

## ME Undergraduate Options and Electives Undergraduate Bulletin 2005-06

### Approved Math and Science Electives

#### Approved Physics Courses\*\*

1017-314	(4)	Modern Physics I
1017-315	(4)	Modern Physics II
1017-331	(4)	Intro. To Electricity & Electronics
1017-301	(4)	University Astronomy
1017-415	(4)	Thermal Physics
1017-432	(4)	Comp. Interfacing to Lab Instrument.
1017-440	(4)	Stellar Astrophysics
1017-455	(4)	Optical Physics
1017-522	(4)	Quantum Mechanics

#### Approved Chemistry Courses\*\*

1011-272,276	(4)	Chem of Water & Waste Water, Lab
1013-231,235	(4)	Organic Chem I, Lab
1013-232,236	(4)	Organic Chem II, Lab

#### Approved Biology Courses\*\*

1001-201,205	(4)	General Biology I, Lab
1001-202,206	(4)	General Biology II, Lab
1001-203,207	(4)	General Biology III, Lab
1004-210	(4)	Microbiology in Health & Disease
1004-211,231	(4)	Human Biology I, Lab
1004-212,232	(4)	Human Biology II, Lab

#### Approved Mathematics Courses\*\*

1016-307	(4)	Differential Equations II
1016-328	(4)	Engineering Mathematics
1016-331	(4)	Matrix Algebra
1016-432	(4)	Linear Algebra
1016-351	(4)	Probability & Statistics I
1016-352	(4)	Probability & Statistics II
1016-355	(4)	Design of Experiments
1016-420	(4)	Complex Variables
1016-511	(4)	Numerical Analysis
1016-512	(4)	Numerical Linear Algebra
1016-620	(4)	Fourier Transforms

### Mechanical Engineering Options

#### Bioengineering Option Courses (EMED)

Grade		
_____	(4)	Approved Biology Science Elective (See List)
_____ 0304-461	(4)	Contemporary Issues in Bioengineering
<b>Select at least 3 courses from following Tech Electives:</b>		
_____ 0304-645	(4)	Biomaterials
_____ 0303-732	(4)	Biomechanics
_____ 0304-756	(4)	Fundamentals of Particulate Behavior in Biological Systems
_____	(4)	
_____	(4)	
_____ 0304-630	(4)	Senior Design I (Bioengineering project)
_____ 0304-631	(4)	Senior Design II (Bioengineering project)

#### Auto Option Courses (EMEV)

Grade		
_____ 0304-540	(4)	Intro to Auto Design and Manufacturing
<b>Select at least 3 courses from following Tech Electives:</b>		
_____ 0304-624	(4)	Vehicle Dynamics
_____ 0304-626	(4)	Auto Controls
_____ 0304-640	(4)	IC Engines
_____ 0304-710	(4)	Fuel Cell Technology
_____ 0304-752	(4)	Fundamentals of Tribology and Lubrication
_____ 0304-630	(4)	Senior Design I (Auto project)
_____ 0304-631	(4)	Senior Design II (Auto project)

### Mechanical Engineering Options (Continued)

#### Aero Option Courses (EMEA)

Grade		
_____ 0304-560	(4)	Intro to Aerospace Engineering
_____ 0304-673	(1)	Aeromechanics Lab in place of 0304-551 Thermo-Fluids Lab II
_____ 0304-675	(4)	Aerodynamics in place of 0304-550 Transport
<b>Select at least 3 courses from following Tech Electives:</b>		
_____ 0304-644	(4)	Composite Materials
_____ 0304-671	(4)	Aerospace Structures
_____ 0304-678	(4)	Propulsion
_____ 0304-682	(4)	Flight Dynamics
_____ 0304-754	(4)	Fund of Fatigue and Fracture Mechanics
_____ 0304-630	(4)	Senior Design I (Aero project)
_____ 0304-631	(4)	Senior Design II (Aero project)

