

## Aerospace Engineering Program 2009/2011 (132 Hours)

Offered:  
F=Fall  
S=Spring  
M=Summer

Semester, Transfer or AP	Grade	Course Number	Cr Hrs	Course Title	Prerequisites, Corequisites and/or Prerequisites with Concurrency	Offered:
<b>English - 6 hours</b>						
		EH 101	3	Freshman Composition I	Placement	FSM
		EH 102	3	Freshman Composition II	EH 101	FSM
<b>Mathematics - 15 hours</b>						
		MA 171	4	Calculus A	MA 113 or MA 115 or Level III Placement	FSM
		MA 172	4	Calculus B	MA 171	FSM
		MA 201	4	Calculus C	MA 172	FSM
		MA 238	3	Applied Differential Equations	Prereq w/Con: MA 201	FSM
<b>Chemistry - 4 hours</b>						
		CH 121	3	General Chemistry I	CH 101 or Plcmt, MA 112, Prereq w/Con: MA 113 or 115, Coreq: CH 125	FSM
		CH 125	1	General Chemistry Lab I	Coreq: CH 121	FSM
<b>Physics - 8 hours</b>						
		PH 111	3	General Physics w/Calculus I	MA 171	FSM
		PH 114	1	General Physics Lab I	Prereq w/Con: PH 111	FSM
		PH 112	3	General Physics w/Calculus II	MA 172, PH 111	FSM
		PH 115	1	General Physics Lab II	Prereq w/Con: PH 112	FSM
<b>Chemistry/Physics Elective - 4 hours</b>						
			3			FSM
			1		Choose from CH 123/126 or PH 113/116	FSM
<b>History, Social &amp; Behavioral Sciences - 9 hours</b>						
		HY	3	History	Must take a six hour sequence in a discipline.	FSM
			3		See Humanities & Fine Arts List at	FSM
			3		<a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
<b>Humanities &amp; Fine Arts - 9 hours</b>						
		EH	3	Literature		FSM
			3	Fine Arts	See History, Social & Behavioral Sciences list at	FSM
		PHL 202	3	Introduction to Ethics	<a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
<b>Engineering Core - 12 hours</b>						
		MAE 271	3	Statics	PH 111, Prereq w/Con: MA 201	FSM
		MAE 341	3	Thermodynamics I	MA 201, CH 121, CH 125, PH 112	FSM
		EE 213	3	Electrical Circuit Analysis I	PH 112, Prereq w/Con: MA 238 & (MA 244 or CHE 244 or MAE 285)	FSM
		ISE 321	3	Engineering Economy	MA 172, Sophomore Standing	FSM
<b>** Class has required lab section Aerospace Engineering Option - 62 hours</b>						
**		MAE 100	2	Introduction to Mechanical & Aerospace Eng	Prereq w/Con: MA 112 or Level II Placement, Coreq: MAE 100L	FS
**		MAE 110	3	Intro to Engineering Computer Aided Design	Prereq w/Con: MA 112 or Level II Placement	FSM
		MAE 200	1	Principles of Aeronautics & Astronautics	MAE 100	FS
		MAE 272	3	Dynamics	MAE/CE 271 & (MAE 285 or CPE 112)	FSM
**		MAE 285	3	Numerical Methods & Computation I	MA 171, Coreq: MAE 285L	FSM
**		MAE 310	3	Fluid Mechanics I	MA 238, MAE/CE 271 & (MAE 285 or CPE 112 or CHE 197)	FSM
**		MAE 311	3	Principles of Measurement & Instrumentation	EE 213, Coreq: MAE 311L	FSM
		MAE 342	3	Thermodynamics II	MAE 341	FSM
**		MAE 370	4	Mechanics of Materials	MAE 271 & (MAE 285 or CPE 112 or CHE 197), Coreq: MAE 370L	FSM
		MAE 371	3	Aerospace Structures	MAE 110, MAE/CE 272, MAE/CE 370	FM
		MAE 378	3	Materials & Manufacturing Processes	MAE/CE 370	FSM
		MAE 385	2	Numerical Methods & Computation II	(MAE 285 or CPE 112 or CHE 197), Prereq w/Con: MA 238	FSM
		MAE 420	3	Compressible Aerodynamics	MAE 200, MAE 310, MAE 341	SM
		MAE 430	3	Fundamentals of Aerodynamics	MAE 420	FM
Select One		MAE 440	3	Rocket Propulsion I	MAE 342 & (MAE 410 or MAE 420), Prereq w/Con: MAE 450	FM*
		MAE 441	3	Airbreathing Propulsion	MAE 342 & (MAE 410 or MAE 420), Prereq w/Con: MAE 450	FM*
**		MAE 449	2	Aerospace Lab	MAE 311, Coreq: MAE 449L, Prereq w/Con: MAE 371 or 430 or 440 or 441	FS
**		MAE 450	4	Intro to Heat and Mass Transfer	MAE 310, MAE 385, Coreq: MAE 450L	FSM
		MAE 468	3	Elements of Spacecraft Design	MAE/CE 272, MAE 370, MAE 420, MA 238, Prereq w/Con: MAE 450	SM*
		MAE 480	3	Aircraft Stability & Control	MAE 430, MAE 488	SM*
		MAE 488	3	Analysis of Engineering Systems	EE 213, MAE/CE 272, MAE 310, MAE 385	FSM
		MAE 490	2	Intro to Engineering Design	EE 213, ISE 321, MAE/CE 272	FSM
		MAE 492	3	Aerospace Design	MAE 378, MAE 490, Senior Standing, Instructor Permission	FS
<b>Technical Elective - 3 hours</b>						
			3		MAE course 300 level or above approved by the Department	

\* These courses are offered in alternating summers. Please consult the MAE 5 year plan.

