Graduate Program Review
Texas Tech University

Program Reviewed: Department of Civil and Environmental Engineering

Onsite Review Dates: April 28, 2015

Name of Reviewers
Internal:
Please include name, title, and Department

External:
Please include name, title, and Department

Neeraj Buch, Professor and Chairperson, Department of Civil and Environmental Engineering
Michigan State University, East Lansing, MI 48824

I. Academic Unit Description and Strategic Plan
Please evaluate the following by marking an X in one of the blanks for each item:

Vision, Mission and Goals
___ Excellent ___ X Very Good ___ Good ___ Needs Improvement

Strategic Plan
___ Excellent ___ X Very Good ___ Good ___ Needs Improvement

Please comment on the positive components and suggested areas of improvement.
The department’s aspirational goal is to move into the top 50 programs in the nation. Based on the data provided in the self-study the department plans to grow the faculty size to 33, grow the research expenditure to $6 million/year and increase the PHD enrollment to 66. The department has a goal of increasing the faculty research expenditures to $180,000/year and research publications between 40-60/year.

Based on the meetings and review of faculty CVs it is clear that the quality of research and teaching is very good. The student morale is high and the students expressed satisfaction with their graduate experience at Texas Tech University. The strategic targets are achievable provided the department implements the recommendations stated in item VI of this report.

II. Program Curriculum
Please evaluate the following:

Alignment of program with stated program and institutional goals and purposes
___ Excellent ___ X Very Good ___ Good ___ Needs Improvement

Curriculum development coordination and delivery
___ Excellent ___ Very Good ___ X Good ___ Needs Improvement
Program learning outcomes assessment
___ Excellent  ___X_ Very Good  ___ Good  ___ Needs Improvement

Program curriculum compared to peer programs
___ Excellent  _X_ Very Good  ___ Good  ___ Needs Improvement

Please evaluate the following by marking an X in one of the blanks for each item:

Given the shortage of FTEs, the department has hired multiple instructors to meet the teaching demands of the undergraduate curriculum, however, the resources are approved on an annual basis and therefore the long term sustainability of the teaching resource is not guaranteed. It is recommended that the college provide funds to the department for multiple years to hire the instructors. These instructors will free up time for the tenure stream faculty to focus their attention on graduate courses and research.

III. Faculty Productivity
Please evaluate the following by marking an X in one of the blanks for each item:

Qualifications
___ Excellent  ___X_ Very Good  ___ Good  ___ Needs Improvement

Publications
___ Excellent  ___X_ Very Good  ___ Good  ___ Needs Improvement

Teaching Load
___ Excellent  ___ Very Good  ___ Good  ___X_ Needs Improvement

External Grants
___ Excellent  ___X_ Very Good  ___ Good  ___ Needs Improvement

Teaching Evaluations
___ Excellent  ___X_ Very Good  ___ Good  ___ Needs Improvement

Professional Service
___ Excellent  ___X_ Very Good  ___ Good  ___ Needs Improvement

Community Service
___ Excellent  ___X_ Very Good  ___ Good  ___ Needs Improvement

Please comment on the positive components and suggested areas of improvement.
The faculty are actively engaged in all the three missions of the university-teaching, research and service. According to the self-study the faculty in the CEE department have a higher (2012 and 2013) average teaching load than the college average. This load needs to be reduced. This overload will adversely impact the research productivity of the faculty and meeting the stated goals of research expenditures, graduate students and journal articles.
IV. Students and Graduates

Please evaluate the following by marking an X in one of the blanks for each item:

