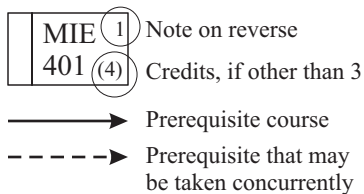
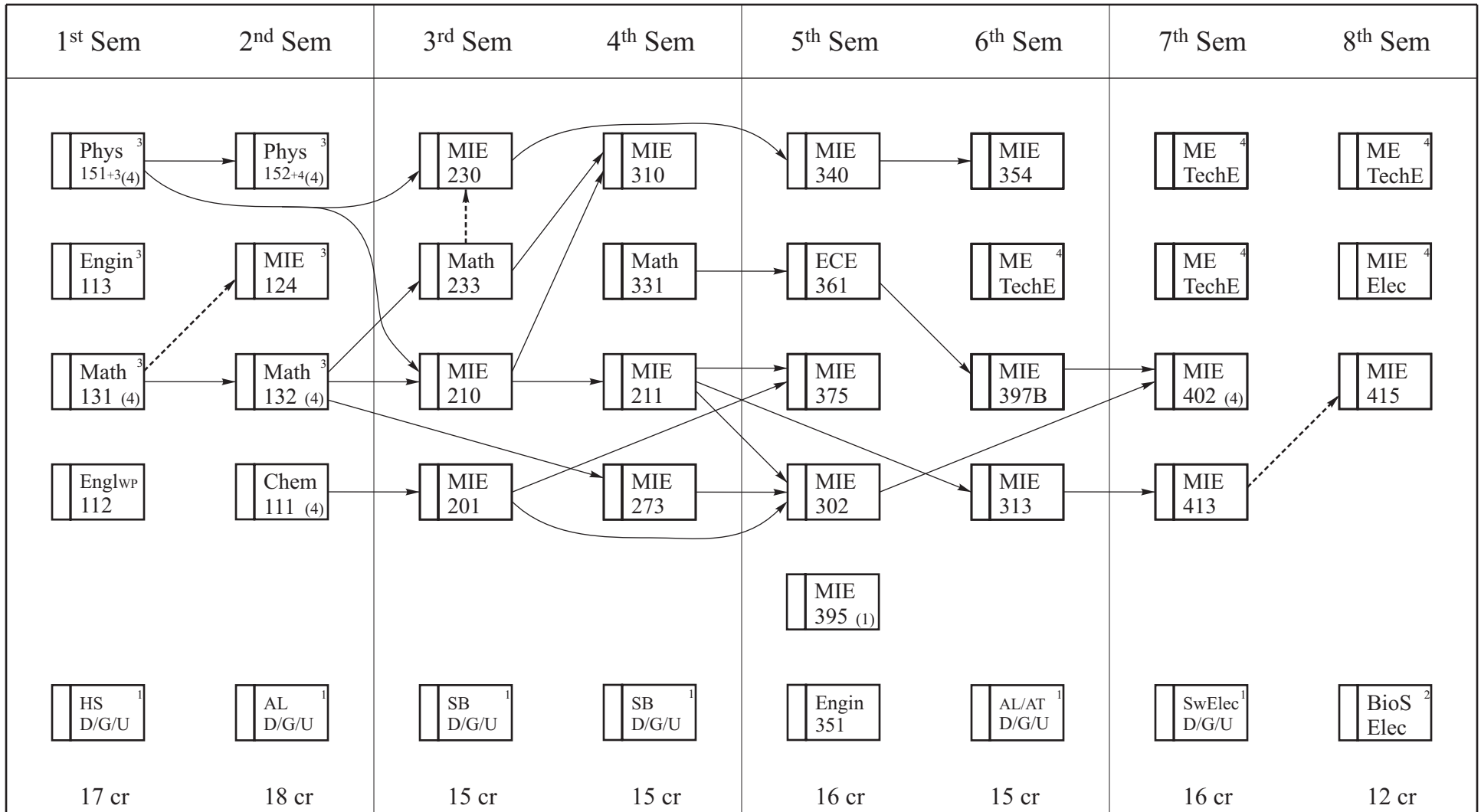


Mechanical and Industrial Engineering Department
MECHANICAL ENGINEERING CURRICULUM (ME 2012)
 Curriculum for the Class of 2012, entering the ME Major after 6/2009



Scheduling Note: Courses offered vary from year to year and from semester to semester. The sequence of courses shown is only a sample. Students will plan their individual programs after consulting the University Pre-Registration Materials and the MIE Department Pre-Registration Notes.

