

Changes to Freshman Engineering Courses

John Miller
Oct 2013

Background

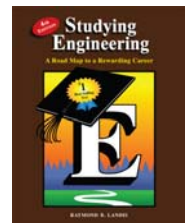
- Current courses
 - ECS 1095
 - EGR 1301
 - EGR 1302
- Issues
 - Curriculum improvement
 - Growing enrollment = lack of resources (space, faculty, time, equipment, etc.)
 - Retention (?)
 - ME to ECE ratio (2:1 at least)

ITEM 1: NEW STUDENT-DEVELOPMENT COURSE (1101)

Chautauqua Short Course

Enhancing Student Success through a Model Introduction to Engineering Course

- Have to teach students how to be effective



Ray Landis' Suggestion

- Student development course that accomplishes the following:
 - Build community among students
 - Strengthen students' commitment to getting degree
 - Identify & change negative attitudes
 - Identify & change negative behaviors
- Note: ECS 1095 includes many of these things already

Propose 2 New Courses

- EGR 1101 – A student development course whose purpose would be to give students the tools necessary to be effective engineering students
- EGR 1201 – A content/design-based course which would introduce students to basic engineering principles and would complement the lessons taught in EGR 1101

Why a separate course?

- Students take seriously
- Grade
- Different focus
 - Applicable to all classes, not just engineering
- Form small sections/groups
- Student/peer leaders
- Taught by staff (Adam, Emily, Ida)?

EGR 1101 Outline

- Use Ray Landis' book *Studying Engineering*
- Keys to Success: Effort, Approach, Attitude (Ch 1)
- Why do you want an EGR degree? (Ch 2.4)
- Engineering at Baylor (flowchart, personal responsibility, advisors)
- Personal/student ethics
- Study skills (Ch 3, 4, & 5)
- Time management (Ch 5.2)
- Teamwork & interpersonal interaction (Ch 6.7)
- Interaction with faculty
- Written communication skills

Summary

- Split EGR 1301 into:
 - EGR 1101 – Student development
 - EGR 1201 – Engineering intro & design project
- Goals:
 - Improve the quality of our students
 - Increase engineering retention

ITEM 2: EGR 1201/1301 CURRICULUM

Outcomes of 1201/1301

- Overview of engineering profession
- Fundamental engineering skills
 - Problem Solving
 - Design
 - Teamwork
 - Communication
- Key topics to prepare for later classes
 - Excel
 - Programming?

EGR 1201/1301 Outline

- Profession
 - Disciplines, internship presentations, industry speakers, professional ethics, and licensing
- Design process & project
- Simple structured programming
 - Variables, conditional statements, loops, etc.
 - Connected to physical system (motors, sensors, etc.)
- Excel
- Communication
 - Problem presentation, data presentation, etc.