730 - Topics in Advanced Music History			X
4750 - Music of the Romantic Era			X

Philosophy (PHIL):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2010 - Introduction to Philosophy			X
2300 - Moral Theory and Practice			X
2350 - Ethical Issues in a Diverse Society	X		
3100 - Ancient Philosophy (CLST)			X
3140 - 17th Century Philosophy			X
3150 - 18th Century Philosophy			X
3160 - 19th Century Continental Philosophy			X
3180 - History of Analytic Philosophy			X
3200 - Existentialism			X
3300 - Ethical Theory			X
3310 - Moral Problems in Medicine			X
3320 - Philosophy of Law (CJ)			X
3340 - Environmental Ethics (ENVS)			X
3350 - Social and Political Philosophy			X
3360 - Bioethics and Biotechnology			X
3380 - Feminist Philosophy (WGS)			X
3400 - Aesthetics			X
3430 - Philosophy of Technology			X
3500 - Philosophy of Religion (RELIG)			X
3640 - Metaphysics: God, Minds, and Matter			X
3660 - Truth, Belief, and Reason			X
3800 - Philosophy of Science			X
4300 - Value Theory			X
4500 - Agency and Free Will			X
4850 - Philosophy of Physics			X

Political Science (POLS):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
1110 - Introduction to American Government			X
1210 - Introduction to International Politics		X	
1250 - Democracy and Dictatorship: Introduction to Comparative Politics		X	
2350 - Introduction to Ethics and Politics			X
3050 - Comparative Political Behavior			X
3060 - Public Opinion and Voting Behavior			X
3100 - State and Local Government			X
3180 - Campaigns and Elections			X
3190 - Law and Politics			X
3200 - American Judicial Process (CJ)			X
3340 - Politics and Society (SOC)			X
3350 - Science, Technology, and Public Policy			X
3400 - Politics of Developing Areas		X	
3430 - Latin American Government and Politics (USLS)		X	
3440 - Public Policy			X
3460 - European Politics		X	

3490 - Politics of Russia and Eastern Europe		X	
3500 - Politics of the Middle East		X	
3560 - Theories of International Politics			X
3570 - International Security Policy			X
3580 - United States Foreign Policy			X
3590 - Current Issues in American Foreign Policy			X
3600 - American Institutions: Congress			X
3610 - American Institutions: The Presidency			X
3700 - Religion and Politics (RELIG)			X
3810 - International Political Economy			X
3830 - Environmental Politics and Policies (ENVS)			X
3850 - Women in Politics (WGS)	X		
4170 - Campaign Rhetoric (SPCM)			X
4200 - Constitutional Law			X
4210 - Constitutional Freedoms			X
4220/5220 - International Law			X
4300/5300 - Foundations of Western Political Thought (CLST)			X
4310/5310 - Modern Political Thought			X
4520/5520 - Comparative Foreign Policy		X	
4530/5530 - International Organizations			X
4770/5770 - Government, Business, and Society			X
4800/5800 - Ethics and Public Policy			X
4870/5870 - Electronic Democracy			X

Psychology (PYSCH):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
1010 - Introduction to Psychology			X
2300 - Developmental Psychology			X
2800 - Social Psychology			X
3140 - Motivation			X
3150 - Drugs and Behavior			X
3160 - Cognitive Psychology			X
3460 - Psychology of Women (WGS)	X		
3600 - Personality Psychology			X
4600 - General Psychopathology			X

Religious Studies (RELIG):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2050 - World Religions (WLC)		X	
2100 - Religion in America	X		
2420 - History of Christianity: Early to Medieval		X	
3210 - The Hebrew Bible			X
3220 - The New Testament			X
3340 - Africana Religions (AFAM)	X		
3360 - Religion and Gender (WGS)		X	
3400/5400 - Magic, Witchcraft, and Religion (ANTHR)		X	

3500 - Philosophy of Religion (PHIL)			X
3520 - Religions of India (WLC)		X	
3580 - Islam (WLC)		X	
3600 - Religion and Ethics			X
3700 - Religion and Politics (POLS)			X