#### Energy & The Environment Option Courses (EMEE)

Grade		
_____ 0304-460	(4)	Contemporary Issues in Energy & The Environment
<b>Select at least 3 courses from following Tech Electives:</b>		
_____ 0304-640	(4)	IC Engines
_____ 0304-660	(4)	Refrigeration and Air Conditioning
_____ 0304-680	(4)	Advanced Thermodynamics
_____ 0304-710	(4)	Fuel Cell Technology
_____	(4)	
_____	(4)	
_____ 0304-630	(4)	Senior Design I (Energy/Environment project)
_____ 0304-631	(4)	Senior Design II (Energy/Environment project)

### General Technical Electives\*\*

0303-620	(4)	Engineering Economy
0303-732	(4)	Biomechanics
0303-801	(4)	Design for Manufacturing
0304-604	(4)	Design for Manufacture
0304-610	(4)	Topics in M.E. Design
0304-615	(4)	Robotics
0304-618	(4)	Computer-Aided Engineering
0304-620	(4)	Optimal Design
0304-624	(4)	Vehicle Dynamics
0304-626	(4)	Automotive Control Applic.
0304-635	(4)	Heat Transfer II
0304-638	(4)	Design of Machine Systems
0304-640	(4)	Internal Combustion Engines
0304-644	(4)	Introduction to Composite Mat.
0304-645	(4)	Biomaterials
0304-652	(4)	Fluid Mechanics of Turbomach.
0304-660	(4)	Refrigeration and Air Cond.
0304-671	(4)	Aerostructures
0304-672	(4)	Dynamics of Machinery
0304-678	(4)	Propulsion
0304-680	(4)	Advanced Thermodynamics
0304-682	(4)	Flight Dynamics
0304-694	(4)	Stress Analysis
0304-698	(4)	Ind. Study Tech. Elect.
0304-710	(4)	Fuel Cell Technology
0304-730	(4)	Design Project Management
0304-743	(4)	Control Systems
0304-752	(4)	Fund. of Tribology and Lubrication
0304-754	(4)	Fund of Fatigue and Fracture Mech.
0304-756	(4)	Fundamentals of Particulate Behavior in Biological Systems
0304-758	(4)	Engineering Vibrations
0610-516	(4)	Plastics Prod. Des. & Mat. Selection

\*\* Other courses at or above the level of the listed electives may be taken provided that the prereqs have been satisfied and the student has written permission from the M.E. department

