Industrial Engineering Graduate Program Review

Response to IE Graduate Program Review Committee Findings

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The Industrial Engineering department would like to commend the IE Graduate Program Review Committee for providing a thorough and representative evaluation of the current state of our IE graduate programs. We believe that a fair and unbiased assessment has been made by the review committee identifying not only areas of concern, but examples of exemplary practices in the delivery of our graduate programs.

A. Academic Unit Description and Strategic Plan
A department ranking and publicity promotion committee (DRPPC) is formed. The responsibility of this committee is to update the departmental strategic plan and disseminate the updated strategic plan to all current and future faculty members. The committee will develop the roadmap to lead the department in a successful direction, that is to enable the department to reach to the next higher level of the national ranking and recognition. Six peered institutes are used as our benchmarks: Oregon State University, Oklahoma State University, University of Oklahoma, University of Iowa, Iowa State University and Clemson University.

B. Program Curriculum
Curriculum development, coordination, and delivery – The manufacturing area is identified as the future area of growth for both research funding opportunity and student population. The group for the operations research, cyber security and big data analytics should be reorganization and enhanced. In addition, a 150-hours BSME/MSIE program is currently under review.

The department has reformed both undergraduate and graduate committees. Both committees have begun to review the undergraduate and graduate curriculums. The DRPPC committee has also recommended to both committees that immediate review and update of the curriculums be initiated.

The IE program curriculum is compared to the six peer programs identified – The IE department will undertake an undergraduate program revision, looking at course offerings, external electives/courses, to look for opportunities to better utilize faculty time. In addition, the graduate committee seeks to reduce the number of leveling courses and the mandatory course areas from five to two. The department will take advantage of
existing similar courses in mathematics, chemical engineering across the university and use them as cross-listed courses for the degree programs.

In the meantime, the graduate committee suggested that the required leveling courses be reconstructed, the mechanisms checked, and also implement new policies for required courses from each of the specialization areas. For Ph.D. students, the program level student outcomes will be regulated by a qualified measureable mechanism.

The distance Ph.D. program has been placed as top priority by the new president of Texas Tech University. Therefore, the department will make every effort to protect the distance Ph.D. program in Industrial Engineering. However, a good quality control mechanism will be developed and implemented for the current distance Ph.D. program. Basically, three technical papers must be accomplished in order to finish the distance Ph.D. degree. This requirement will diminish the inconsistency requirements between the distance Ph.D. program and on campus program. No matter the distance Ph.D. students or on campus Ph.D. students, a public notification must be provided campus wide for any degree dissertation defense.

C. Faculty Productivity

The IE department recognized a higher than normal loss of faculty over the past two years, but it is seeing a positive trend in recent faculty retention. To the best of our knowledge, all of the faculty members that have recently left the IE department have been for reasons beyond our control. To enhance retention the department will focus on providing new faculty with

- increasing and improving mentoring for both teaching and research, and
- increasing resources, including discretionary funds and graduate students.

We see a very strong correlation between faculty overload and decreased time to prepare proposals and secure research funding. To address this issue, the department will form a new “faculty workload committee”. This committee will be responsible for developing a reasonable, fair, implementable, and compatible with university operating policy mechanism to assign faculty teaching load and other related work duties. Based on the recommendations of the Department Ranking and Publicity Promotion Committee (DRPPC), Faculty Working Load Committee, Faculty Position Searching Committee, as well as Graduate and undergraduate committees, the Department will:

- develop a new formula to reduce teaching load for research active faculty based on number of papers published and funding records,
- add three to five new research-active faculty members and a department head, a result of which will be to reduce teaching/service overload and allow faculty to engage in more research, and
- provide resources (writing, contacts with potential research collaborators).
The IE department recognizes a higher course and service load for junior faculty than has existed in recent times. To address this issue the department

- is currently in the process of hiring five new faculty members,
- will increase the use of qualified GPTI or Instructor to teach classes and

The issue of compensating our faculty for teaching distance education courses is of great concern as distance offerings. This has been an issue for quite some time and the IE department is currently looking at ways to provide incentives for teaching distance education delivered courses. To address this, the department will explore the possibility of

- compensating the faculty member with funds placed into a discretionary account for use in purchasing equipment (including computers), travel, and summer salary,
- providing increments in starting salary for new faculty involved in the distance program,
- providing supplemental pay, or
- providing course release time.

D. Students and Graduates

- Support services
- Alumni relations

Again, regarding the department identified research area, there is an awareness of the inconsistency between the department published graduate handbook and the report of the curriculum map and this will be discussed in a faculty meeting in the near future. A suggestion for solving the problem will be developed based on the faculty meeting outcomes.

As a matter of fact, the current Ph.D. enrollment in the department is higher than the identified peer institutes. The Ph.D. student over faculty number ratio is 4.75/1 which means currently every IE faculty is advising an average of almost 5 Ph.D. students. This number is higher than any other departments within the College of Engineering at Texas Tech University. According to recently published “Profiles of Engineering & Colleges” by ASEE, the department Ph.D. students over faculty number is also much higher than almost any other Industrial Engineering Department nationwide. That is why the Department of Industrial Engineering at Texas Tech University was ranked the number
6th national wide as the Faculty Scholarly Productivity by the Chronicle of Higher Education in 2007. The department also realizes that the total student enrollment in the master’s program is relatively low. Therefore, the department is researching several new masters’ program initiatives specifically focused on attracting undergraduate students from the College of Engineering and also local non-graduate program colleges. The department believes that the enrollment in the master’s degree program will be increased in the near future.