**Time to degree**

___ Excellent    _X_ Very Good    ___ Good    ___ Needs Improvement

**Retention**

___ Excellent    _X_ Very Good    ___X_ Good    ___ Needs Improvement

**Graduate rates**

___ Excellent    _X_ Very Good    ___ Good    ___ Needs Improvement

**Enrollment**

___ Excellent    ___ Very Good    ___X_ Good    ___ Needs Improvement

**Demographics**

___ Excellent    ___ Very Good    ___X_ Good    ___ Needs Improvement

**Number of degrees conferred annually**

___ Excellent    _X_ Very Good    ___ Good    ___ Needs Improvement

**Support Services**

_XX_ Excellent    ___ Very Good    ___ Good    ___ Needs Improvement

**Job Placement**

___ Excellent    ___X_ Very Good    ___ Good    ___ Needs Improvement

**Student/Faculty Ratio**

___ Excellent    _X_ Very Good    ___ Good    ___ Needs Improvement

---

Please comment on the positive components and suggested areas of improvement

The self-study did not provide quantitative data on graduate rates and retention. However these issues were raised during the face to face meetings with the faculty and graduate students and no concerns were raised. In fact several faculty were singled out for their interest in graduate student success and the excellent mentoring they are providing the graduate students.

The growth of the graduate program may be hampered by the college required minimum stipend of $27,500/year with additional funding required for tuition. With decreasing funding levels across agencies, budgeting more than one student on proposals will become a challenge in the future. It is recommended that different stipend levels be considered for MS and PhD students to increase the number of Ph.D students in the department.
V. Facilities and Resources

Please evaluate the following by marking an X in one of the blanks for each item:

Facilities
___ Excellent  ___ Very Good  ___ Good  ___ Needs Improvement

Facility Support Resources
___ Excellent  ___ Very Good  ___ Good  ___ Needs Improvement

Financial Resources
___ Excellent  ___ Very Good  ___ Good  ___ Needs Improvement

Staff Resources
___ Excellent  ___ Very Good  ___ Good  ___ Needs Improvement

Please comment on the positive components and suggested areas of improvement

Based on the tour it was evident that there is adequate teaching laboratory space, however, the available space needs upgrading and repurposing to make it more usable. The lack of adequate storage space was brought up both for the environmental and civil engineering laboratories. Given that most of the laboratories are located in the basement it was noted that transporting material in and out the laboratory is challenging. The laboratory equipment also needs upgrades. The challenge is the funding source for this upgrade. One source of funding could be the engineering fee and make the equipment available for undergraduate and graduate teaching laboratories.

The laboratory technicians were very willing to work with the graduate students and appeared to be very knowledgably about the equipment and instrumentation needed for both teaching and research.

VI. Overall Ranking

Please provide summative conclusions based on the overall review.

The attitude of the faculty, students and staff was very upbeat and are trying their best to meet the goals laid out by the college and the university administration. The faculty ratings in all three missions of the university range from very good to excellent and they need to be commended for that.

One of the stated goals is to improve the department’s ranking. This is a laudable goal however, this can only happen if (i) teaching and research laboratory is upgraded and renovated; (ii) the funding stream to support graduate students and adjunct faculty are made available earlier in the year for better planning purposes; (iii) the open tenure stream positions are filled in the short-term.
Please provide summative recommendations based on the overall review.

Based on the on-site visit and meetings with the various constituents the following recommendations are offered:

1. A permanent chairperson for the department should be selected as soon as possible.
2. Need to fill in the seven open tenure-stream positions to grow the research program, reduce the frequency of the offerings of graduate courses and assist with the growing undergraduate program.
3. The 49 student/section enrollment cap needs to be raised to reduce the number of sections for high enrollment courses (such as statics, solids, dynamics and fluids). This change will free up faculty time to engage in research and advising graduate students.
4. Investments need to be made in upgrading laboratory space. This can lead to more usable teaching space.
5. Resources available to support teaching assistants and adjuncts need to be made available in the year. The earlier timeline will assist in recruitment of graduate students and staffing of courses with adjuncts.
6. Recruit more students into the 150 credit hour MS program.
7. A college centric assistance with proposal processing and budget development will make the college even more competitive. The dependence on center resources is not a sustainable strategy.