**All prerequisite classes must be completed with a "C" or higher grade.  
The Catalog is the final authority for all degree requirements.**

Updated  
May 11, 2009

**ENGINEERING**

**APPROVALS:**

Advisor	Date	Department Chair	Date
		Dean of Engineering	Date

## Optical Engineering Program 2009/2011 (128 Hours)

Offered:  
F=Fall  
S=Spring  
M=Summer

Semester, Transfer or AP	Grade	Course Number	Cr Hrs	Course Title	Prerequisites, Corequisites and/or Prerequisites with Concurrency	Offered:
<b>English - 6 hours</b>						
		EH 101	3	Freshman Composition I	Placement	FSM
		EH 102	3	Freshman Composition II	EH 101	FSM
<b>Mathematics - 18 hours</b>						
		MA 171	4	Calculus A	MA 113 or MA 115 or Level III Placement	FSM
		MA 172	4	Calculus B	MA 171	FSM
		MA 201	4	Calculus C	MA 172	FSM
		MA 238	3	Applied Differential Equations	Prereq w/Con: MA 201	FSM
		MA 244	3	Introduction to Linear Algebra	MA 172	FSM
<b>Chemistry - 4 hours</b>						
		CH 121	3	General Chemistry I	CH 101 or Plcmt, MA 112, Prereq w/Con: MA 113 or 115, Coreq: CH 125	FSM
		CH 125	1	General Chemistry Lab I	Coreq: CH 121	FSM
<b>Physics - 12 hours</b>						
		PH 111	3	General Physics w/Calculus I	MA 171	FSM
		PH 114	1	General Physics Lab I	Prereq w/Con: PH 111	FSM
		PH 112	3	General Physics w/Calculus II	MA 172, PH 111	FSM
		PH 115	1	General Physics Lab II	Prereq w/Con: PH 112	FSM
		PH 113	3	General Physics w/Calculus III	MA 201, PH 112	FSM
		PH 116	1	General Physics Lab III	Prereq w/Con: PH 113	FSM
<b>History, Social &amp; Behavioral Sciences - 9 hours</b>						
		HY	3	History	Must take a six hour sequence in a discipline.	FSM
			3		See Humanities & Fine Arts List at	FSM
			3		<a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
<b>Humanities &amp; Fine Arts - 9 hours</b>						
		EH	3	Literature	See History, Social & Behavioral Sciences list at <a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
			3	Fine Arts		FSM
		PHL 202	3	Introduction to Ethics		FSM
<b>Engineering Core - 12 hours</b>						
**		CPE 112	3	Intro to Computer Programming in Engineering	MA 113, MA 115 or Level III Placement, Coreq: CPE 112L	FSM
**		EE 213	3	Electrical Circuit Analysis I	PH 112, Prereq w/Con: MA 238 & (MA 244 or CHE 244 or MAE 285)	FSM
		EE 310	3	Solid State Fundamentals	PH 112, Prereq w/Con: MA 238	FS
		ISE 321	3	Engineering Economy	MA 172, Sophomore Standing	FSM
<b>Optical Engineering Option - 30 hours</b>						
		EE 307	3	Electricity and Magnetism	EE 213, MA 238, MA 244	FSM
		EE 313	3	Electrical Circuit Analysis II	EE 213	FSM
		EE 447	3	Electromagnetic Engineering	EE 307	FS
		OPE 451	3	Optoelectronics	Prereq w/Con: EE 307, EE315	F
		OPE 453	3	Laser Systems	EE 307	F
		OPE 456	3	Photonics Lab	OPE 451	S
		OPE 459	3	Optical Engineering Design I	ISE 321, Prereq w/Con: OPE 456	F
		OPE 460	3	Optical Engineering Design II	OPE 459	S
		OPT 341	3	Geometrical Optics	Prereq w/Con: PH 113	F
		OPT 342	3	Physical Optics	OPT 341	S
<b>Electrical Engineering Requirements - 25 hours</b>						
**		EE 100	3	Fund of Computer, Electrical & Optical Eng	Coreq: EE 100L	FSM
		EE 202	3	Intro to Digital Logic Design	CPE 112, EE 100	FSM
		EE 203	1	Digital Logic Design Lab	EE 202	FSM
		EE 214	1	Electronic Measurement Lab	EE 213	FSM
		EE 305	1	Electronic Devices & Design Lab	EE 214, Prereq w/Con: EE 315	FSM
		EE 315	3	Introduction to Electronic Analysis and Design	EE 213	FSM
		EE 382	3	Analytical Meth for Continuous Time Sys	EE 213, MA 238, MA 244	FSM
		EE 383	3	Analytical Meth for Mult and Discr Time Sys	EE 382	FSM
		EE 384	1	Digital Signal Processing Laboratory	CPE 381 or Prereq w/Con: EE 383	FSM
		EE 420	3	Random Signals and Noise	CPE 381 or EE 382	FSM
		OPE 454	3	Optical Fiber Communications	Prereq w/Con: (EE 307 or PH 432) & (EE 383 or CPE 381)	F
<b>Optical Engineering Elective - 3 hours</b>						
			3	Courses at 300-level or above. Must be approved by OPE advisor		

All prerequisite classes must be completed with a "C" or higher grade.  
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**ENGINEERING**