Sociology (SOC):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
1340 - Introduction to Sociology			X
2190 - Families and Intimate Relationships			X
2300 - Rural Society in Transition			X
2350 - Social Problems and American Values	X		
2410 - Youth and Crime (CJ)			X
3050 - Social Psychology: A Sociological Perspective			X
3100 - Community			X
3250 - Agriculture in Transition			X
3270 - Gender and Sexualities in Society (WGS)	X		
3280 - Sociology of Masculinities and Manhood (WGS)			X
3300 - Ethnic and Race Relations (AFAM)	X		
3310 - Social Class and Inequality	X		
3320 - The Latino/Latina Experience in U.S. Society			X
3340 - Politics and Society (POLS)			X
3400 - Deviant and Criminal Behavior (CJ)			X
3450 - Population and Society (ENVS)		X	
3620 - Applied Ethics in Agriculture and Rural Development			X
3800 - Sociology of Work			X
3820 - Environmental Sociology (ENVS)		X	
4010 - Contemporary Sociological Theories			X
4110 - Social Change in Developing Countries		X	
4150 - Agrifood Policy and Social Change			X

Speech Communication (SPCM):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2160 - America Speaks: Great Speakers and Speeches in US History	X		
3230 - Gender and Communication (WGS)	X		
4170 - Campaign Rhetoric (POLS)			X

Theatre (THTRE):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
4650 - Theatre History: Ancient to 19th Century			X
4660 - Theatre History: 19th Century to Present			X

U.S. Latino/a Studies Program (USLS):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2110 - Introduction to U.S. Latino/a Studies	X		
3430 - Latin American Government and Politics (POLS)		X	
3600 - Latinas and Victimization (CJ)	X		

Women's and Gender Studies (WGS):	U.S. Diversity	Intl. Persp.	IE SSH ONLY
2010 - Introduction to Women's and Gender Studies	X		
2030 - Introduction to Lesbian Studies	X		
2050 - Introduction to Queer Studies	X		
3010 - International Perspectives on Women and Gender		X	
3070 - Women in Science and Engineering (BIOL, WISE)	X		
3210 - Economics of Discrimination (ECON)	X		
3230 - Gender and Communication (SPCM)	X		
3270 - Gender and Sexualities in Society (SOC)	X		
3280 - Sociology of Masculinities and Manhood (SOC)			X
3360 - Religion, Sex and Gender (RELIG)		X	
3380 - Feminist Philosophy (PHIL)			X
3450 – Women's Literature (ENGL)			X
3460 - Psychology of Women (PSYCH)	X		
3500 - Women of Color in the U.S. (AFAM)			X
3740 - Sex, Gender, and Culture in the Ancient Mediterranean World (CLST, HIST)		X	
3800 - History of Women in Science, Technology, and Medicine (HIST)	X		
3850 - Women in Politics (POLS)	X		
3860 - History of Women in America (HIST)	X		
4010 - Feminist Theories	X		
4220 - Women, Men, and the English Language (ENGL, LING)			X
4940 - Women/Gender in Art (ARTH)			X
** Be sure to check the current catalog for prerequisites. **			

Courses Not Offered in 2024-2025 Catalog

The courses listed below are approved for Industrial Engineering majors, but are not being offered in the 2024-2025 academic year. If you took one of these courses in the past, it will still count towards your IE degree.

