New Lecturer Orientation
Undergraduate Education

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Scope - 2006

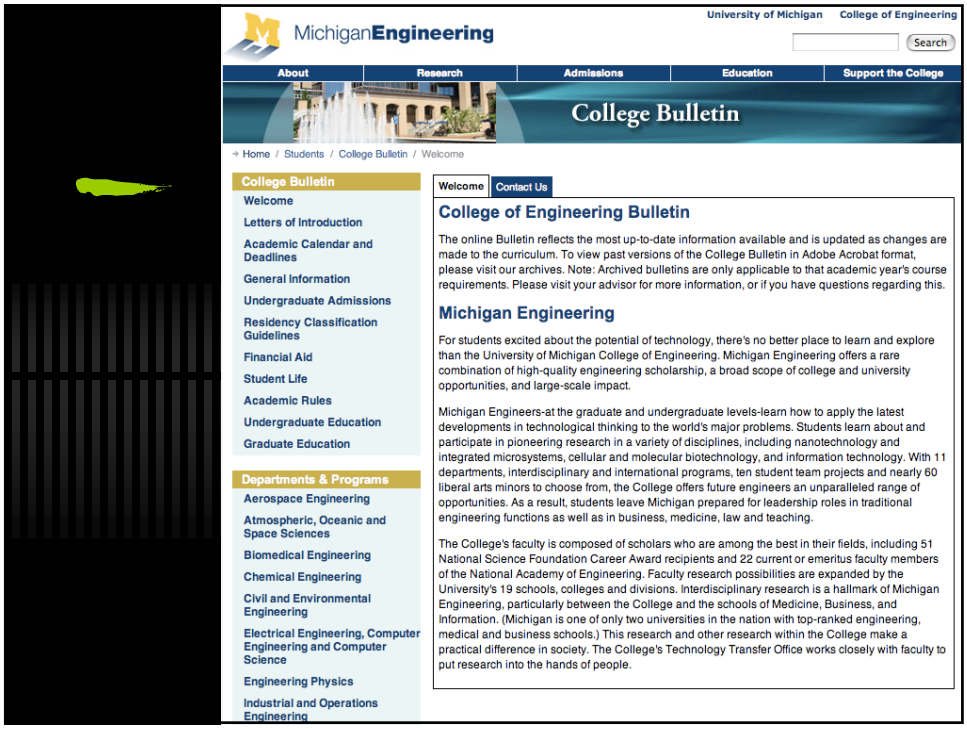
- ✓ 4978 undergraduates (25,555 at UM)
- ✓ 2578 graduate students (14,149 at UM)
- ✓ 1094 CoE undergraduate degrees granted (2006)
- ✓ 65,000 living engineering alumni

The Entering Cohort

- ✓ 1250 students in entering class
- ✓ HS median median GPA: 3.9
- ✓ Median Test Scores: ACT 30 - SAT 1380
- ✓ 75% of entering students graduate from CoE
- ✓ 25% women
- ✓ 8% under-represented minorities

Admission to the College

- ✓ Students enter the CoE without being in any department.
- ✓ 18 year old high school students are poorly positioned to pick a career
- ✓ The 1/3's rule-of-thumb
- ✓ Leads to compromises in first year curriculum



CoE Undergraduate Degrees

- ✓ The CoE is one of 11 undergraduate degree granting units & one of 18 graduate units
- ✓ 14 BSE degrees
- ✓ 1 BS degree

Literature, Science, and the Arts
Architecture & Urban Planning
Art & Design
Business
Education
Engineering
Kinesiology
Music
Natural Resources & Environment
Nursing
Pharmacy

Rackham
Architecture & Urban Planning
Art & Design
Business
Dentistry
Education
Engineering
Information
Kinesiology
Law
Medicine
Music
Natural Resources & Environment
Nursing
Pharmacy
Public Health
Public Policy
Social Work

CoE Undergraduate Degrees

- ✓ Aerospace Engineering
- ✓ Earth System Science & Engineering
- ✓ Biomedical Engineering
- ✓ Chemical Engineering
- ✓ Civil Engineering
- ✓ Computer Science
- ✓ Computer Engineering
- ✓ Electrical Engineering
- ✓ Engineering Physics
- ✓ Industrial & Operations Engineering
- ✓ B.S. in Engineering
- ✓ Materials Science & Engineering
- ✓ Mechanical Engineering
- ✓ Naval Architecture & Marine Engineering
- ✓ Nuclear Engineering & Radiological Sciences

All are BSE degrees, except B.S. in Engineering

Curriculum

- ✓ Understand the technological and natural world
- ✓ Develop a facility to attack unfamiliar problems
- ✓ Challenge students (and let them challenge us)
- ✓ Create
- ✓ Communicate
- ✓ Lead