Scheduling Option: Students who do not enroll in MIE 302 in their 5th semester may choose to take MIE 313 instead. In subsequent semesters, those students can take MIE 302 in place of an ME Tech Elective; MIE 413 in place of MIE 313; MIE 415 in place of MIE 413 and an ME Tech Elective in place of MIE 415.

Graduation Clearance: Both University and Department Cumulative GPAs of 2.0 are required for graduation.

Prerequisites: Not all prerequisites are shown. Consult the Undergraduate Guide for complete listings. Students must satisfy prerequisites or obtain instructor permission, irrespective of Spire enrollment.

Total Credits: 124
 Revised 4/1/2009
 Catalog 2009-10
 to 2009-10

ME Degree Program, Flowchart Notes

NOTE: The flowchart is not the official student record. It should be used in conjunction with your university transcript and your degree progress report. Consult the Guide to Undergraduate Programs for more detailed explanations of department, college, and university graduation requirements.

Notes: 1. **Social World Requirement:** 6 COURSES (one from each group)

- 1) AL 4) HS or AL or AT or SB or I
- 2) SB 5) AL or AT or I
- 3) HS 6) SB or I

Social World Diversity Requirement

One of the six Social World courses must have global diversity designation (G) and one must have a United States diversity designation (U)

- 2. **Biological Science Requirement:** Any course having the Biological Science (BS) designation.
- 3. **Alternative Courses:** An approved alternative exists to the “standard” course shown in the flow chart, e.g. Math 135 can be taken in place of Math 131. Please refer to the *Guide to Undergraduate Programs*.
- 4. **Mechanical Engineering Program Electives:** Students must take 4 ME Tech Elective courses and one MIE Elective course. Approved ME Tech Elective courses are listed below. Other upper level engineering courses, including courses in other engineering and related disciplines, may be acceptable as ME Tech Elective courses. See Professor Rinderle for approval. All MIE courses at or above the 300 level, including ME Tech Elective, are acceptable as the MIE Elective. Typically electives are offered in only one semester and many are not offered every year. Check *Spire* to see which courses are offered this semester. If you are interested in using an alternative course as a technical elective, see Professor Rinderle.

ME TECHNICAL ELECTIVE COURSES

MIE 373	Intro Simulation Methods	MIE 570	Solar & Dir. Energy Conver.
MIE 379	Deterministic Operations Research	MIE 573	Engin. Windpower Systems
MIE 418	Design of Mechanisms	MIE 581	Machining & Machine Tools
MIE 422	Statistical Quality Control	MIE 597B	Mechanical Behavior Of Polymers
MIE 440	Aerospace Fluid Mechanics	MIE 597I	Injection Molding
MIE 444	ME Automatic Controls	MIE 601 [†]	Thermodynamics
MIE 460	Human Factors Engineering	MIE 605 [†]	Finite Element Analysis
MIE 477	Production Planning & Control	MIE 607 [†]	Advanced Fluid Mechanics
MIE 496	Indep. Study (Approval Req'd, 3 cr only)	MIE 608 [†]	Physical Metallurgy
MIE 497E	Thermo-fluid Design	MIE 609 [†]	Mech Properties of Materials
MIE 497S	Super Mileage Vehicle (3 cr only)	MIE 643 [†]	Mechatronic Systems Design
MIE 499Y	Honors Research	MIE 644 [†]	Applied Data Analysis
MIE 499T	Honors Thesis	MIE 680 [†]	Advanced Metal Forming Processing
MIE 548	FEA – Introduction		[†] 600 Level requires instructor approval

