WELCOME
PARENTS & FAMILIES
What is engineering?

The profession in which a knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to utilize, economically, the materials and forces of nature for the benefit of mankind.

ABET
Engineer of the 21st century

• Understanding of **human, social, and environmental dimensions** of engineering

• Drive and capability to **make a difference** by bringing solutions into production

• Understanding that solutions, especially for society's most critical needs, are not just technical but **depend on many disciplines working together**

• Engineers’ **core contribution** will include bringing data-driven, quantitative problem solving skills to the table
What makes a good engineer?

- Technical knowledge with a multidisciplinary systems oriented approach to problem solving, plus...
- Creativity & Innovation
- Entrepreneurial Mindset
- Intercultural Skills
- Collaborative Spirit
- Social & Environmental Responsibility
- Effective Communication

These are the **core competencies** that make great engineers
Course and experience planning

• Students meet with academic advisors today and again tomorrow morning to discuss course selections and co-curricular interests
• Math advisor will be available to discuss proper course placement
• Typically 3 technical courses and a non-technical course
• Many students choose to begin with fewer credits in their first term (Average first year load is 14-15 credits).
The curriculum by category

Details differ from program to program

There are many choices within these categories

Students should be intentional in these choices, to develop their core competencies

Beyond this curriculum there are co-curricular educational experiences to plan also
First year courses draw from:

- Engineering
- Core Math
- Physics & Chemistry
- Intellectual Breadth
- Engineering 110 and other General Electives
15 undergraduate majors

- Aerospace Engineering
- Atmospheric, Oceanic and Space Sciences
- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Computer Science
- Electrical Engineering
- Engineering Physics
- Environmental Engineering
- Industrial and Operations Engineering
- Materials Science Engineering
- Mechanical Engineering
- Naval Architecture and Marine Engineering
- Nuclear Engineering and Radiological Sciences
Selecting a field

• 2.0 GPA to declare major
  – 2.5 Biomedical for Fall 2014 entering class
• Can declare major as soon as second term
  – Must declare by end of 3rd term
• Engineering 110
• Talk to other students
• Visit departments
• Go to Welcome Day
• Go to the Majors & Minors fair
• Once a decision is made, don’t wait!
Minors and Supplemental Studies

• Opportunity to develop a unique competencies beyond the technical
• Over 80 LSA Minors
• Art & Design Minor
• Business Minor
• CoE Minors & Supplemental Studies
  – Multidisciplinary Design Minor
  – International Engineering Minor
  – Supplemental Studies in Entrepreneurship
  – Supplemental Studies in Sustainable Engineering
  – Engineering Departmental Minors
Co-curricular learning opportunities

- Student organizations (over 1,400 organizations at UM)
  - 45 listed by UM Engineering Council
- Study/Work/Volunteer abroad
- Research
- Community service
- Internships and co-op
The Honor Code

• Created by students, for students
• Designed to help students learn to act ethically and with integrity, in preparation for entry into the engineering workplace
• Students are expected to know policies regarding group vs. individual work for each class
• Academic-related activities outside of the classroom must also be conducted with integrity, professional ethics, and mutual respect
• For a full explanation, visit: www.engin.umich.edu/students/honorcode/code
Recommendations for your Students

• No need to collect all of the “coins”
  – e.g. honors courses
• Seek balance
• Own your education
  – Be deliberate about your choices
  – Take advantage of opportunities
• Give yourself permission to transition
  – Enroll in 13-15 credits in the first semester
• Develop time management and study skills

We will demand a lot of you – you will be challenged...
Grade Point Averages

- First year UM GPA
- High School GPA
Tips for You

• Advisors are important
• Urge your student to visit their instructors or GSI’s
  – Or attend office hours
• Help your students to self-advocate
• Most students need to learn how to:
  – study effectively
  – manage their time
• Watch for signs of declining well-being
Signs of Distress

• Emotional
  – Sadness, anxiety, crying, irritability, anger, showing extreme reactions, expressions of disinterest, apathy or hopelessness

• Cognitive (mental processes of perception, judgment and reasoning)
  – Decline in work or academic performance, poor concentration, impaired decision-making ability, out of touch with reality/odd speech

• Physical
  – Frequent health issues, problems with sleeping or eating; rapid heartbeat; disheveled appearance; social withdrawal

Source: University of Michigan Depression Center
Key Campus Resources

• General Mental Health Information, Education and Support
  – Campus Mind Works: www.campusmindworks.org

• College of Engineering Resources
  – Office of Student Affairs
    • studentaffairs.engin.umich.edu
    • 734-615-1405
  – Engineering Advising Center
    • advising.engin.umich.edu
    • 734-647-7106

• University Resources
  – Counseling and Psychological Services
    • caps.umich.edu
    • 734-764-8312
  – University Health Service
    • uhs.umich.edu
    • 764-8320
  – Services for Students with Disabilities
    • ssd.umich.edu
    • 734-763-3000
Other Key Resources

- **Engineering Advising Center**
  - www.engin.umich.edu/students/advising
- Engineering Learning Center
  - FREE tutoring, review sessions, and supplemental resources
  - www.engin.umich.edu/elc
- Math Lab, Physics Help Room, Science Learning Center
- Engineering Career Resource Center
  - career.engin.umich.edu
- Others
  - Center for Engineering Diversity and Outreach
  - Center for Entrepreneurship
  - International Programs in Engineering
  - Multidisciplinary Design Program
Engineering Graduates

• Are in high demand regardless of their major

• This is because they:
  – Build experience beyond the classroom
  – Take smart risks
  – Step out of their comfort zone
  – Own their education
Students have a lot to think about. They need to be intentional about their learning experiences.

Questions?