**APPROVALS:**

Advisor	Date	Department Chair	Date
		Dean of Engineering	Date

## Mechanical Engineering Program 2009/2011 (132 Hours)

Offered:  
F=Fall  
S=Spring  
M=Summer

Semester, Transfer or AP	Grade	Course Number	Cr Hrs	Course Title	Prerequisites, Corequisites and/or Prerequisites with Concurrency	Offered
<b>English - 6 hours</b>						
		EH 101	3	Freshman Composition I	Placement	FSM
		EH 102	3	Freshman Composition II	EH 101	FSM
<b>Mathematics - 15 hours</b>						
		MA 171	4	Calculus A	MA 113 or MA 115 or Level III Placement	FSM
		MA 172	4	Calculus B	MA 171	FSM
		MA 201	4	Calculus C	MA 172	FSM
		MA 238	3	Applied Differential Equations	Prereq w/Con: MA 201	FSM
<b>Chemistry - 4 hours</b>						
		CH 121	3	General Chemistry I	CH 101 or Plcmt, MA 112, Prereq w/Con: MA 113 or 115, Coreq: CH 125	FSM
		CH 125	1	General Chemistry Lab I	Coreq: CH 121	FSM
<b>Physics - 8 hours</b>						
		PH 111	3	General Physics w/Calculus I	MA 171	FSM
		PH 114	1	General Physics Lab I	Prereq w/Con: PH 111	FSM
		PH 112	3	General Physics w/Calculus II	MA 172, PH 111	FSM
		PH 115	1	General Physics Lab II	Prereq w/Con: PH 112	FSM
<b>Chemistry/Physics Elective - 4 hours</b>						
			3		Choose from BYS 119, CH 123/126 or PH 113/116	FSM
			1			FSM
<b>History, Social &amp; Behavioral Sciences - 9 hours</b>						
		HY	3	History	Must take a six hour sequence in a discipline.	FSM
			3		See Humanities & Fine Arts List at	FSM
			3		<a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
<b>Humanities &amp; Fine Arts - 9 hours</b>						
		EH	3	Literature	See History, Social & Behavioral Sciences list at <a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
			3	Fine Arts		FSM
		PHL 202	3	Introduction to Ethics		FSM
<b>Engineering Core - 12 hours</b>						
		MAE 271	3	Statics	PH 111, Prereq w/Con: MA 201	FSM
		MAE 341	3	Thermodynamics I	MA 201, CH 121, CH 125, PH 112	FSM
		EE 213	3	Electrical Circuit Analysis I	PH 112, Prereq w/Con: MA 238 & (MA 244 or CHE 244 or MAE 285)	FSM
		ISE 321	3	Engineering Economy	MA 172, Sophomore Standing	FSM
<b>Mechanical Engineering Option - 57 hours</b>						
**		MAE 100	2	Introduction to Mechanical & Aerospace Eng	Prereq w/Con: MA 112 or Level II Placement, Coreq: MAE 100L	FS
**		MAE 110	3	Intro to Engineering Computer Aided Design	Prereq w/Con: MA 112 or Level II Placement	FSM
		MAE 272	3	Dynamics	MAE/CE 271 & (MAE 285 or CPE 112)	FSM
**		MAE 285	3	Numerical Methods & Computation I	MA 171, Coreq: MAE 285L	FSM
**		MAE 310	3	Fluid Mechanics I	MA 238, MAE/CE 271 & (MAE 285 or CPE 112 or CHE 197)	FSM
**		MAE 311	3	Principles of Measurement & Instrumentation	EE 213, Coreq: MAE 311L	FSM
		MAE 342	3	Thermodynamics II	MAE 341	FSM
**		MAE 364	4	Kinematics & Dynamics of Machines	MAE 110, MAE/CE 272, Coreq: MAE 364L	SM
**		MAE 370	4	Mechanics of Materials	MAE 271 & (MAE 285 or CPE 112 or CHE 197), Coreq: MAE 370L	FSM
		MAE 378	3	Materials & Manufacturing Processes	MAE/CE 370	FSM
		MAE 385	2	Numerical Methods & Computation II	(MAE 285 or CPE 112 or CHE 197), Prereq w/Con: MA 238	FSM
		MAE 410	2	Fluid Mechanics II	MAE 310, Prereq w/Con: MAE 311	FM
		MAE 411	1	Fluid Mechanics Lab	MAE 310	FM
**		MAE 450	4	Intro to Heat and Mass Transfer	MAE 310, MAE 385, Coreq: MAE 450L	FSM
		MAE 455	3	Design of Thermal Systems	MAE 342, MAE 450, Recommended: MAE 490	FSM
		MAE 466	3	Mechanics & Design of Machine Elements	MAE 364, MAE/CE 370	FM
		MAE 488	3	Analysis of Engineering Systems	EE 213, MAE/CE 272, MAE 310, MAE 385	FSM
		MAE 489	3	Computer-Aided Engineering Analysis	MAE/CE 370, Prereq w/Con: MAE 385	SM
		MAE 490	2	Intro to Engineering Design	EE 213, ISE 321, MAE/CE 272	FSM
		MAE 491	3	Mechanical Engineering Design	MAE 378, MAE 490, Senior Standing, Instructor Permission	FS
<b>Technical Elective - 8 hours</b>						
			3		MAE courses 300 level or above approved by the Department	
			3			
			2			

All prerequisite classes must be completed with a "C" or higher grade.  
The Catalog is the final authority for all degree requirements.

