Baylor Engineering!
Doesn’t that sound great?

BSE In Perspective
- The original ABET accredited engineering program
- Since 1989 (quarter century)
- Contained ECE and ME paths
- Jim Bargainer, Jim Warren, Jim Farison…
- ECE and ME separated in 2000….BSE continues
- BSE became General Engineering
  - Biomedical option with five BME courses
  - Flexible option with eight stem possibilities
  - Individualized custom path

Priorities
- Emphasis has rightfully been building the departments
  - Faculty hires
  - Staff hires
  - Graduate programs
  - Student recruitment
  - Facilitates and equipment
- BSE existed much for sentiment and not wanting to kill off an accredited program.
  - Plus there was talk of its value and potential
  - A minority of staunch advocates

Exposed
- The 2012 ABET visit exposed BSE’s overlooked status
- Program’s leadership evaporated
- Report comprised of sections “lifted” from ME & ECE
- No specific assessment of BSE student outcomes
  - Based on aggregate/FE results judged invalid
- Educational Objectives unacceptable
- No resources or budget or advocacy
- And so on and so on….
- Show cause/not-to-accredit;
  - Should fire the dean!
Heros de-aggregated the student assessment data
Drs. Garner and Newberry and others
Advocate Board responded with feedback
The dean stepped up with support
A new student Can-Do portfolio assessment implemented
The two engineering departments responded
Resulted in a remarkable change from “do not accredit” to full six-year accreditation.

Within a few years of graduation, Baylor B.S.E. students will:
1. establish themselves as a competent, successful, and responsible member within their chosen profession, as evidenced by such indicators as promotions, raises, recognitions, and increased responsibilities, or,
2. be engaged in post-baccalaureate study as demonstrated by earning or making progress toward an advanced degree.

Philosophical
What does Baylor/ECS need the BSE to be?
What benefits can the BSE bring to the table?
What needed elements will make the BSE attractive?
What administrative changes are required?

Answers
Needs to compliment and bring added value.
Attract brightest and creative students.
In demand paths not available otherwise.
Appoint the one who allowed the mess to lead redesign.

Accreditation
Curriculum un-assessible because of small course commonality among all the paths and stems
Curriculum
Broaden depth to reflect General Engineering
Assessment
Implement systematic and individualized outcomes assessment in lieu of FE exam results
Involves ME and ECE processes as well as Can-Do Portfolios
Can-Do Portfolio

- For assessment of student outcomes
- i-k student outcomes
- ME & ECE use FE results to assess (a) and (e)
  (a) apply knowledge of math, engineering and science
  (e) identify, formulate and solve engineering problems
- Each Jr & Sr semester students submit coursework artifacts
- Artifacts assessed according to mastery rubric

Curriculum

- Required engineering courses were....
  - Two Freshman engineering courses (intro & analysis)
  - Statics and Circuits
  - Junior Design and Senior Design
- Added to engineering requirements for BSE
  - Dynamics and Thermodynamics
  - Digital Logic and lab; Automatic Control Systems
  - Instrumentation and Measurements Lab
- Meets required engineering credits for ABET!

Value Added

- No weak link (just the opposite)
  - ECE and ME sufficient individually
- Biomedical Engineering exists
  - Five BME courses
  - Dang good fit
- Others asked about or in demand or good fit....
  - Real possibilities here for flavors
- New curriculum assures accrediatability...
  - Within the BSE/ECS/BU umbrella

BSE....with a....

- Engineering-ish Minor
  - Six courses
  - ECS contributes some of these courses
  - Can include “Engineering” in the description
- Stem or Option
  - Perhaps minor without “engineering” title
  - Courses toward career goal or objective
  - Courses already offered by ECS
  - Courses already offered at Baylor
Consider...

- Biomedical Engineering
  - Five courses exist
  - Option or minor
- Chemical
- GeoReservoir
- Environmental
- Humanitarian Engineering minor
- Engineering Education

Progress

- Biomedical: Well underway
- GeoReservoir
  - Six Geology courses including Engineering Geology
  - Partnership with Geology Department
  - Vetted with industry
- Environmental
  - Six Environmental Science courses

Next Up?

- Humanitarian Engineering
  - Compliments EM and existing efforts
  - Full minor
  - Baylor fit
- Engineering Education
  - Partnership with School of Education
  - Contributes toward teaching engineering in high school

Other Elements

- Technical Entrepreneurship Certificate
  - Partnership with Hankamer
  - Courses offered as substitute
  - Business
- Project Management Certificate
  - Partnership with Hankamer
  - HSB courses
  - One course counts as technical elective
Next Steps

- Implementation
- Complete details
- Catalog
- Registrar
- Advising

- Big Questions
  - Viable track
  - Adjustments
  - Others…What’s next

Are we on the right track? What is missing?

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Previous Dean’s Prerogative

- The New Dean
- A-OK
- Sees the vision….what needs to be done
- Making appropriate changes and initiatives
- Respected by faculty and has their support
- Hear good support from administration