Engineering Electives not in 2024-2025 Catalog

Class	Description	Prerequisites	Semester
A E 423X	Energy and the Environment	MATH 160 or higher, PHYS 221, A B E 216 or ME 270	F.
AER E 466	Multidisciplinary Engineering Design (A B E, B M E, CPR E, E E, ENGR, I E, M E, MAT E)	Student must be within two semesters of graduation; permission of instructor.	F.S.
AER E 467	Multidisciplinary Engineering Design II (ENGR, I E, M E, MAT E)	Student must be within two semesters of graduation or permission of instructor.	Alt. F., Alt. S., offered irregularly.
AER E 481	Advanced Wind Energy: Technology and Design	AER E 381 or Senior classification in Engineering or Junior in Engineering with a course in fluid mechanics	S.
ABE 4660	Multidisciplinary Engineering Design (AERE, BME, CPRE, EE, ENGR, IE, MATE, ME)	Student must be within two semesters of graduation; permission of instructor	F.S.
C E 430X	Anerobic Biproducts	C E 326	VARIES
C E 511	Bioprocessing and Bioproducts (A B E)	A B E 216, C E 326 or equivalent, MATH 160 or MATH 165, CHEM 167 or higher, BIOL 173 or BIOL 211 or higher, Senior or Graduate classification	F.
CON E 454X	Building Energy Modeling	CON E 354	F.
CPR E 466	Multidisciplinary Engineering Design (A B E, AER E, B M E, E E, ENGR, I E, M E, MAT E)	Student must be within two semesters of graduation; permission of instructor.	F.S.
CPR E 467	Multidisciplinary Engineering Design II (AER E, E E, ENGR, I E, M E, MAT E)	Student must be within two semesters of graduation and permission of instructor.	Alt. F., Alt. S., offered irregularly.
E E 466	Multidisciplinary Engineering Design (A B E, AER E, B M E, CPR E, ENGR, I E, M E, MAT E)	Student must be within two semesters of graduation; permission of instructor.	F.S.
E E 467	Multidisciplinary Engineering Design II (AER E, CPR E, ENGR, I E, M E, MAT E)	Student must be within two semesters of graduation and permission of instructor.	Alt. F., Alt. S., offered irregularly.
ECON 333	Advanced Farm Business management	ECON 230	VARIES
E M 345	Engineering Dynamics	E M 274, credit or enrollment in MATH 266 or 267	F.S.SS.
ENGR 340	Intro to Wind Energy: System Design & Delivery	MATH 166, PHYS 222	F.
ENGR 466	Multidisciplinary Engineering Design (A B E, AER E, B M E, CPR E, E E, I E, M E, MAT E)	Student must be within two semesters of graduation; permission of instructor.	F.S.
ENGR 467	Multidisciplinary Engineering Design II (AER E, I E, M E, MAT E)	Student must be within two semesters of graduation and permission of instructor.	Alt. F., Alt. S., offered irregularly.
I E 222	Design & Analysis Methods for Systems Improvements *Only an Engr Topic Elective for students who began I E program before Fall 2014.	I E 248; credit and enrollment in I E 271	S.
I E 347X	Medical Manufacturing	MAT E 273	VARIES
I E 409	Interdisciplinary Systems Effectiveness	Junior or Senior classification	F.SS.
I E 451	Technical Sales for Engineers II	I E 450	S.

I E 466	Multidisciplinary Engineering Design (A B E, AER E, B M E, CPR E, E E, ENGR, M E, MAT E)	Student must be within two semesters of graduation; permission of instructor.	F.S.

I E 467	Multidisciplinary Engineering Design II (AER E, ENGR, M E, MAT E)	Student must be within two semesters of graduation or permission of instructor.	Alt. F., Alt. S., offered irregularly.
I E 543	Wind Energy Manufacturing	Undergraduate engineering degree or permission of instructor	Alt. S., offered even-numbered years
I E 578X	Human-Centered Design and Manufacturing		VARIES
MAT E 363	Materials for Wind Energy	ENGR 340	S
MAT E 442	Structure/Property Relations in Nonferrous Metals	MAT E 215 or 273 or 392	F.
MAT E 466	Multidisciplinary Engineering Design (A B E, AER E, B M E, CPR E, E E, ENGR, I E, M E)	Student must be within two semesters of graduation; permission of instructor.	F.S.
MAT E 467	Multidisciplinary Engineering Design II (AER E, ENGR, I E, M E)	Student must be within two semesters of graduation or permission of instructor.	Alt. F., Alt. S., offered irregularly.
M E 446	Power Plant Design	M E 332, credit or enrollment in M E 335	F.
M E 466	Multidisciplinary Engineering Design (A B E, AER E, B M E, CPR E, E E, ENGR, I E, MAT E)	Student must be within two semesters of graduation; permission of instructor.	F.S.
M E 467	Multidisciplinary Engineering Design II (AER E, ENGR, I E, MAT E)	Student must be within two semesters of graduation or permission of instructor.	Alt. F., Alt. S., offered irregularly.
M E 540	Solar Energy Systems	ME 436	F.
MGMT 313	Feasibility Analysis and Business Planning	MGMT 310	F.S.
NUC E 401	Nuclear Radiation Theory and Engineering	PHYS 222, MATH 266 or MATH 267	F.
NUC E 402	Nuclear Reactor Engineering	NUC E 401, permission of Nuclear Engineering program director	S.
NUC E 441	Probabilistic Risk Assessment	STAT 305 or equivalent	S.
NUC E 461	Radiation Detection, Measurement and Simulation	NUC E 401	S.
STAT 407	Methods of Multivariate Analysis	STAT 301 or STAT 326 or STAT 401, knowledge of matrix algebra	F.

