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Applied Science Accreditation Commission
Computing Accreditation Commission
Engineering Accreditation Commission
Engineering Technology Accreditation Commission

August 08, 2013

Stanley T. Rolfe
Interim Dean, School of Engineering
University of Kansas
1520 W 15th Street
Eaton Hall, Room 1
Lawrence, KS 66045

Dear Dr. Rolfe :

The Engineering Accreditation Commission (EAC) of ABET recently held its 2013 Summer Meeting to act on the program evaluations conducted during 2012-2013. Each evaluation was summarized in a report to the Commission and was considered by the full Commission before a vote was taken on the accreditation action. The results of the evaluation for The University of Kansas are included in the enclosed Summary of Accreditation Actions. The Final Statement to your institution that discusses the findings on which each action was based is also enclosed.

The policy of ABET is to grant accreditation for a limited number of years, not to exceed six, in all cases. The period of accreditation is not an indication of program quality. Any restriction of the period of accreditation is based upon conditions indicating that compliance with the applicable accreditation criteria must be strengthened. Continuation of accreditation beyond the time specified requires a reevaluation of the program at the request of the institution as noted in the accreditation action. ABET policy prohibits public disclosure of the period for which a program is accredited. For further guidance concerning the public release of accreditation information, please refer to Section II.A. of the 2012-2013 Accreditation Policy and Procedure Manual (available at www.abet.org).

A list of accredited programs is published annually by ABET. Information about ABET accredited programs at your institution will be listed in the forthcoming ABET Accreditation Yearbook and on the ABET web site (www.abet.org).

It is the obligation of the officer responsible for ABET accredited programs at your institution to notify ABET of any significant changes in program title, personnel, curriculum, or other factors which could affect the accreditation status of a program during the period of accreditation stated in Section II.H. of the 2012-2013 Accreditation Policy and Procedure Manual (available at www.abet.org).

Please note that appeals are allowed only in the case of Not to Accredite actions. Also, such appeals may be based only on the conditions stated in Section II.L. of the 2012-2013 Accreditation Policy and Procedure Manual (available at www.abet.org).

Sincerely,

A handwritten signature in cursive script that reads "David B. Beasley".

David B. Beasley, Chair
Engineering Accreditation Commission

Enclosure: Summary of Accreditation Action
Final Statement

cc: Bernadette Gray-Little, Chancellor
Robert Sorem, Associate Dean of Undergraduate Programs, School of Engineering
Robert P. Elliott, Visit Team Chair

ABET

Engineering Accreditation Commission

Summary of Accreditation Actions
for the
2012-2013 Accreditation Cycle**The University of Kansas
Lawrence, KS****Aerospace Engineering (BS)****Architectural Engineering (BS)****Civil Engineering (BS)****Computer Engineering (BS)****Electrical Engineering (BS)****Engineering Physics (BS)****Mechanical Engineering (BS)****Petroleum Engineering (BS)**

Accredit to September 30, 2019. A request to ABET by January 31, 2018 will be required to initiate a reaccreditation evaluation visit. In preparation for the visit, a Self-Study Report must be submitted to ABET by July 01, 2018. The reaccreditation evaluation will be a comprehensive general review.

Chemical Engineering (BS)

Accredit to September 30, 2015. A request to ABET by January 31, 2014 will be required to initiate a reaccreditation report evaluation. A report describing the actions taken to correct shortcomings identified in the attached final statement must be submitted to ABET by July 01, 2014. The reaccreditation evaluation will focus on these shortcomings. Please note that a visit is not required.



Engineering Accreditation Commission

Final Statement of Accreditation
to

The University of Kansas
Lawrence, KS

2012-13 Accreditation Cycle

Assuring Quality • Stimulating Innovation

**ABET
ENGINEERING ACCREDITATION COMMISSION**

THE UNIVERSITY OF KANSAS
Lawrence, Kansas

FINAL STATEMENT
Visit Dates: September 23-25, 2012
Accreditation Cycle Criteria: 2012-2013

Introduction & Discussion of Statement Construct

The Engineering Accreditation Commission (EAC) of ABET has evaluated the engineering physics program and the aerospace, architectural, chemical, civil, computer, electrical, mechanical, and petroleum engineering programs of the University of Kansas.

