

ME 489 Practices of Modern Engineering

Group Assignment 3

A plan for Transforming Engineering Education at Texas A&M University

Due March 8 (soft and paper copies)

The TAMU Dwight Look College of Engineering (COE) released its Strategic Plan (SP)¹ for 2011-2015 (attachment from <http://engineering.tamu.edu>). The plan identifies key issues and sets forth actionable goals, strategies and indicators for five key areas. One key area is undergraduate education. The plan stresses that “meeting the commitment to the State of Texas demands **more than just** preparing *problem solvers* that will enhance the economic development of the State.”

The Plan reflects on the global landscape and dramatic pace of change in science and technology, recognizes the attributes for modern engineering education and practice, and provides a transformative roadmap to educate young engineers on a foundation of *experiential learning, drawing on solid research findings and best professional practices.*

The COE, having an overarching commitment to the *culture of excellence* (<http://vision2020.tamu.edu/the-twelve-imperatives>), has as its main goal to transform TAMU into the “*institution of choice*” for innovations and breakthroughs for the engineering challenges of the 21st century (<http://www.engineeringchallenges.org>).

Read (individually) and as a group discuss the attached COE SP. In particular, read critically the Overview (p. 9) and the Plan for Focus Area 1: UG Academic Experience (pp. 10-14). You², as a student, have both a responsibility and a stake to evaluate the SP goals, strategies (how to implement goals), and indicators (how to measure their attainment).

As a group, evaluate Goal 1.1, and prepare a (no less than) 400 word (longer OK) essay addressing to the following questions:

- Why is a transformation in UG engineering education needed? Why now?
- Why does the TAMU-COE want to become an *institution of choice*?
- What does it mean achieving *experiential learning*? How well the TAMU UG education has prepared you on this goal?

¹ Strategic Plans are common to all organizations and institutions (families, corporations, universities, governments). SPs are important because they recognize shortages and/or opportunities; identify paths for future growth or just mere survival, outline strategies to achieve the transformative goals, and identify the means for their consecution. Successful SPs must involve all parties associated with the main purpose of the organization; for the COE: students, faculty, employers and the State.

² I assume that, as a stakeholder of your education, you are fully aware of the COE SP. The Plan has been in preparation for several years. Student organizations (ASME Chapter for example) have played an important role in assisting to shape the SP.

- d) What are the planned activities for students to gain *critical thinking*? How well the current UG education has prepared you on this aspect?
- e) Why is engagement in “research” important in a transformative UG education?
- f) Why is important to *learn how to learn*? And how to assess (measure) a commitment to *lifelong learning*?
- g) Does the SP gives the means or specifies how (in terms of credit hours) the transformative education will take place?
- a) As a corollary, how as a practicing engineer you will help TAMU, your alma mater, to educate effectively students (perhaps your own children) to meet contemporary challenges, be prepared for global competitiveness, create innovations and produce discoveries, etc.

Your lecturer; not only a teacher, but also a former student, a parent and an employer, has particular interest in learning your informed opinion on how you see your own education and that of generations to come.

The assignment intends to make you aware of institutional challenges and changes; and for you to participate in their implementation.

Thanks for your attention

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