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SSH Classes not in 2024-2025 Catalog	U.S. Diversity	Intl. Persp.	IE SSH ONLY
AF AM 325 - Peoples and Cultures of Africa (ANTHR)		X	
AF AM 348 - Cont. African American Literature	X		
AM IN 323 - Topics in Latin American Anthropology (ANTHR)			X
AM IN 328 - American Indian Religions (RELIG)	X		
AM IN 342 - American Indian Women Writers (W S) (ENGL)	X		
AM IN 432 - Current Issues in Native North America (now listed as AM IN 332)	X		
ANTHR 325 - Peoples and Cultures of Africa (AF AM)		X	
ANTHR 333 - Asian American Material Cultures (HIST)	X		
ANTHR 337 - Andean Archaeology		X	
ANTHR 412 - Psychological Anthropology	X		
ANTHR 432 - Current Issues in Nat. N. America (now listed as ANTHR 332)	X		
ANTHR 439 - Medical Anthropology		X	
ANTHR 444/544 - Cross-cultural Perspective on Gender and Sexuality (WGS)		X	
ARCH 222 - History of Architecture II		X	

Course	Col1	Col2	Col3
ART H 181 - Origins and Evolution of Modern Design			X
ART H 481 - Art and Architecture of India		X	
CHIN 272 - Introduction to Chinese Culture		X	
CL ST 404 - Roman Social History			X
C R P 253 - Survey of Community and Regional Planning			X
C R P 270 - Forces Shaping Our Metropolitan Env. (DSN S 270)	X		
CZECH 101 - Elementary Czech			X
CZECH 102 - Elementary Czech II		X	
CZECH 201 - Intermediate Czech I		X	
CZECH 202 - Intermediate Czech II		X	
DSN S 181 - Origins and Evolution of Modern Design			X
DSN S 221 - History of Architecture I (ARCH)		X	
DSN S 222 - History of Architecture II (ARCH)		X	
DSN S 270 - Forces Shaping Our Metropolitan Environment	X		
DSN S 280 - History of Art I (ART H)		X	
DSN S 281 - History of Art II (ART H)		X	
DSN S 371 - History of Modern Landscapes, 1750 to Present			X
DSN S 373 - Gardens and Landscapes from Antiquity to 1750		X	
DSN S 382 - Art and Architecture in Asia		X	
DSN S 383 - Greek and Roman Art			X
DSN S 385 - Renaissance Art			X
DSN S 388 - Modern Art and Theory			X
DSN S 395 - Art and Theory Since 1945	X		
DSN S 396 - History of Photography			X
DSN S 481 - Art and Architecture in India		X	
DSN S 487 - Nineteenth Century Art			X
DSN S 494 - Women/Gender in Art	X		
ECON 308 - Agent-Based Computational Economics			X
ECON 312 - History of Economic Thought			X
ECON 370 - Comparative Capitalism and Economic Transitions		X	
ECON 378 - Retirement Planning and Employee Benefits	X		
ECON 458 - Economic Systems for Electric Power Planning (E E)			X
ENGL 205 - Popular Culture Analysis			X
ENGL 231 - Readings in American Literature & Culture			X
ENGL 301 - Cultural Studies			X
ENGL 340 - Women's Literature (WGS)			
ENGL 342 - American Indian Women Writers (AM IN, W S)	X		
ENGL 344 - U.S. Latino/a Literature	X		
ENGL 348 - Cont. African American Literature	X		
ENGL 358 - Myth and Fairytale			X
ENGL 366 - Studies in Drama			X
ENGL 374 - Studies in British Literature: The Renaissance		X	
ENGL 378 - Studies in British Literature: 1900 to Present			X
ENGL 384 - 20th Century & Contemporary Literature			X
ENGL 482 - Environmental Politics & Policies			X
ENV S 383 - Environmental Politics and Policies (POL S)			X
ENV S 384 - Religion and Ecology (RELIG)		X	
ENV S 442 - The Policy and Politics of Coastal Areas (POL S)			X
ENV S 472 - U.S. Environmental History (HIST)			X
FRNCH 310 - French Pronunciation and Phonetics			X
FRNCH 314 - Textual Analysis			X