This statement is the final summary of the EAC evaluation, at the institutional and engineering-program levels. It includes information received during due process. This statement consists of two parts: the first addresses the institution and its overall engineering educational unit, and the second addresses the individual engineering programs. It is constructed in a format that allows the reader to discern both the original visit findings and subsequent progress made during due process. A program's accreditation action is based upon the findings summarized in this statement. Actions depend on the program's range of compliance or non-compliance with the criteria. This range can be construed from the following terminology:

- **Deficiency:** A deficiency indicates that a criterion, policy, or procedure is not satisfied. Therefore, the program is not in compliance with the criterion, policy, or procedure.
- **Weakness:** A weakness indicates that a program lacks the strength of compliance with a criterion, policy, or procedure to ensure that the quality of the program will not be compromised. Therefore, remedial action is required to strengthen compliance with the criterion, policy, or procedure prior to the next review.
- **Concern:** A concern indicates that a program currently satisfies a criterion, policy, or procedure; however, the potential exists for the situation to change such that the criterion, policy, or procedure may not be satisfied.

- **Observation:** An observation is a comment or suggestion that does not relate directly to the current accreditation action but is offered to assist the institution in its continuing efforts to improve its programs.

The University of Kansas is a multi-campus public research and teaching institution composed of 14 schools and colleges under the governance of the Kansas Board of Regents. The School of Engineering which is on the Lawrence campus offers twelve undergraduate degree programs that include eight engineering programs, all of which were evaluated during this visit. The engineering physics program, which resides in the College of Liberal Arts and Science, was also evaluated during this visit. The School of Engineering has an enrollment of 2,153 undergraduate students. The faculty consists of 102 tenure-track and 30 non-tenure-track members. Faculty members are active in the scholarship of both teaching and research. At the time of the visit the school was under the leadership of an interim dean who had recently assumed that position.

The following units were reviewed and found to adequately support the engineering programs: mathematics, physics, biology, chemistry, geology, computer center, library, humanities, and social sciences.

Institutional Strengths

1. The Building on Excellence Program, a plan funded and supported by the state legislature, is enabling the School of Engineering to experience significant growth in students, facilities and faculty. The goal of the initiative is to increase the number of engineering graduates by 60 percent while maintaining or improving the quality of the graduates and academic programs.
2. The School of Engineering is also benefiting from the campus-wide strategic plan entitled Bold Aspirations. This plan charts a path for achieving recognition as a top-tier public research university, and is largely designed to build on and enhance the strengths of the School of Engineering.

Aerospace Engineering Program

Program Criteria for Aerospace and Similarly Named Engineering Programs

Introduction

The aerospace engineering program is offered by the Department of Aerospace Engineering. The program graduated its first class in 1944 and was first accredited in 1949. The program prepares students to analyze, design and implement solutions to multi-disciplinary aerospace engineering problems. Topics of study include aerodynamics, materials, structures, propulsion, flight dynamics, and astronautics. The program, which graduated 26 students during the previous year, currently has 157 full-time and five part-time undergraduate students, 10 full-time faculty members and three full-time technical and office support personnel. Facilities include a number of instructional and research laboratories covering nearly 20,000 square feet.

Program Strength

1. The program has an established record of excellence in teaching design and providing regular opportunities for students to participate in design, build and fly activities. Student design projects continue to place extremely well in national and international aircraft and propulsion system design competitions.