The University of Michigan seeks
"an uncommon education for the common man"
James Burill Angell, U of M President, 1871-1909

CoE Curriculum: Major Components

- ✓ Admission to the College, not departments
- ✓ Engineering Core Courses
  - ✓ First year engineering courses
  - ✓ Math and science courses
  - ✓ Humanities & Social Science
- ✓ Curricular Threads
- ✓ Department/degree curricula
- ✓ General Electives (Free electives)
- ✓ 128 credit hours
  - ✓ Nominally 8 terms of 16 credits each

First Year Engineering

- ✓ Engineering 100 (required)
  Introduction to Engineering
- ✓ Engineering 101 (required)
  Introduction to Computers and Programming
- ✓ Engineering 110 (optional)
  The Engineering Profession

Core

- ✓ Calculus, Differential Equations
  Math 115, 116, 215, 216 (or 214)
- ✓ Chemistry
  Chem 130/125/126 or 210/211
- ✓ Physics
  Phys 140/141, 240/241
- ✓ Humanities & Social Sciences
  16 credit hours, including a sequence

Curricular Threads

- ✓ Communications Across the Curriculum
- ✓ Professional Ethics
- ✓ Teamwork
- ✓ Foundation in the first year
- ✓ Carried forward in departmental courses

Humanities & Social Sciences

- ✓ 16 credits in College of Literature, Arts & Science
- ✓ At least 6 in humanities
- ✓ Sequence including one upper division course

Department Curriculum

- ✓ Sophomore foundations
- ✓ Technical core
- ✓ Technical electives
- ✓ General electives (free electives)
- ✓ Capstone Design Project
  - ✓ Includes realistic constraints, economics, societal impact, regulation, manufacturing…

Selection of Major

- Students may declare a program after 1 term
- Must be in good standing (2.0 gpa)
- Must have 2.0 gpa in Engineering Core courses (Biomed 3.2, Eng Phys 2.8)
- Must have completed or be in last set of first year courses
- Student goes to department and declares

International Programs

- International Programs in Engineering (IPE)
- Dr. Amy Conger, Director
- Exchanges, Partnerships, Internships
- Engineering Global Leadership Honors Program - EGL (BSE/MSE program)
- Program in Global Engineering
  - Might transition to a Minor this year
- SJTU Joint Institute
- International Program Committee

Undergraduate Research

- ✓ UROP
- ✓ Informal & formal departmental programs
- ✓ Independent study courses
- ✓ For pay vs. for credit
- ✓ Funding
  - ✓ Departmental resources
  - ✓ UROP
  - ✓ NSF REU supplement funds
  - ✓ NASA Public/Outreach funds

Wilson Student Team Project Center

- ✓ Peter Washabaugh, Assoc. Prof. Aero, Director
- ✓ 10,000 sq. ft facility to support project teams
- ✓ Now transitioning to support other student multidisciplinary design activities
- ✓ Expanding space and facilities
- ✓ Supporting department facilities

SGUS

- Masters degree is the place for specialization within a discipline
- Sequential Graduate Undergraduate Study
  - 9 credits double counted
  - Apply in Junior year
  - GPA thresholds apply

FERPA

- Family Educational Rights and Privacy Act (Buckley Amendment)
- Student records may not be released to:
  - Parents (it does not matter who pays the bill)
  - Friends
  - Spouses, girl- or boyfriend, family dog, etc.
- There are exceptions
- Students can give permission *in writing*
- Requests for information must be kept

Learning & Teaching

- Student *learning* is important
- Ideally curriculum is designed around what students need to learn
- Classes & learning experiences designed around what students can do when they are done
- Teaching should be done *intentionally*

Support for Teaching
Support for Learning

- Ctools
- GSIs - assignment and process
  - GEO - Graduate Employee Organization
- Science Learning Lab
- Math Lab
- Engineering Learning Resource Center
- Society tutoring services
- ASEE - Dean's Program
- CRLT / CRLT North

What do Grades Mean?

Undergrad Scale

- ✓ 4.0 Scale

Graduate Scale

- ✓ 9.0 Scale

Letter Grades		Honor Points
A+		4.0
A	excellent	4.0
A-		3.7
B+		3.3
B	good	3.0
B-		2.7
C+		2.3
C	satisfactory	2.0
C-		1.7
D+		1.3
D		1.0
D-		0.7
E	not passed	0.0
ED	unofficial drop	0.0

Curricular Initiatives this year

- ✓ International Minor
- ✓ Multidisciplinary Design Minor
- ✓ Entrepreneurship Program

- ✓ Communication Across the Curriculum Review
- ✓ First Year Computing Review
- ✓ Curricular Flexibility