Course			
FRNCH 333 - Modern French Literature		X	
FRNCH 334 - The French Literary Tradition		X	
FRNCH 375 - Contemporary France and the Francophone World		X	
FRNCH 395 - Study Abroad		X	
FRNCH 440 - Topics in French Studies		X	
FRNCH 471 - Foundations of French Civilization		X	
FRNCH 472 - Modern France and French Civilization		X	
FS HN 432 - World Food Issues: Past and Present (AGRON, ENV S, T SC)		X	
GER 471 - Foundations of German Civilization			X
GER 472 - Topics in German Cultural Studies (now listed as GER 476)			X
GREEK 101 - Elementary Ancient and New Testament Greek I			X
GREEK 102 - Elementary Ancient and New Testament Greek II		X	
GREEK 201 - Intermediate Classical Greek		X	
GREEK 332 - Introduction to Classical Greek Literature		X	
GREEK 441 - Advanced Readings in Greek Literature		X	
GREEK 442 - Advanced Topics in Greek Literature		X	
HIST 225 - Introduction to Asian American Studies	X		
HIST 240 - Latina/o History (US LS)	X		
HIST 245 - Introduction to Latin American History		X	
HIST 285 - Modern Wonders of the World			X
HIST 305 - Cultural Heritage of the Modern World			X
HIST 323 - Science and Religion (RELIG)		X	
HIST 338 - Modern Japanese History		X	
HIST 351 - Social and Cultural History of American People I			X
HIST 352 - Social and Cultural History of American People II			X
HIST 355 - Early American Republic			X
HIST 356 - U.S. Civil War and Reconstruction Era			X
HIST 371 - The Holocaust in Text, Image, and Memory		X	
HIST 388 - History of Modern Astronomy			X
HIST 404 - Roman Social History			X
HIST 408 - Europe, 1500-1648			X
HIST 410 - 19th Century Europe			X
HIST 425 - History of Modern Germany II		X	
HIST 454 - Slavery and the Crisis of Union			X
HIST 456 - American Family History			X
HIST 462 - History of American Thought I			X
HIST 463 - History of American Thought II			X
HIST 464 - Nineteenth Century America			X
HIST 466 - North American Expansion			X
HIST 469 - Contemporary America			X
HIST 470 - The United States and the Cold War I			X
HIST 471 - The United States and the Cold War II			X
HIST 472 - U. S. Environmental History (ENV S)			X
HIST 483 - History of Social and Behavioral Sciences			X
HIST 484 - Science, Technology, Medicine, and Public Policy			X
HIST 489 - History of American Science			X
HD FS 349 - Parenting and Family Diversity Issues (now listed under HD FS 249)	X		
LAS 211 - Introduction to U.S. Latino/a Studies	X		
LAS 225 - Introduction to Asian American Studies	X		
LAS 325 - Introduction to Asian American Studies	X		
LAS 385 - The Holocaust		X	