Student Name: \_\_\_\_\_

**BSME Application for Sr. Design**

**Program:** \_\_\_\_\_

**Undergraduate Bulletin 2005-06**

**Block:** \_\_\_\_\_

Qtr.	Grade	Number	Cr	Name	Qtr.	Grade	Number	Cr	Name	Name	Qtr.	Grade	Cr	Number	Name	
		0301-381	(4)	Circuits I with Lab			0502-227	(4)	Writing	or 0504-225 Writing & Lit I			(4)	1016-271/281	Calculus A/I	
		0304-203	(1)	Freshman Seminar			05xx-319	(4)	Arts of Expression	or 0504-226 Writing & Lit II			(4)	1016-272/282	Calculus B/II	
		0304-214	(2)	Eng. Design Graphics Lab				(4)	Social Sciences I				(4)	1016-273/283	Calculus C/III	
		0304-261	(2)	+++ Cornerstone Des. Proj. Lab				(4)	Social Sciences II				(0)	*1016-274	*Calculus D	
		0304-280	(2)	(z) Meas. Instrum. & Control Lab				(4)	Humanities I				(4)	1016-305	MultiVariable Calculus	
		0304-336	(4)	Statics				(4)	Humanities II				(4)	1016-306	Differential Equations	
		0304-342	(3)	Prob. Solving w/ Comp. Lab				(4)	LA Conc. I				(4)	1016-314	Engineering Statistics	
		0304-343	(3)	Materials Processing, Lab				(4)	LA Conc. II				(4)	1016-318	Matrices & BVP	
		0304-344	(4)	Materials Science, Lab				(4)	LA Conc. III				(4)	1011-208	College Chemistry I	
		0304-347	(4)	Mechanics of Materials	Free Electives					Minor (If Applicable):				(4)	Science Elective I (ch)	
		0304-348	(1)	Mechanics of Materials Lab				(4)	(gr) Free Elective I				(4)		Science Elective II (bio)	
		0304-359	(5)	Dynamics				(4)	+ Free Elective II	+ or Option Intro Course			(4)	1017-311	University Physics I	
		0304-413	(4)	Thermodynamics				(4)	* Free Elective III	* or 1016-274 Calculus D			(4)	1017-312	University Physics II	
		0304-415	(4)	Fluid Mechanics					Extra Course				(4)	1017-313	University Physics III	
		0304-416	(1)	Thermal Fluids Lab I					Extra Course						Writing Test	
		0304-437	(4)	Design of Machine Elem.					Extra Course			Pass	(0)		Writing Test	
		0304-440	(4)	Numerical Methods					Extra Course							
		0304-514	(4)	Heat Transfer					Extra Course						(52) Total Math and Science Topics	
		0304-518	(4)	Adv. Comp. Tech., Lab	Co-op (1 Year Equivalent Experience)					Employer Name:		Qtr.	Co-op Approvals:			
		0304-543	(5)	System Dynamics			0304-499	(0)	Co-op 1				Faculty Advisor Signature: _____			
		0304-550	(4)	** Transport Phenomena			0304-499	(0)	Co-op 2				Faculty Advisor Signature: _____			
		0304-551	(1)	** Thermal Fluids Lab II			0304-499	(0)	Co-op 3				Faculty Advisor Signature: _____			
		0304-630	(4)	Senior Design I			0304-499	(0)	Co-op 4				Faculty Advisor Signature: _____			
		0304-631	(4)	Senior Design II			0304-499	(0)	Co-op 5				Faculty Advisor Signature: _____			
		0304-6	(4)	++ Technical Elective I	Physical Education / Wellness											
		0304-6	(4)	++ Technical Elective II				(0)	Activity							
		0304-6	(4)	++ (gr) Technical Elective III				(0)	Activity							
		0304-6	(4)	(gr) Technical Elective IV				(1)	FYE							

NOTES: (94) Total Engineering Topics (49) Total Liberal Arts & Free Electives (195) TOTAL CREDITS

- \* Calculus D replaces one Free Elective In the 1016-27x Calculus sequence
- \*\* Students in the Aerospace Option replace Transport with Aerodynamics and replace TF Lab II with Aeromech Lab
- + Students enrolled in the Aero, Auto, Bio, or Energy Option must use one Free Elective for their 5xx level introductory course.
- ++ Students enrolled in the Aero, Auto, Bio, or Energy Option must use three Technical Electives for their 6xx level Option Courses.
- +++ Students moving from the 2004 Bulletin to the 2005 Bulletin may substitute GD&T in place of Cornerstone Design
- (ch) Students remaining under the 2004 Bulletin may substitute a second science elective in place of Chem of Materials + Lab
- (bio) Students enrolled in the Bioengineering Option must take at least one Biological Sciences Elective
- (gr) These courses must be 0304-7xx or higher for students enrolled in the BS/MENG or BS/MS dual degree program.
- (z) Students moving from the 2004 Bulletin to the 2005 Bulletin may substitute Fr Sem II from 2003-2 or 2004-2 in place of MIC

Approvals:  
 \_\_\_\_\_ Attach Application for BS Degree Form  
 \_\_\_\_\_ Student Signature: \_\_\_\_\_  
 \_\_\_\_\_ Faculty Advisor Signature: \_\_\_\_\_  
 \_\_\_\_\_ Student Info. Spec. Signature: \_\_\_\_\_  
 \_\_\_\_\_ Department Signature: \_\_\_\_\_