

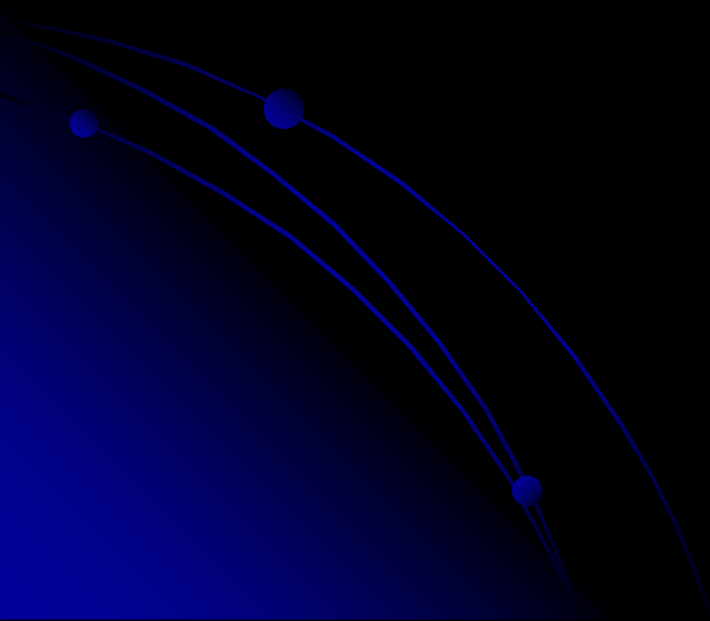
# ENGINEERING SCIENCE

## Program Review

Paul Chanley  
Spring 2011

A scientist describes what is, and  
an engineer creates what never was

Theodore von Karman



# Program Mission

- Prepare students to effectively transfer to a four-year college or university - sophomore/junior level
- Opportunity to explore various engineering fields to choose specialization
- Engage and educate students in science, technology, engineering and mathematics
- Provide solid fundamentals that help them succeed in pursuing a bachelor's degree
- Encompass a course of study to help students become effective communicators, work in a team environment

# Engineering Science Review Team

- Liliana Brand      Department Mathematics
- Paul Chanley      Engineering Program Coordinator
- Michael Cross      Department of Natural Sciences
- Thomas Greene      Department of English
- Lori Heymans      Department Developmental Math
- Habib Maagoul      Department Mathematics
- Michael Pelletier      STEP UP Project Leader

# Engineering Program Concentrations

- **Chemical Engineering**
- **Civil/ Environmental Engineering**
- **Electrical/Computer Engineering**
- **Mechanical Engineering**

## **National Association of Colleges and Employers**

**Survey 2010:** Bachelor's degree starting average salary offer:

- **Chemical Engineering: \$65,142**
- **Computer Engineering: \$60,879**
- **Electrical/Electronic Engineering: \$59,074**
- **Mechanical Engineering: \$58,392**

# Curriculum Enhancements

Curriculum developed in cooperation with the engineering divisions of four-year institutions

- Newly revised and approved curriculum. Spring 2011 Advising Handbook reflects change
- Revised core and concentrations curriculum
- Development of a new course: *EST104* Engineering Essentials & Design – support from Northeastern Univ. & Whittier Tech. H.S
- *ENG103* Technical Writing added to core curriculum
- Engineering Electives added to concentration curriculum



# Engineering Program Curriculum

## Core Requirements (49 Credits)

- *ECO201 & ECO202* Micro & Macro Economics
- *ENG101 ENG102 & ENG103* English Comp I & II, Technical Writing
- *EST110 & EST104* Eng. Design Graphics, Eng. Essentials & Design
- *CHM121* General Chemistry I
- *PHS131 & PHS132* Engineering Physics I & II
- *MAT251, MAT252, MAT253 & MAT254* Calculus I, II& III, Diff Eqs

## Program Electives (12 Credits)

- Computer Program Elective *CIS140, CIS200* or higher, **not** *CIS141*
- Humanities Elective *COM111* **Strongly** recommended

# Engineering Program Curriculum

## Chemical Engineering Concentration

- *CHM122* General Chemistry II
- Chem. Eng. Elective *EST213* or higher, or *MAT125*, MUST see advisor
- *PHI110* Ethics

## Civil/ Environmental Engineering Concentration

- *EST111* & *EST112* Computer Aided Drafting I & II
- *CHM122* General Chemistry II
- Civil/Env Eng Elective *EST211* or higher, MUST see advisor
- Civil/Env Eng Elective *EST212* or higher, MUST see advisor



# Engineering Program Curriculum

## Electrical/Computer Engineering Concentration

- *CTE101* Fundamentals of Digital Logic
- *CTE103* Digital Design Lab
- Elect/Comp Eng Elective *EST231* or higher, MUST see advisor
- Elect/Comp Eng Elective *EST232* or higher, MUST see advisor

## Mechanical Engineering Concentration

- *EST111* & *EST112* Computer Aided Drafting I & II
- Mech Eng Elective *EST211* or higher, MUST see advisor
- Mech Eng Elective *EST212* or higher, MUST see advisor
- *PHI110* Ethics

# Program Action Items

## Engineering Science

*Do or do not. There is no try.*

Yoda

# Program Action Items

- NECCUM training for all Engineering Science student faculty advisors
- Allow Engineering Science students to declare the engineering concentration they are interested in when enrolling in the program.
- Mandate Engineering Science student testing into *BA II* and/or *Applied Tech Math* be required to take the EET certificate and/or CAD certificate

# Program Action Items

- Maximize number of available advisors by assigning only Engineering Science students to faculty that have engineering degrees.
- Low female enrollment in program. Recruit female students
- Full-time faculty member or constant adjunct faculty for the physics course sequence. Also, review *PHS131* and *PHS132* Engineering Physics I & II for proper lab equipment.

# Program Action Items

- Secure funds each year for AutoCAD, MATLAB and Multisym.
- STEM faculty to stay current with respect to technology and instructional methods, through workshops, publications, and conferences - ASEE
- Implement MATLAB in the Calculus, Engineering Physics, Engineering Circuit Analysis course sequences
- Develop program website and support continuous updates to the website



Thank You:

- Engineering Program Review Team
- Grace Young
- Ellen Wentland