LATIN 201 - Intermediate Latin		X	
LATIN 332 - Introduction to Latin Literature		X	
LATIN 441 - Advanced Readings in Latin Literature		X	
LATIN 442 - Advanced Topics in Latin Literature		X	
M S 283 - The U. S. Army in American Society to 1917			X
MUSIC 471 - Tones of Florence - A Study in Humanism		X	
PHIL 317 - 20th and 21st Century Continental Philosophy			X
PHIL 381 - Philosophy of the Social and Behavioral Sciences			X
PHIL 460 - Epistemology and Metaphysics			X
PHIL 480 - Controversies in Science			X
PHIL 483 - Philosophy of Biology			X
POL S 301 - Introduction to Empirical Political Science Research			X
POL S 311 - Municipal Government and Politics			X
POL S 312 - Special Topics in American Government and Politics (Only 2 credit course)			X
POL S 313 - Special Topics in Theory and Methods (Only 2 credit course)			X
POL S 314 - Special Topics in Comparative Politics (Only 2 credit course)			X
POL S 315 - Special Topics in International Relations (Only 2 credit course)		X	
POL S 332X - Latino Politics	X		
POL S 341 - Politics of Japan		X	
POL S 345 - Immigration Policy		X	
POL S 371 - Public Organizations and Leadership			X
POL S 406 - Public Opinion and Voting Behavior (now listed as POL S 306)			X
POL S 410 - Iowa Government and Politics			X
POL S 413/513 - Intergovernmental Relations			X
POL S 433 - American Political Thought			X
POL S 442/542 - The Policy and Politics of Coastal Areas (ENV S)			X
POL S 451 - International Politics of Asia			X
POL S 464 - Political Parties and Interest Groups			X
POL S 470 - Political Game Theory			X
POL S 483 - Law and Management			X
POL S 485 - Comparative Public Administration			X
POL S 486 - Science, Technology, and Public Policy (now listed as POL S 335)			X
POLSH 101 - Elementary Polish I			X
POLSH 102 - Elementary Polish II		X	
POLSH 201 - Intermediate Polish I		X	
POLSH 202 - Intermediate Polish II		X	
PORT 202 - Intermediate Portuguese II			X
PORT 301 - Advanced Grammar, Composition, and Conversation			X
PORT 321 - Luso-Brazilian Civilization and Culture			X
PORT 330 - Readings in Luso-Brazilian			X
PORT 370 - Luso-Brazilian Topics in English Translation			X
PSYCH 318 - Thinking and Decision Making			X
PSYCH 381 - Social Psychology of Small Group Behavior (SOC)			X
PSYCH 401 - History of Psychology			X
RELIG 220 - Introduction to the Bible			X
RELIG 260 - Religious Ethics (now listed under RELIG 360)			X
RELIG 280 - Introduction to Catholicism			X
RELIG 323 - Science and Religion (HIST)		X	
RELIG 328 - American Indian Religions (AM IN)	X		
RELIG 333 - Introduction to Judaism		X	
RELIG 338 - Latino/a Religious Experience			X

Course			
RELIG 342 - Religion and U.S. Latino/a Literature (US LS)	X		
RELIG 356 - African Religions		X	
RELIG 376 - Classical Archaeology (ANTHR, CL ST)		X	
RELIG 377 - Social Dimensions of Religion (SOC)			X
RELIG 384 - Religion and Ecology (ENV S)		X	
RELIG 453 - Buddhism		X	
RELIG 485 - Theory and Method in Religious Studies			X
RUS 320 - Russia Today (now listed as RUS 375)			X
RUS 376 - Topics in Russian, East European, and Eurasian Studies			X
RUS 401 - Advanced Composition and Conversation			X
RUS 440 - Seminar in Russian Studies			X
SERBC 101 - Elementary Serbo-Croatian I			X
SERBC 102 - Elementary Serbo-Croatian II		X	
SOC 130 - Rural Institutions and Organizations			X
SOC 264 - Small Group Dynamics			X
SOC 377 - Social Dimensions of Religion (RELIG)			X
SOC 381 - Social Psychology of Small Group Behavior (PSYCH)			X
SOC 420 - Complex Organizations			X
SOC 431 - Chicanos/Chicanas in Contemporary Society	X		
SOC 435 - Urban Sociology			X
SOC 461 - Life Course Sociology			X
SOC 484 - Topical Studies in Criminal and Juvenile Justice (CJ ST)			X
SOC 485 - Sociology of the Family			X
SPAN 301 - Spanish Grammar and Composition		X	
SPAN 331 - Survey of Spanish Literature from 1700 to the Present		X	
T C 165 - Dress and Diversity in Society (now listed as AMD 165)	X		
T C 354 - History of European & North American Dress (now listed as AMD 354)		X	
T C 362 - Cultural Perspectives of Dress (now listed as AMD 362)		X	
T SC 341 - Technology: International, Social, & Human Issues			X
T SC 342 - World Food Issues: Past and Present (AGRON, ENV S, FS HN)		X	
T SC 343 - Philosophy of Technology (PHIL)			X
T SC 474 - Communication Technology & Social Change (JL MC)		X	
US LS 332 - The Latino/Latina Experience in U.S. Society (SOC)	X		
US LS 342 - Religion and U.S. Latino/a Literature (RELIG)	X		
U ST 342 - World Food Issues: Past and Present		X	
WGS 340 - Women's Literature (ENGL)	X		
W S 342 - American Indian Women Writers (AM IN) (ENGL)	X		
W S 394 - Women in Art	X		
WGS 444/544 - Cross-cultural Perspectives on Gender and Sexuality (ANTHR)		X	