MIE COURSE TITLES AND NUMBERS

MIE 201	Intro Materials Science	MIE 380	Stochastic Operations Research
MIE 210	Statics	MIE 395	Seminar, Engineering Professionalism
MIE 211	Strength of Materials	MIE 397B	System Dynamics
MIE 213	Intro Mech and Indus Engr Design	MIE 413	Design of Mechanical Assemblies
MIE 230	Thermodynamics	MIE 402	ME Lab II
MIE 273	Probability and Statistics for Engineers	MIE 415	Design of Mechanical Systems
MIE 302	ME Lab I	MIE 418	Design of Mechanisms
MIE 310	Dynamics	MIE 422	Statistical Quality Control
MIE 313	Design of Mechanical Components	MIE 444	ME Automatic Controls
MIE 340	Fluid Mechanics I	MIE 460	Human Factors Engineering
MIE 353	Engr Economic Decision Making	MIE 477	Production Planning & Control
MIE 354	Heat Transfer	MIE 478	Capstone Design (IE)
MIE 373	Intro Simulation Methods	MIE 492	Seminar
MIE 375	Manufacturing Processes	MIE 497A	Design Against Failure
MIE 379	Deterministic Operations Research	MIE 497E	Thermo-fluid Design

Mechanical Engineering Majors and
ENGIN Students planning to be ME Majors

Mechanical Engineering

Degree Program Requirements Revisions, April 2009

Overview

Revisions to the ME Degree Program have been approved which afford students more choice in the selection of MIE courses. The less restrictive curriculum and more elective course offerings will better enable students to focus their course work in areas of greater interest to them. The revised curriculum will also result in more scheduling flexibility as a consequence of combining design work previously taught in separate courses in the sophomore and senior years into a single capstone design experience.

Applicability

Curriculum revisions have been approved and will appear in the *Guide to Undergraduate Programs* to be published this Spring. The revised curriculum will apply to all students who enter the ME major after June 1, 2009, including almost all current freshmen. Current ME students, i.e. those who entered the major prior to June 1, 2009, will continue to be bound by the existing curriculum, however, current students may petition to be allowed to follow the new curriculum or parts of the new curriculum.

Requirements Changes

The new, complete ME Degree Program Requirements are listed in the 2009-10 *Guide to Undergraduate Programs*. The PDF of the MIE entry will be posted on the MIE web site, probably late on April 2. The ME Flow chart reflecting the new curriculum is posted on the MIE website and is available outside ELab 208F

There are two principle changes to the ME requirements. The first is that MIE 444 and MIE 497E will no longer be required; students will instead select two technical electives from among these courses and those previously designated as ESD courses. The second change is that MIE 213 will no longer be required and the SD requirement will be replaced with a revised MIE 415. The new MIE 415 will incorporate material that had been in MIE 213.

The MIE Faculty also revised guidelines as to which courses will satisfy the elective requirements. In general, only one independent study course (MIE 496) can be used to satisfy an ME Tech Elective requirement. One semester of SMV work can be applied to the MIE Elective requirement and one semester can be applied to the ME Tech Elective requirement. Integrated research and thesis (MIE 499Y and 499T) can both be applied to the ME Tech Elective requirement, irrespective of participation in Commonwealth College, subject to the restriction that at least two regular courses must be among those used to satisfy ME Tech Elective requirements. Credit for serving as an undergraduate TA will no longer satisfy any degree requirement.

Accommodations for Current ME Majors

Current ME students who have completed MIE 213 will be able to satisfy the SD requirement by completing MIE 497D, a 2 credit, streamlined version of MIE 415. Students who wish to substitute an ME Tech Elective course for MIE 444 and/or MIE 497E should submit a petition specifying their plan for all ME Degree Program Electives. It is anticipated that petitions will be approved in cases in which the plan is consistent with the guidelines specified above and when the student will be a full time student during the Fall 2009 semester or beyond. A program revision petition form will be available online or from Dorothy Adams.