Updated  
May 4, 2009

**ENGINEERING**

**APPROVALS:**

Advisor	Date	Department Chair	Date
		Dean of Engineering	Date

**Industrial & Systems Engineering Program 2009/2011 (130 Hours)**

Offered:  
F=Fall  
S=Spring  
M=Summer

Semester, Transfer or AP	Grade	Course Number	Cr Hrs	Course Title	Prerequisites, Corequisites and/or Prerequisites with Concurrency	Offered:
<b>English - 6 hours</b>						
		EH 101	3	Freshman Composition I	Placement	FSM
		EH 102	3	Freshman Composition II	EH 101	FSM
<b>Mathematics - 18 hours</b>						
		MA 171	4	Calculus A	MA 113 or MA 115 or Level III Placement	FSM
		MA 172	4	Calculus B	MA 171	FSM
		MA 201	4	Calculus C	MA 172	FSM
		MA 238	3	Applied Differential Equations	Prereq w/Con: MA 201	FSM
		MA 244	3	Introduction to Linear Algebra	MA 172	FSM
<b>Chemistry - 4 hours</b>						
		CH 121	3	General Chemistry I	CH 101 or Plcmt, MA 112, Prereq w/Con: MA 113 or 115, Coreq: CH 125	FSM
		CH 125	1	General Chemistry Lab I	Coreq: CH 121	FSM
<b>Science Elective - 3 hours</b>						
			3		BYS 119 or CH 123 or 300/400 level MA course	
<b>Physics - 8 hours</b>						
		PH 111	3	General Physics w/Calculus I	MA 171	FSM
		PH 114	1	General Physics Lab I	Prereq w/Con: PH 111	FSM
		PH 112	3	General Physics w/Calculus II	MA 172, PH 111	FSM
		PH 115	1	General Physics Lab II	Prereq w/Con: PH 112	FSM
<b>History, Social &amp; Behavioral Sciences - 9 hours</b>						
		HY	3	History	Must take a six hour sequence in a discipline.	FSM
			3		See Humanities & Fine Arts List at	FSM
			3		<a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
<b>Humanities &amp; Fine Arts - 9 hours</b>						
		EH	3	Literature	See History, Social & Behavioral Sciences list at <a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
			3	Fine Arts		FSM
		PHL 202	3	Introduction to Ethics		FSM
<b>Engineering Core - 12 hours</b>						
		MAE 271	3	Statics	PH 111, Prereq w/Con: MA 201	FSM
		EE 213	3	Electrical Circuit Analysis I	PH 112, Prereq w/Con: MA 238 & (MA 244 or CHE 244 or MAE 285)	FSM
		ISE 321	3	Engineering Economy	MA 172, Sophomore Standing	FSM
		MAE 341	3	Thermodynamics I	MA 201, CH 121, CH 125, PH 112	FSM
<b>** Class has required lab section Industrial &amp; Systems Engineering Option - 49 hours</b>						
**		CPE 112	3	Intro to Computer Programming in Engineering	MA 113, MA 115 or Level III Placement, Coreq: CPE 112L	FSM
**		MAE 110	3	Intro to Engineering Computer Aided Design	Prereq w/Con: MA 112 or Level II Placement	FSM
		ISE 124	3	Intro to Industrial & Systems Engineering	Prereq w/Con: MA 113	F
		ISE 340	3	Operations Research	Prereq w/Con: ISE 390	F
**		MAE 370	4	Mechanics of Materials	MAE 271 & (MAE 285 or CPE 112 or CHE 197), Coreq: MAE 370L	FSM
		ISE 378	3	Materials & Manufacturing Processes	CE/MAE 370	FS
		ISE 390	3	Probability & Engineering Statistics I	Prereq w/Con: MA 201	FSM
		ISE 391	3	Probability & Engineering Statistics II	ISE 390	S
		ISE 423	3	Statistical Quality Control	Prereq w/Con: ISE 391	S
		ISE 324	3	Work Design	ISE 390	F
		ISE 327	3	Management Systems Analysis	ISE 390	S
		ISE 428	3	Systems Analysis & Design I	ISE 124, ISE 321, ISE 340, ISE 391, Senior Standing	F
		ISE 429	3	Systems Analysis & Design II	ISE 428	S
		ISE 430	3	Manufacturing Systems and Facilities Design	Senior Standing	F
		ISE 433	3	Production & Inventory Control Systems	ISE 390	S
		ISE 447	3	Intro to Systems Simulation	CPE 112, ISE 391	F
<b>Industrial &amp; Systems Engineering Electives - 9 hours</b>						
			3	Choose from MA 385, ISE 402, ISE 403, ISE 426, ISE 437, or other upper-level courses approved by the Department. May select a maximum of 3 hours from the following: EH 301, ACC 211, MTK 301, MGT 363, or MGT 462.		
			3			
<b>Technical Elective - 3 hours</b>						
			3	200 - level or above Science or Engineering Course		

All prerequisite classes must be completed with a "C" or higher grade.  
The Catalog is the final authority for all degree requirements.

