Appendix A4.7

FSU-FAMU College of Engineering
A. What studies has your university done in the last three years to ensure your graduates are meeting the needs of employers?

The joint FAMU-FSU College of Engineering offers undergraduate degree programs in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering. All of our undergraduate degree programs are accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org. ABET is the internationally recognized accrediting body for engineering, technology, computer science, and applied science programs. It is an organization of member societies which represent government, industry, and academia, and it is recognized by the Council for Higher Education Accreditation (CHEA).

ABET has a set of accreditation criteria which have to be met before a program can receive ABET accreditation. One criterion, specifically ABET General Criterion 2, is called Program Educational Objectives. This criterion requires programs to “publish program educational objectives that are consistent with the mission of the institution, the needs of the program’s various constituencies, and these criteria. There must be a documented and effective process, involving program constituencies, for the periodic review and revision of these program educational objectives. In the fall of 2009, all the undergraduate programs were reviewed against the existing ABET criteria. Each program was required to complete a Self-Study Report (SSR) prior to the visit of ABET program evaluators. These reports included documentation on how well each program was meeting the objectives they had outlined for the criterion and the continuous improvement process used to ensure program success.

Additionally, during the Fall 2011 semester, all programs (i.e., undergraduate and graduate) at the college are undergoing the seven year state program review mandated by the Board of Governors. Each program completed another self-study report which also
examined the progress of its graduates. At the time of this submission, the results of these reviews were still being analyzed.

B. **Do you have measurable goals to meet employers’ current needs? If so, please provide them. How often are these goals updated?**

As described in Part A, each undergraduate degree program has developed a set of program educational objectives. They can be found in the FAMU General Catalog under the each individual program’s section and at our website at [http://www.famu.edu/engineering](http://www.famu.edu/engineering). Each academic department at the College has an external advisory board which reviews and updates program educational objectives, as mandated by ABET General Criterion 2. There is also an industrial advisory board for the College which meets twice annually to discuss how the College as a whole can meet the needs of industry.

C. **Do you have measurable goals for each graduate in the areas of writing proficiency and critical thinking? If so, please send them to me with the goals and include the results for the last five to ten years.**

All programs are required to establish an Academic Learning Compact, or ALC. The ALC identifies what a student will learn by the end of the degree program. Each ALC is required to have learning outcomes in the areas of critical thinking and writing proficiency. Additionally, ABET General Criterion 3 Student Outcomes requires programs to “have documented student outcomes that prepare graduates to attain the program educational objectives.” The following student outcomes are related to critical thinking:

- (b) an ability to design and conduct experiments, as well as to analyze and interpret data,
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability, and
- (f) an ability to identify, formulate, and solve engineering programs.

Student Outcome (g) an ability to communicate effectively is related to writing proficiency. ABET General Criterion 4 Continuous Improvement requires programs to “regularly use appropriate, documented processes for assessing and evaluating the extent to which both program educational objectives and the student outcomes are being attained. The results of these evaluations must be systematically utilized as input for the continuous improvement of the program.”
All the programs at the College of Engineering annually measure the attainment of ALC learning outcomes and ABET student outcomes including the ones listed above for critical thinking and communication on an annual basis.

E.  Are professors required to integrate writing proficiency and critical thinking into all courses? If so, what oversight is provided to ensure that these skills are being taught? How are these skills integrated into course assessments?

The engineering curriculum is designed to train students to apply mathematics and natural sciences to solve problems which will benefit society. So, the very nature of the engineering curriculum requires the integration of critical thinking into every course. Writing proficiency is also emphasized. At the freshman and sophomore levels, all engineering students complete the state mandated requirements in “General Education.” This includes completing a minimum of six (6) hours of English, six (6) hours of humanities, six (6) of social studies, and six (6) hours of either humanities or social studies. Students are also required to satisfy the Gordon Written Rule requirement while completing these courses. At the junior and senior levels, writing and oral communication skills are emphasized in design courses. Specifically, the senior design project course, which is required for all engineering students, emphasizes the need for effective communication skills.

As described in Question C, all student outcomes are measured on an annual basis. Programs employ a “continuous improvement loop,” which involves the assessment of the outcome, its evaluation, recommendation(s) for improving the outcome, and implementation of the recommendation(s). This process is designed to monitor the outcome and provide a mechanism for its continuous improvement.

F.  Do you have measurable goals for student success after graduation? If so, please send me the goals and the results for the last five to ten years.

Again, referring to the response for Question B, all programs are required to measure the level of attainment for their Program Educational Objectives. This is usually done on a three-year cycle.

M.  What programs do you have to educate students regarding job opportunities? What are your measurable goals for each program? Do you use information similar to the data available from the Florida education and Training Placement Information Program
(FETPIP) to prepare students prior to admission and prior to selection of major? Please provide me the results for the last five to ten years.

At the joint FAMU-FSU College of Engineering, our students have access to the resources at both the Florida A&M and Florida State Career Centers. Both Centers provide career education and career placement advisement for engineering students on their main campuses. A satellite Career Services office at the College of Engineering provides assistance to students with the following: (a) resume and cover letter writing, (b) composing personal statements, (c) interviewing techniques, (d) job/internship searches, and (e) career planning. The FSU Career Services liaison to College of Engineering coordinates the Engineering Day career exposition and the Tallahassee Engineers Networking Night, presents workshops to student organizations and classes, and provides career advising to all students at the FAMU-FSU College of Engineering.

During each academic year, the college hosts “Engineering Day.” This is a career exposition for students to meet employers and search for full-time, co-op, and internship opportunities in the engineering field with companies, non-profit and government agencies. The career fair has been held at the college every fall semester since 2003 and every spring semester since 2009.

The Tallahassee Engineers Networking Night took place for the first time in the spring of 2011. This event was designed to introduce local organizations in the field of engineering to students and faculty at the College of Engineering. The event was attended by 47 students and 8 local organizations.

The Career Centers at Florida A&M University and Florida State University offer students and employers on-campus recruiting opportunities during the fall and spring semesters for internships, co-ops, and full-time positions. As per the agreement between FAMU and FSU, employers who come to either campus to recruit engineering students hold their interviews at the universities, not at the college.

The FSU Career Center liaison to the College of Engineering holds drop-in advising hours every semester; typically 15 hours in the fall and spring semesters, and 10 hours during the summer semester. In the fall and spring, a graduate assistant also provides additional office hours. They will host a Week of Workshops before the Engineering Day career exposition to prepare students for the event. Topics include resume writing, positive social networking, interview strategies, and career expo strategies (talking to employers).

Q. Please provide me with any additional information you think way be helpful, including your thought process to make sure we are headed in the right direction.
The motto of the FAMU-FSU College of Engineering is “Quality – Growth – Diversity.” We will be celebrating the 30th anniversary of our founding next year. Currently, we have reached our all time high in student enrollment at 2,522 students with 2,244 undergraduate students and 278 graduate students. Over half of our undergraduate student body (51%) is from groups historically underrepresented in the engineering profession including women (21%), African-American males (22%), and Hispanic males (8%). Since our founding in 1982, we have graduated 5,854 B.S., 1,060 M.S., and 246 Ph.D. students. Throughout our 30 years of existence, our undergraduate degree programs have often been ranked in the top ten in the United States in the number of baccalaureate degrees in engineering awarded to African-American students.