Program Concerns

1. Criterion 1. Students This criterion requires student progress to be monitored to foster success in attaining student outcomes and students to be advised regarding curriculum and career matters. Although advisors meet with students on a regular basis to monitor progress, transcripts reviewed prior to the visit revealed several instances where students had not completed the appropriate prerequisites prior to taking a course. Without more consistent enforcement of prerequisites, students may experience increased difficulty in attaining outcomes, and continued compliance with this requirement may be jeopardized.
 - Due-process response: The EAC acknowledges receipt of documentation acknowledging that the university's automated system is not capable of checking all pre-requisites. To compensate for this, the program's undergraduate secretary will be responsible for

checking prerequisites not addressed by the automated system and a system will be established for students to petition for approval to take a course without the required prerequisite.

- The concern is resolved.
2. Criterion 4. Continuous Improvement This criterion requires the program to regularly use appropriate, documented processes for assessing and evaluating the extent to which both the program educational objectives and student outcomes are attained. A survey of the senior class is currently the only means used to assess student outcomes (h), (i), and (j). Reliance on self-reported evaluation of abilities may not provide adequate information for determining the extent to which these student outcomes are being attained, thereby jeopardizing future compliance with this criterion.
- Due-process response: The EAC acknowledges receipt of documentation that the faculty will develop other means for assessing these student outcomes.
 - The concern remains unresolved.
3. Criterion 5. Curriculum This criterion requires the curriculum to include one year (32 semester hours) of a combination of college-level mathematics and basic sciences appropriate to the discipline. The self-study identified 32 hours of required mathematics and science credits. However, the current student handbook lists only 31 hours. Although the requirement is currently met, the lack of consistency between the self-study and other published material may result in confusion and potential non-compliance with this criterion in the future.
- Due-process response: The EAC acknowledges receipt of documentation that the number of hours of college-level mathematics and basic sciences listed in the student handbook has been corrected.
 - The concern is resolved.

4. Criterion 7. Facilities This criterion requires that laboratories and associated equipment provide an atmosphere conducive to learning. The criterion further requires that modern tools, equipment, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded. The laboratories in the Department of Chemistry that are used in the general chemistry courses taken by all engineering students are currently close to maximum capacity and there is no additional laboratory space to handle any increased enrollment. Additionally, the current general chemistry lecture space is close to maximum capacity. If space, supplies, and personnel are not added and enrollment continues to grow, future compliance with this criterion may be jeopardized.
- Due-process response: The EAC acknowledges receipt of documentation that describes a short term solution of providing evening and/or Saturday laboratory sections, if required, to meet the demands of enrollment increases. The documentation includes a letter from the dean of the College of Liberal Arts and Sciences committing funds to assure that the laboratory sections would be appropriately staffed. The documentation further states that in the long term, a new science building is planned.
 - The concern remains unresolved.

Architectural Engineering Program

Program Criteria for Architectural and Similarly Named Engineering Programs

Introduction

The architectural engineering program is offered by the Department of Civil, Environmental, and Architectural Engineering. It is one of two undergraduate programs offered within the department. The program was first offered in the 1912-13 academic year and the first two degrees were awarded in 1916. The program has been continuously accredited since 1936. The program currently has 148 full-time and three part-time students and 10 tenure-track faculty members. Twenty-five students graduated from the program in the last academic year.

Program Strengths

1. The quality, enthusiasm, and the level of professional licensure among the faculty is outstanding. Seven of the nine faculty members are licensed Professional Engineers and another is registered as a LEED Accredited Professional. All are actively engaged in research and are widely recognized as experts in their respective fields.
2. The architectural engineering program criteria identifies four basic curriculum areas and requires that graduates reach the synthesis (design) level in one area, the application level in a second area, and the comprehension level in the other two areas. The curriculum is designed such that its graduates are reaching the synthesis level in at least three areas and the application level in the fourth.