**ENGINEERING APPROVALS:**

Advisor	Date	Department Chair	Date	Dean of Engineering	Date
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## Electrical Engineering Program 2009/2011 (128 Hours)

Offered:  
F=Fall  
S=Spring  
M=Summer

Semester, Transfer or AP	Grade	Course Number	Cr Hrs	Course Title	Prerequisites, Corequisites and/or Prerequisites with Concurrency	
<b>English - 6 hours</b>						
		EH 101	3	Freshman Composition I	Placement	FSM
		EH 102	3	Freshman Composition II	EH 101	FSM
<b>Mathematics - 18 hours</b>						
		MA 171	4	Calculus A	MA 113 or MA 115 or Level III Placement	FSM
		MA 172	4	Calculus B	MA 171	FSM
		MA 201	4	Calculus C	MA 172	FSM
		MA 238	3	Applied Differential Equations	Prereq w/Con: MA 201	FSM
		MA 244	3	Introduction to Linear Algebra	MA 172	FSM
<b>Chemistry - 4 hours</b>						
		CH 121	3	General Chemistry I	CH 101 or Plcmt, MA 112, Prereq w/Con: MA 113 or 115, Co-req: CH 125	FSM
		CH 125	1	General Chemistry Lab I	Prereq w/Con: CH 121	FSM
<b>Physics - 12 hours</b>						
		PH 111	3	General Physics w/Calculus I	MA 171, Coreq: PH 114	FSM
		PH 114	1	General Physics Lab I	Coreq: PH 111	FSM
		PH 112	3	General Physics w/Calculus II	MA 172, PH 111, Coreq: PH 115	FSM
		PH 115	1	General Physics Lab II	Coreq: PH 112	FSM
		PH 113	3	General Physics w/Calculus III	MA 201, PH 112, Coreq: PH 116	FSM
		PH 116	1	General Physics Lab III	Coreq: PH 113	FSM
<b>History, Social &amp; Behavioral Sciences - 9 hours</b>						
		HY	3	History	Must take a six hour sequence in a discipline.	FSM
			3		See Humanities & Fine Arts List at	FSM
			3		<a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
<b>Humanities &amp; Fine Arts - 9 hours</b>						
		EH	3	Literature	See History, Social & Behavioral Sciences list at	FSM
			3	Fine Arts	<a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
		PHL 202	3	Intro to Ethics		FSM
<b>Engineering Core - 12 hours</b>						
		EE 213	3	Electrical Circuit Analysis I	PH 112, Prereq w/Con: MA 238 & (MA 244 or CHE 244 or MAE 285)	FSM
		ISE 321	3	Engineering Economy	MA 172, Sophomore Standing	FSM
		EE 310	3	Solid State Fundamentals	PH 112, Prereq w/Con: MA 238	FS
		EE 382	3	Analytical Meth for Continuous Time Sys	EE 213, MA 238, MA 244	FSM
<b>Electrical Engineering Option - 43 hours</b>						
**		EE 100	3	Fund of Computer, Electrical & Optical Eng	Coreq: EE 100L	FSM
**		CPE 112	3	Intro to Computer Programming in Engineering	MA 113, MA 115 or Level III Placement, Coreq: CPE 112L	FSM
**		CPE 212	3	Fundamentals of Software Engineering	CPE 112	FS
		EE 202	3	Intro to Digital Logic Design	CPE 112, EE 100	FSM
		EE 203	1	Digital Logic Design Lab	EE 202	FSM
		EE 214	1	Electronic Measurement Lab	EE 213	FSM
		EE 305	1	Electronic Devices & Design Lab	EE 213, EE 214, Prereq w/Con: EE 315	FSM
		EE 307	3	Electricity and Magnetism	EE 213, MA 238, MA 244	FSM
		EE 313	3	Electrical Circuit Analysis II	EE 213	FSM
		EE 315	3	Introduction to Electronic Analysis and Design	EE 213	FSM
**		CPE 323	3	Intro to Embedded Computer Systems	CPE 212, EE 202, Coreq: CPE 323L	FS
		EE 383	3	Analytical Meth for Mult and Discr Time Sys	EE 382	FSM
		EE 384	1	Digital Signal Processing Laboratory	CPE 381 or Prereq w/Con:EE 383	FSM
		EE 420	3	Random Signals and Noise	CPE 381 or EE 382	FSM
		EE 425	3	Introduction to Control and Robotic Systems	CPE 381 or EE 382	FSM
		EE 447	3	Electromagnetic Engineering	EE 307	FS
		EE 494	3	EE Design Projects	CPE 323, EE 315, ISE 321, Senior Standing	FS
<b>Electrical Engineering Electives - 12 hours</b>						
			3	T1	Track: _____	
			3	T2	(Must take a 2 course track in one area.)	
			3		300 - level or above ECE course only	
			3		300 - level or above ECE course only	
<b>Technical Elective - 3 hours</b>						
			3		200 - level or above Science or Engineering Course	

All prerequisite classes must be completed with a "C" or higher grade.  
The Catalog is the final authority for all degree requirements.

