New Program Proposal
Master of Science
Engineering Management
University of South Carolina Columbia

Summary

University of South Carolina Columbia requests approval to offer a new program leading to the Master of Science degree in Engineering Management with an International Concentration, to be implemented in Fall 2012. The proposed program is to be offered through an executive/professional format and a distance education delivery mode.

The Program Planning Summary was submitted to the Commission on May 15, 2011, and reviewed and voted upon favorably without substantive comment by the Advisory Committee on Academic Programs (ACAP) on July 14, 2011. USC-Columbia's Board of Trustees approved the proposal on December 13, 2011. The final revised proposal was received by the Commission on February 13, 2012.

According to the proposal, the purpose of the proposed program is to provide recent graduates and currently practicing engineers a strong technical and management background to prepare them for a broad range of managerial-related opportunities in diverse engineering disciplines. The engineering management program will allow engineers to acquire administrative and communication skills in addition to technical knowledge in their specialty which will provide the skills necessary to effectively lead groups and coordinate projects. The proposal states that graduates from the proposed program will be prepared for positions in the private sector, engineering consulting firms, industry, and government agencies. The proposal also states that in addition to the direct career paths available, graduates will be prepared for doctoral degree programs in related disciplines.

The proposed program will have an executive/professional format which will primarily focus on practicing engineers who are employed full-time but want to expand their technical and managerial skills and knowledge base for personal and career advancement. The executive/professional program will include instruction on two days (Friday and Saturday) per month during the regular semesters, two weeks during the summer, a distance education component, and synchronous and asynchronous course delivery throughout the year.

According to the Bureau of Labor Statistics 2010-11 *Occupational Outlook Handbook*, employment of engineering managers is expected to increase by six percent to 195,400 by 2018. Increasing employment of engineers in engineering, research and development and consulting services industries should generate most of the employment growth. The proposal states that the demand for similar programs should be evident by the growing number of the top ranked higher education institutions, such as Cornell, Duke, and Northwestern Universities, that are developing engineering management programs and the increasing student enrollment in these programs.

According to the proposal, there are no other programs in the state leading to a Master's in Engineering Technology. However, The Citadel offers a similar program leading to a degree in Project Management. The proposal notes that the proposed program differs from The Citadel's program because it will offer more management-related courses, has an International

concentration option, and offers an executive/professional format. The proposal includes a memorandum of understanding (MOU) between USC-Columbia and The Citadel's Schools of Engineering, which included student enrollment in the graduate classes of the partner institutions, cross-listing graduate courses, the exchange of faculty, and the initiation of collaborative research efforts. In addition, the two universities are considering potential partnerships which could include the development of compatible distance education facilities.

Projected new enrollment for the program will be 15 new students (9.5 FTE) in the program's first year, increasing to 24 students (14.0 FTE) in the second year, increasing to 36 students (21.0 FTE) in the third year, increasing to 60 (30.0 FTE) fourth, and 60 (30.0FTE) fifth year of the program. According to the proposal, projections for new enrollment are based mainly on the current number of students enrolled in the engineering management programs at different institutions in the United States. If enrollment and program completion projections are met, the proposed program will meet the Commission's productivity standards.

Admission requirements for the proposed program will be consistent with other graduate programs at USC-Columbia's Graduate School. Admission will be based on the applicant's GRE score, letter of recommendation, GPA and quality of the applicants' prior education. The curriculum for the proposed program in Engineering Management will consist of 30 credit hours with an additional nine (9) credit hours for the International concentration. The International concentration will allow students to participate in an internship in their area of specialization in a foreign country, receive instruction in a foreign language, and receive six (6) credit hours for successful completion. Three new courses will be added to the institution's catalog, including: Management of Engineering Projects; Risk Analysis for Engineering Applications; and, Emerging Issues in Law and Engineering. The proposal notes that no accreditation will be sought for the proposed program. Licensure is not required for employment.

The proposal states that the assessment of student learning will be tied to the specific goals and objectives of the proposed program. The proposed program assessment will use direct and indirect methods which will include thesis and project defense, an oral examination, and completion of the internship for the international concentration.

According to the proposal, no new faculty or administrative staff will be hired to support the program. The proposal states that because of the executive structure of the proposed program, adjuncts will be hired to staff the proposed program and existing faculty will be paid overload compensation on a per course basis. Existing faculty members in the program are presently teaching full time in the institutions' engineering and computer, business, law, journalism departments.

The proposal states that no physical plant needs are anticipated to support the proposed program. The proposal further states that no additional equipment will be required for the proposed program within the first two years of implementation. The existing equipment in the teleconferencing facilities will be sufficient to implement the proposed program. However, as the enrollment increases, a larger room with teleconferencing facilities will be needed for the delivery of courses via distance education.

The information provided in the program proposal states that the USC's Thomas Cooper Library has adequate resources to support the proposed program with print and electronic resources including the statewide PASCAL databases, Interlibrary Loan, Internet access,

bibliographic instruction, and a variety of class-specific user education programs. In addition, students have access to the Moore School of Business Library (Elliott White Springs Business Library), The School of Journalism and Mass Communication Library, and the USC School of Law Library (Coleman Karesh Library), which is all located either on the USC campus or within close proximity of the university.

Costs and sources of financing identified by the institution for the proposed program are shown below.

Estimated Costs By Year						
Category	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Total**
Program Administration	30,000	30,000	30,000	30,000	30,000	150,000
Faculty Salaries	36,000	42,000	48,000	54,000	54,000	234,000
Graduate Assistants	0	0	0	0	0	0
Clerical/Support Personnel	45,000	45,000	45,000	45,000	45,000	225,000
Supplies & Materials	5,000	5,000	5,000	5,000	5,000	25,000
Library Resources	0	0	0	0	0	0
Equipment	0	0	0	0	0	0
Facilities	0	0	0	0	0	0
Other/Operating	0	0	0	0	0	0
Total	116,00	122,000	128,000	134,000	134,000	634,000

Sources of Funding						
Source	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Total**
Estimated Revenue Generated from Tuition	137,940	203,280	304,920	435,600	435,600	1,517,340
Other State Funding	0	0	0	0	0	0
Reallocation of Existing Resources	0	0	0	0	0	0
Total	137,940	203,280	304,920	435,600	435,600	1,517,340

These data demonstrate that if University of South Carolina – Columbia can meet the projected student enrollments and contain costs as shown in the proposal, the institution will be able to cover costs with revenues it generates in the first year of the program and thereafter.

In summary, University of South Carolina proposes to offer a program leading to the Master of Science degree in Engineering Management. The proposed program will have an International concentration. According to the proposal, graduates of the proposed program will attain a strong technical and management background to prepare them for a broad range of managerial-related employment opportunities. The International concentration will allow graduates to expand their cultural awareness and knowledge about diverse foreign engineering markets and have the opportunity to receive foreign language training.

Recommendation

The Committee on Academic Affairs and Licensing commends favorably to the Commission approval of the program leading to the Master of Engineering Management degree with an International concentration at the University of South Carolina -Columbia, to be implemented in Fall 2012, provided that no "unique cost" or other special state funding be required or requested.