Program Concerns

1. Criterion 4. Continuous Improvement This criterion requires that the program regularly use appropriate, documented processes for assessing and evaluating the extent to which the student outcomes are being attained. The results of these evaluations must be systematically utilized as input for the continuous improvement of the program. Continuous improvement activities are accomplished through the program's ABET committee. This committee reviews the assessment data and formulates improvement actions. However, the process used for evaluating the extent to which the student outcomes are being attained is not clearly

documented and the materials are not stored in a manner that enables ready access to necessary information. This limits the utilization of the results of the assessment and evaluation process in a systematic manner for the continuous improvement of the program. The potential therefore exists that the attainment of outcomes could be evaluated inconsistently, jeopardizing future compliance with this criterion.

- Due-process response: The EAC acknowledges receipt of documentation that a process for documenting and storing student outcomes assessment and evaluation information is being developed.

- The concern remains unresolved.

2. Criterion 7. Facilities This criterion requires that laboratories and associated equipment provide an atmosphere conducive to learning. Modern tools, equipment, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded. The laboratories in the Department of Chemistry that are used in the general chemistry courses taken by all engineering students are currently close to maximum capacity and there is no additional laboratory space to handle any increase in enrollment. Additionally, the current general chemistry lecture space is close to maximum capacity. If space, supplies, and personnel are not added and enrollment continues to grow, future compliance with this criterion may be jeopardized.

- Due-process response: The EAC acknowledges receipt of documentation that describes a short term solution of providing evening and/or Saturday laboratory sections, if required, to meet the demands of enrollment increases. The documentation includes a letter from the dean of the College of Liberal Arts and Sciences committing funds to assure that any additional laboratory sections would be appropriately staffed. The documentation further states that in the long term, a new science building is planned.

- The concern remains unresolved.

Chemical Engineering Program

Program Criteria for Chemical, Biochemical, Biomolecular, and Similarly Named Engineering Programs

Introduction

The chemical engineering program is offered by the Department of Chemical and Petroleum Engineering. The program features five undergraduate curricular options: general, petroleum, environmental, biomedical, and pre-medical. The program has 340 full-time and 17 part-time undergraduate students, 13 tenure-track faculty members, and three instructors. Fifty six students graduated from the program in the last academic year. The program was established in 1895, graduated its first student in 1900, and has been continuously accredited since 1949.

Program Strengths

1. The department has added several new faculty members over the past few years and is currently preparing to hire a full-time laboratory manager. This allows for teaching loads to be more appropriately balanced among faculty.
2. Faculty members received high praise from students on their teaching ability and innovative use of active learning and technology in the classroom. Many faculty members have received prestigious teaching awards and recognition from the School and University.

Program Weakness

1. Criterion 7. Facilities This criterion requires that laboratories and associated equipment provide an atmosphere conducive to learning. Modern tools, equipment, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded. The equipment, ventilation system, fume hoods, and laboratory benches used for organic chemistry laboratory in the Department of Chemistry are old and outdated. The last major equipment update was around 60 years ago. These chemistry department facilities do not provide students with modern tools and equipment within an atmosphere optimally conducive to learning. With only four rooms available, these labs are used to maximum capacity leading to difficulty in scheduling. Additionally, the rooms have outdated plumbing

systems resulting in improper drainage and occasional flooding to the floors below. The requirement to provide laboratory space is met to some extent, though not to the extent necessary to provide strength of compliance with this criterion.

The laboratories in the Department of Chemistry that are used in the general chemistry courses taken by all engineering students are currently close to maximum capacity and there is no additional laboratory space to handle any increase in enrollment. Additionally, the current general chemistry lecture space is close to maximum capacity. If space, supplies, and personnel are not added and enrollment continues to grow, future compliance with this criterion may be jeopardized.

Although currently housing an adequate number of experiments, the unit operations laboratory is small and outdated. Two important separations experiments are not functioning and require redesign. Although funds are currently available to purchase additional equipment, there is currently insufficient space for new, larger experiments. Additionally, there is only one reactor in the laboratory and if it were non-functioning, the students would have no hands-on chemical reactor experience.