Updated  
May 4, 2009

**ENGINEERING**

**APPROVALS:**

Advisor	Date	Department Chair	Date
		Dean of Engineering	Date

## Computer Engineering Program 2009/2011 (128 Hours)

Offered:  
F=Fall  
S=Spring  
M=Summer

Semester, Transfer or AP	Grade	Course Number	Cr Hrs	Course Title	Prerequisites, Corequisites and/or Prerequisites with Concurrency	Offered
<b>English - 6 hours</b>						
		EH 101	3	Freshman Composition I	Placement	FSM
		EH 102	3	Freshman Composition II	EH 101	FSM
<b>Mathematics - 18 hours</b>						
		MA 171	4	Calculus A	MA 113 or MA 115 or Level III Placement	FSM
		MA 172	4	Calculus B	MA 171	FSM
		MA 201	4	Calculus C	MA 172	FSM
		MA 238	3	Applied Differential Equations	Prereq w/Con: MA 201	FSM
		MA 244	3	Introduction to Linear Algebra	MA 172	FSM
<b>Chemistry - 4 hours</b>						
		CH 121	3	General Chemistry I	CH 101 or Plcmt, MA 112, Prereq w/Con: MA 113 or 115, Coreq: CH 125	FSM
		CH 125	1	General Chemistry Lab I	Coreq: CH 121	FSM
<b>Physics - 8 hours</b>						
		PH 111	3	General Physics w/Calculus I	MA 171	FSM
		PH 114	1	General Physics Lab I	Prereq w/Con: PH 111	FSM
		PH 112	3	General Physics w/Calculus II	MA 172, PH 111	FSM
		PH 115	1	General Physics Lab II	Prereq w/Con: PH 112	FSM
<b>History, Social &amp; Behavioral Sciences - 9 hours</b>						
		HY	3	History	Must take a six hour sequence in a discipline.	FSM
			3		See Humanities & Fine Arts List at	FSM
			3		<a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
<b>Humanities &amp; Fine Arts - 9 hours</b>						
		EH	3	Literature	See History, Social & Behavioral Sciences list at <a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .	FSM
			3	Fine Arts		FSM
		PHL 202	3	Introduction to Ethics		FSM
<b>Engineering Core - 12 hours</b>						
**		CPE 112	3	Intro to Computer Programming in Engineering	MA 113, MA 115 or Level III Placement, Coreq: CPE 112L	FSM
**		EE 202	3	Intro to Digital Logic Design	CPE 112, EE 100	FSM
		EE 213	3	Electrical Circuit Analysis I	PH 112, Prereq w/Con: MA 238 & (MA 244 or CHE 244 or MAE 285)	FSM
		EE 310	3	Solid State Fundamentals	PH 112, Prereq w/Con: MA 238	FS
<b>Computer Science - 6 hours</b>						
		CS 214	3	Intro to Discrete Structures	CPE 112, MA 171	FSM
		CS 317	3	Design & Analysis of Algorithms	CS 214, CPE 212, MA 244	FSM
<b>Computer Engineering Option - 50 hours</b>						
**		EE 100	3	Fund of Computer, Electrical & Optical Eng	Coreq: EE 100L	FSM
		EE 203	1	Digital Logic Design Lab	EE 202	FSM
		CPE 212	3	Fundamentals of Software Engineering	CPE 112	FS
		EE 214	1	Electronic Measurement Lab	EE 213	FSM
		EE 305	1	Electronic Devices & Design Lab	EE 214, Prereq w/Con: EE 315	FSM
		EE 315	3	Introduction to Electronic Analysis and Design	EE 213	FSM
		CPE 321	3	Computer Organization	EE 202	FSM
**		CPE 323	3	Intro to Embedded Computer Systems	CPE 212, EE 202, Coreq: CPE 323L	FS
		CPE 353	3	Software Design & Engineering	CPE 212, CS 317	F
		CPE 381	3	Fundamentals of Signals & Sys for Comp Engrs	EE 213, MA 238	FS
		EE 384	1	Digital Signal Processing Laboratory	CPE 381 or Prereq w/Con: EE 383	FSM
Select One		EE 420	3	Random Signals and Noise	CPE 381 or EE 382	FSM
		ISE 390	3	Probability & Engineering Statistics I	Prereq w/Con: MA 201	FSM
**		CPE 422	3	Advanced Logic Design	EE 202, EE 315, Coreq: CPE 422L	S
		CPE 431	3	Intro to Computer Architecture	CPE/EE 321, CPE 323, CPE 353	F
		CPE 434	3	Operating Systems	CPE/EE 321, CPE 353, Coreq: CPE 435	F
		CPE 435	1	Operating Systems Lab	Coreq: CPE 434	F
**		CPE 448	3	Introduction to Computer Networks	CPE/EE 321, Coreq: CPE 448L	FS
		CPE 453	3	Senior Software Studio	CPE 353	S
		CPE 495	3	Computer Engineering Design I	CPE 323, CPE 353, EE 315	F
		CPE 496	3	Computer Engineering Design II	CPE 495	S
<b>Computer Engineering Electives - 6 hours</b>						
		CPE	3		Jr. standing (300 level or above - Approved by CPE advisor)	
		CPE	3			

All prerequisite classes must be completed with a "C" or higher grade.  
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**ENGINEERING APPROVALS:**

