COLLEGE OF ENGINEERING OVERVIEW

Heidi Sherick
Assistant Dean
Engineering Complex
MEETING ROOMS

- Students – stick with Student Orientation Leaders
- Parents – white handout with locations for tomorrow’s department meetings
• Begin your journey as an MSU engineer or computer scientist
• Join a long line of successful graduates
  - over 118 years
ENGINEERING

The application of mathematics, natural sciences, social sciences and humanities to the analysis of problems and designed solutions for society.
Engineering Grand Challenges

- http://www.engineeringchallenges.org/
ENGR of 2020 Attributes

- mathematics and science

- expanded view of design in the humanities, social sciences, and economics

- understanding of the creative process

- interdisciplinary environment, including professionals from science, social science, and business

- leadership qualities - influences in the making of public policy

- underrepresented groups

- sustainable development

- adapt to changes in global forces and ethically assist
• General Engineering
  – not a degree program
  – designed for undeclared COE students
  – take EGEN 105, investigate engineering majors – must be active
  – encourage you to DECLARE a major as soon as possible
  – advised through Deans Office
  – Parents meeting @ 9:45 tomorrow…investigate a major
Breadth of Engineering

• Minimum one year of mathematics and natural sciences

• One year of engineering sciences
  – statics/dynamics, circuits/electronics, materials science, thermodynamics, fluid mechanics, computer science

• Statistics, financial analysis, economics, project management, ethics

• Junior level introduction to design course (interdisciplinary)

• Integrated design and capstone experiences
COE special features

• Success in your first Math course is important
• WRIT 101 exemption – college-level writing course required for accreditation
• US 101 or CLS 101 as Freshman Seminar
• Junior level introduction to design course (multidisciplinary)
• FE exam/CS Field Placement exam requirement for engineering majors
• Women in Engineering Orientation – email and/or fliers Wed. August 31 5:30 Cob 429
Learning Outside the Classroom

• Student organizations
• Research opportunities
• Internships
• Community and Campus service
• Volunteer
MSU team wins NASA competition!

some team members at competition

lunarbotic MSU Mule in “the pit”
Capstone Design Projects

Accessible Handpump for US Forest Service

Grid Defender – power line support; lets people disconnect and lower transmission lines to ground level

Standing Machine – lets man raise himself from sitting in a wheelchair to standing

Montana State University College of Engineering

Mountains & Minds
Student Organizations

• 25 Student organizations
  – Mentoring
  – Tutoring
  – Fund Raising
  – National competitions
  – Teamwork, leadership, communication

EWB, SWE, ITE, SAE, AGC, ACM, AISES, IEEE, IIE, BREN, Honor Societies
Skills in addition to technical...

- Communication, teamwork, service
- Study Abroad
- International Engineering Certificate (soon)
- Dual Major/Minor – Mechatronics
  - Business
  - Foreign Language
  - Humanities
  - Military studies
  - Electrical, Computer Science
  - Computer Science
  - Aerospace
  - Land Surveying
COE Research

- Engineered Systems
- Transportation
- Bioterrorism
- Materials
- MRI - medical imaging
- Bio-systems
- Energy/Fuel Cells
- Environmental
- Avalanche Research/Cold Regions
- Medical imaging
- Biomedical
- Health care engineering
- Biomedical Engineering
- Signal processing, neuroscience
- Health care engineering
- Bioinformatics
- Microfabrication
- Telecommunications
- Nanotechnology
- Transportation
- Environmental
- Health care engineering
- Bioinformatics
- Signal processing, neuroscience
Research/Extension Centers

Work Experiences

- Center for Biofilm Engineering
- Montana Manufacturing Extension Center
- Western Transportation Institute
Move from High School to College

“It is in your moments of decision that your destiny is shaped.”
— Anthony Robbins

• Drive the bus
• Connect with faculty (go to class, use e-mail, office hours)
• Know that competition is greater; more students
• Set your own boundaries and priorities
• Motivate yourself
• Accept the responsibility of your freedom
• Limit distractions by making good choices
• Shape your own values and opinions
Tips for Success

• Establish study niche
  – Room
  – Library
  – Group vs. solo
  – Quiet vs. music

• Keep in touch with advisor and instructors – how to address faculty
  – will get advisor in October for Spring registration. No advisor is “overused”
  – don’t be afraid to ask questions
  – posted office hours
More Tips for Success

• E-mail account – check often (professional)

• Find a balance
  – work and school and extra-curricular activities

• Don’t get behind
  – “homework”
  – self-discipline (go to class)
  – use resources around you
Words of advice

• #1 predictor of persistence in ENGINEERING is your performance in your FIRST MATH COURSE

• Failure will happen….LEARN from it

• There are MULTIPLE unique answers to any problem --- CHALLENGE yourself to push your problem-solving beyond the boundaries of the problem
Key Academic Policies

- On-line ADDS for first 5 days of classes (Sept 2)
- No ADDS after 10\textsuperscript{th} day of classes (Sept. 12)
- Last day to DROP a class without a grade is the 15\textsuperscript{th} day (Sept. 19)
- DROPPED courses graded with a “W” from Sept. 20 – Nov. 18
- No drops allowed Nov. 21 - Dec. 16
Scheduling your classes

• Academic Department Meetings
  - discuss features of the department/program

• Math Placement Survey

• Faculty/Leader advisor Meetings
  – discuss degree requirements
    • University
    • College of Engineering
    • Program

• Course Registration
  - alternative courses (labs/rec)
    - be active during first week of class
Registration Process

1. Initial schedule development with Orientation Leaders

2. Confirmation with faculty advisor

3. On-line registration
Review

- Catalog = “contract” between you and the university
- Take in as much as possible during Orientation
- Ask questions
- Use the resources around you
Thank you and good luck!

• ORIENTATION LEADERS WILL GUIDE YOU TO THE NEXT MEETING PLEASE REMAIN SEATED AS THEY ANNOUNCE YOUR OPTIONS.

• College of Engineering Home Page
  – www.coe.montana.edu

• Montana State University Home Page
  – www.montana.edu