Texas A&M University - Kingsville

Year 2

Mark Cortez
John Chisholm, Lifford McLauchlan, Aden Ahmed

Brief Year 1 Review

- Objection by Arts and Sciences to creation of 4-hour Engineering Mathematics course claiming it was an attempt to teach mathematics in the College of Engineering.
- Solution
  - The Engineering Mathematics developed as a MATH course in Arts and Sciences.
  - Engine Math would replace pre-calculus in mathematics sequence.

Summer 2009

- While we moved the Engineering Mathematics math course through the system, we chose to teach a section of Pre-Calculus, MATH 1348 with a Maple lab.
- Unable to get the course together Summer 2009. Taught MATH 3390 as a tool to train Teaching Assistants for the Fall.

Nathan was right.

- Nathan Klingbeil stated at the 2009 Annual Meeting that if we did this the mathematicians would just turn it into a mathematics course.

Nathan was right.

Fall 2009

- One section of MATH 1348 was taught with the associated laboratory.
- The three-hour section was limited to the regular material in Pre-Calculus.
- The voluntary Maple laboratory supported the material in Pre-Calculus and lightly touched the calculus.

Engineering Math MATH course stalls

- A&S uses TAs in associated laboratories
- Engineering assigns this duty to instructors
- Engineering wanted to assign 4 load hours to the instructor of the Engine Math class
- A&S would only assign 3.
- Change of leadership in Mathematics
- Meeting with Math Faculty to explain Engineering Mathematics … again.

Engineering Math MATH course stalls

- Mathematics faculty reject replacing the pre-calculus course with Engineering Mathematics.
- Arts and Sciences will not schedule a laboratory section to augment MATH 1348
- MATH 1348 taught in Spring 2010 without calculus content or an associated laboratory

Fall 2009 MATH 1348

Course	Enrolled	A	B	C	D	F	Q
Engine Math	30	7	10	4	3	4	2
Regular	49	14	14	15	2	1	3

Spring 2010 Calculus I

Course	Percent enrolling in Calculus I	Percent passing Calculus I	Percent who Failed or Dropped Calculus I
Engine Math	79%	84%	16%
Regular	78%	86%	14%

The Plan

- Propose a new course, GEEN 12xx
- Engineering Math Laboratory
- Co-requisite with Pre-Calculus
- Two-hour lab course with 6 contact hours
- MatLab and physics and EE laboratory sessions
- Support Pre-cal subjects
- Cover Calculus & DiffEQ
- Use Summer 2010 to train a fresh cohort of teaching assistants

Why?

- A two-hour laboratory can't be accused of trying to teach mathematics in the College of Engineering.
- Handled by engineering faculty rather than mathematics faculty.
- Leaves quadratic equations, vector math, complex numbers, and sinusoidal and harmonic signals in Pre-Calculus course supported by MatLab sessions.
- New Arts and Sciences Dean starts July 1 and may be more amenable to this concept.

Differential Equations

- Method of Impedances rather than undetermined coefficients to teach Differential Equations

Conclusions

- Haven’t gotten very far.
- Trying to conduct an engineering NSF grant through an Arts and Sciences administrative structure doesn’t work.