Advisor	Date	Department Chair	Date
		Dean of Engineering	Date

**Chemical Engineering Program 2009/2011 (131 Hours)**

Offered:  
F=Fall  
S=Spring  
M=Summer

Semester, Transfer or AP	Grade	Course Number	Cr Hrs	Course Title	Prerequisites, Corequisites and/or with Concurrency	Prerequisites	Offered:		
<b>English - 6 hours</b>									
		EH 101	3	Freshman Composition I	Placement		FSM		
		EH 102	3	Freshman Composition II	EH 101		FSM		
<b>Mathematics - 15 hours</b>									
		MA 171	4	Calculus A	MA 113 or MA 115 or Level III Placement		FSM		
		MA 172	4	Calculus B	MA 171		FSM		
		MA 201	4	Calculus C	MA 172		FSM		
		MA 238	3	Applied Differential Equations	Prereq w/Con: MA 201		FSM		
**	<b>Class has required recitation section</b>								
<b>Chemistry - 15 hours</b>									
		CH 121	3	General Chemistry I	CH 101 or Plcmt, MA 112, Prereq w/Con: MA 113 or 115, Coreq: CH 125		FSM		
		CH 125	1	General Chemistry Lab I	Coreq: CH 121		FSM		
		CH 123	3	General Chemistry II	CH 121, Coreq: CH 126		FSM		
		CH 126	1	General Chemistry Lab II	Coreq: CH 123		FSM		
**		CH 331	3	Organic Chemistry I	CH 123, CH 126, Coreq: CH 331R		FSM		
**		CH 335	1	Organic Chemistry Lab I	Prereq w/Con: CH 331		FSM		
**		CH 332	3	Organic Chemistry II	CH 331, Coreq: CH 332R		FSM		
<b>Biology - 3 hours</b>									
		BYS 201	3	Intro to Molecular Biological Systems	CH 123		S		
<b>Physics - 8 hours</b>									
		PH 111	3	General Physics w/Calculus I	MA 171		FSM		
		PH 114	1	General Physics Lab I	Prereq w/Con: PH 111		FSM		
		PH 112	3	General Physics w/Calculus II	MA 172, PH 111		FSM		
		PH 115	1	General Physics Lab II	Prereq w/Con: PH 112		FSM		
<b>History, Social &amp; Behavioral Sciences - 9 hours</b>									
		HY	3	History	Must take a six hour sequence in a discipline.		FSM		
			3		See Humanities & Fine Arts List at		FSM		
			3		<a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .		FSM		
<b>Humanities &amp; Fine Arts - 9 hours</b>									
		EH	3	Literature	See History, Social & Behavioral Sciences list at		FSM		
			3	Fine Arts	<a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .		FSM		
		PHL 202	3	Introduction to Ethics			FSM		
<b>Engineering Core - 12 hours</b>									
		CHE 197	3	Computer Methods for Chemical Engineers	Level II Math Placement or Coreq: MA 112		F		
		CHE 244	3	Intro to Chemical Engineering Systems	CH 123, CHE 197, PH 111		S		
		CHE 294	3	Nature & Properties of Materials	CH 123, MA 201, PH 112		FM		
		CHE 344	3	Chemical Engineering Thermodynamics	CHE 244, CH 341		SM		
<b>Chemical Engineering Option - 54 hours</b>									
		MAE 271	3	Statics	PH 111, Prereq w/Con: MA 201		FSM		
		EE 213	3	Electrical Circuit Analysis I	PH 112, Prereq w/Con: MA 238 & (MA 244 or CHE 244 or MAE 285)		FSM		
		ISE 321	3	Engineering Economy	MA 172, Sophomore Standing		FSM		
		CHE 295	1	Nature & Properties of Materials Lab	Prereq w/Con: CHE 294		FM		
		CH 341	3	Physical Chemistry I	CH 123, MA 201, PH 112		F		
		CHE 347	3	Quantitative Modeling for Chemical Engrs	CHE 244, MA 238		SM		
		MAE 310	3	Fluid Mechanics I	MA 238, MAE/CE 271 & (MAE 285 or CPE 112 or CHE 197)		FSM		
		CHE 439	2	Unit Operations Lab I	BYS 201, Prereq w/Con: CHE 441, CHE 443, CHE 446		F		
		CHE 440	2	Unit Operations Lab II	CHE 439, CHE 441, CHE 443		S		
		CHE 441	3	Chemical Kinetics & Reactor Design	CHE 344, CHE 347		F		
		CHE 342	3	Transport Phenomena	CHE 244, Prereq w/Con: MAE 310		S		
		CHE 443	3	Mass Transfer Operations	CHE 342, CHE 344, MAE 310		F		
		CHE 445	3	Chemical Process Control	CHE 347, CHE 441		S		
		CHE 446	3	Analysis & Design of Transport Equipment	MAE 310, Prereq w/Con: CHE 443		F		
		CHE 448	3	Chemical Engineering Design	CHE 441, CHE 443, CHE 446, Prereq w/Con: CHE 445		S		
Select One Concentration	Biotechnology			CH 361	3	General Biochemistry I	BYS 201, CH 332, CH 335	FSM	
				CH 362	1	General Biochemistry Lab I	Prereq w/Con: CH 361	FSM	
				CH 363	3	General Biochemistry II	CH 361	S	
				CHE 460	3	Introduction to Bioprocess Engineering	CH 362, CH 363	F	
				CHE 461	3	Bioseparations	CH 362, CH 363, CHE 460	S	
	Materials Eng				CH 342	3	Physical Chemistry II	CH 341	S
					CH 346	1	Experimental Physical Chemistry II	CHE 295, Prereq w/Con: CH 342	S
					CH 440	3	Polymer Synthesis & Characterization	CH 331	F
					CHE 494	3	Applied Materials Engineering	CHE 294, CH 342 or CH 348	S
					CHE 495	3	Polymer Engineering	CH 341, CH 440	F

All prerequisite classes must be completed with a "C" or higher grade.  
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Updated  
May 4, 2009

**ENGINEERING**  
**APPROVALS:**

Advisor	Date	Department Chair	Date	Dean of Engineering	Date
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# Civil Engineering Program 2009/2011 (132 Hours)

Offered:  
F=Fall  
S=Spring  
M=Summer

Semester, Transfer or AP	Grade	Course Number	Cr Hrs	Course Title	Prerequisites, Corequisites and/or with Concurrency	Prerequisites	Offered:	
<b>English - 6 hours</b>								
		EH 101	3	Freshman Composition I	Placement		FSM	
		EH 102	3	Freshman Composition II	EH 101		FSM	
<b>Mathematics - 18 hours</b>								
		MA 171	4	Calculus A	MA 113 or MA 115 or Level III Placement		FSM	
		MA 172	4	Calculus B	MA 171		FSM	
		MA 201	4	Calculus C	MA 172		FSM	
		MA 238	3	Applied Differential Equations	Prereq w/Con: MA 201		FSM	
		MA 244	3	Introduction to Linear Algebra	MA 172		FSM	
<b>Biology - 4 hours</b>								
		BYS 119	4	Principles of Biology	None		FSM	
<b>Chemistry - 8 hours</b>								
		CH 121	3	General Chemistry I	CH 101 or Plcmt, MA 112, Prereq w/Con: MA 113 or 115, Co-req: CH 125		FSM	
		CH 125	1	General Chemistry Lab I	Prereq w/Con: CH 121		FSM	
		CH 123	3	General Chemistry II	CH 121, Co-req: CH 126		FSM	
		CH 126	1	General Chemistry Lab II	Prereq w/Con: CH 123		FSM	
<b>Physics - 8 hours</b>								
		PH 111	3	General Physics w/Calculus I	MA 171, Coreq: PH 114		FSM	
		PH 114	1	General Physics Lab I	Coreq: PH 111		FSM	
		PH 112	3	General Physics w/Calculus II	MA 172, PH 111, Coreq: PH 115		FSM	
		PH 115	1	General Physics Lab II	Coreq: PH 112		FSM	
<b>History, Social &amp; Behavioral Sciences - 9 hours</b>								
		HY	3	History	Must take a six hour sequence in a discipline.		FSM	
			3		See Humanities & Fine Arts List at		FSM	
			3		<a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .		FSM	
<b>Humanities &amp; Fine Arts - 9 hours</b>								
		EH	3	Literature	See History, Social & Behavioral Sciences list at <a href="http://www.uah.edu/engineering/StudentAffairs/forms.php">http://www.uah.edu/engineering/StudentAffairs/forms.php</a> .		FSM	
			3	Fine Arts			FSM	
		PHL 202	3	Intro to Ethics			FSM	
<b>Engineering Core - 12 hours</b>								
		CE 271	3	Statics	PH 111, Prereq w/Con: MA 201		FSM	
		MAE 341	3	Thermodynamics I	MA 201, CH 121, CH 125, PH 112		FSM	
		MAE 310	3	Fluid Mechanics I	MA 238, MAE/CE 271 & MAE 285 or CPE 112 or CHE 197		FSM	
		ISE 321	3	Engineering Economy	MA 172, Sophomore Standing		FSM	
<b>** Class has required lab section</b>								
<b>Civil Engineering Option - 58 hours</b>								
		CE 101	1	Prelude to Civil Engineering	None		F	
**		CPE 112	3	Intro to Computer Programming in Engineering	MA 113, MA 115 or Level III Placement, Coreq: CPE 112L		FSM	
		CE 111	2	Civil Engineering Graphics	MA 112 or Level II Placement, Freshman CE Standing		FSM	
		CE 284	2	Surveying	Prereq w/Con: CE 101, CE 111, or Instr/Advsr Approval		F	
		CE 321	3	Transportation Engineering & Design	CE 284, MA 171		S	
		CE 272	3	Dynamics	CPE 112, CE/MAE 271		FSM	
**		CE 370	4	Mechanics of Materials	CPE 112, CE/MAE 271, Coreq: CE 370L		FSM	
		CE 381	3	Structural Analysis I	CE/MAE 272, CE/MAE 370		F	
		CE 372	3	Soil Mechanics	CE/MAE 370, Prereq w/Con: MAE 310		S	
		CE 373	1	Soil Mechanics Lab	Prereq w/Con: CE 372		S	
		CE 380	3	Civil Engineering Materials	CE/MAE 370		F	
		ISE 390	3	Probability & Engineering Statistics I	Prereq w/Con: MA 201		FSM	
		CE 422	3	Traffic Engineering Design	CE 321		S	
		CE 449	3	Intro to Environmental Engineering	CH 123, CH 126, MAE 341, Prereq w/Con: MAE 310		F	
		CE 441	3	Hydraulic Engineering Design	MAE 310		S	
		CE 483	3	Reinforced Concrete Design	CE 381		F	
		CE 485	3	Foundation Engineering	CE 372, CE 483		S	
		CE 498	1	Civil Engineering Design I	CE 321, CE 372, ISE 321		F	
**		CE 499	2	Civil Engineering Design II	CE 498 Coreq: CE 499L (FE Review)		S	
Select One Concentration	Structural		CE 481	3	Structural Analysis II	CE 381		S
			CE 484	3	Steel Design	CE 381		F
			CE 487	3	Bridge Design	CE 483		S
	Environmental		CE 473	3	Earth Structures Engineering	CE 372, CE 373		F
			CE 456	3	Water Quality Control Processes	CE 449		S
			CE 457	3	Hydrology	MAE 310		F
	Transportation		CE 458	3	Environmental Engineering Design	Prereq w/Con: CE 449		S
			CE 384	3	Advanced Surveying	CE 284		S
			CE 411	3	Intro to Geographical Information Systems	Senior Standing or Instructor Approval		F
			CE 420	3	Urban Transportation Planning	CE 321		F
General		CE	3	CE 481 or CE 456 or CE 384			S	
		CE	3	CE 473 or CE 457 or CE 411			F	
		CE	3	CE 484 or CE 458 or CE 420	CE 484 & CE 420 offered in F; CE 458 offered in S			

All prerequisite classes must be completed with a "C" or higher grade.

The Catalog is the final authority for all degree requirements.

**ENGINEERING**  
**APPROVALS:**

Advisor	Date	Department Chair	Date	Dean of Engineering	Date
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