- Due-process response: The EAC acknowledges receipt of documentation that describes short term solutions to the issues cited with long term plans for new facilities. With respect to the organic chemistry laboratory, the short term solution consists of laboratory remodeling planned for the summer of 2013 along with laboratory experiment revisions that will allow the class periods to be reduced from 5 hours to 4 hours. This will enable additional laboratory sessions to be scheduled. The short term solution for the general chemistry laboratories is to provide evening and/or Saturday laboratory sections if required to meet the demands of enrollment increases. The documentation includes two letters verifying funding commitments for the short term solutions, one from the University Architect/Director relative to remodeling the organic chemistry labs and one from the Dean of the College of Liberal Arts and Sciences committing funds to assure that any additional laboratory sections would be appropriately staffed.

With respect to the unit operations laboratory the documentation acknowledges that the facility is too small for the current and projected enrollment but states that a new laboratory is being constructed with ground breaking occurring in November 2012.

- The weakness remains unresolved and will be the focus of the next review. In preparation for the next review, the EAC anticipates evidence that the planned actions have been taken and that they adequately address the shortcomings cited.

Program Concern

1. Criterion 4. Continuous Improvement This criterion requires that the program regularly use appropriate, documented processes for assessing and evaluating the extent to which the student outcomes are being attained. While all other student outcomes are assessed adequately, outcome (j), knowledge of contemporary issues is only minimally assessed, by means of student success in passing one non-engineering elective course. If a student graduates without taking an appropriate course, or if assessment activities concerning outcome (j) change or cease, the program may fall out of compliance with this criterion in the future.
 - Due-process response: The EAC acknowledges receipt of documentation that a curriculum change made to comply with the 2013 university core curriculum requires that graduates satisfactorily complete a course relative to contemporary issues. Additionally an assessment of the knowledge of contemporary issues related to plant and environmental safety has been added to the course covering these topics.
 - The concern is resolved.

Civil Engineering Program

Program Criteria for Civil and Similarly Named Engineering Programs

Introduction

The civil engineering program is one of two undergraduate degrees offered by the Department of Civil, Environmental, and Architectural Engineering. The program has 243 full-time and 21 part-time undergraduate students. The faculty consists of 21 tenure-track and one non-tenure-track faculty members. Sixty seven students graduated from the program in the last academic year. The university awarded its first degrees in 1873, one of which was a degree in civil and topographic engineering. The program has been continuously accredited since 1936.

Program Strengths

1. The emphasis on undergraduate research and internships to promote student achievement is commendable.
2. The level of faculty involvement and availability to undergraduate students for career and other advising was found to be exceptional.

Program Concerns

1. Criterion 4. Continuous Improvement This criterion requires that the program regularly use appropriate, documented processes for assessing and evaluating the extent to which the student outcomes are being attained. The results of these evaluations must be systematically utilized as input for the continuous improvement of the program. Continuous improvement activities are accomplished through the program's ABET committee. This committee reviews the assessment data and formulates improvement actions. However, the process used for evaluating the extent to which the student outcomes are being attained is not clearly documented and the materials are not stored in a manner that enables ready access to necessary information. This limits the utilization of the results of the assessment and evaluation process in a systematic manner for the continuous improvement of the program. The potential therefore exists that the attainment of outcomes could be evaluated inconsistently, jeopardizing future compliance with this criterion.

- Due-process response: The EAC acknowledges receipt of documentation that a process has been developed for documenting the process used for evaluating of the attainment of student outcomes and the storage of the assessment and evaluation materials in a readily accessible manner.
 - The concern is resolved.
2. Criterion 7. Facilities This criterion requires that laboratories and associated equipment provide an atmosphere conducive to learning. Modern tools, equipment, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded. The laboratories in the Department of Chemistry that are used in the general chemistry courses taken by all engineering students are currently close to maximum capacity and there is no additional laboratory space to handle any increase in enrollment. Additionally, the current general chemistry lecture space is close to maximum capacity. If space, supplies, and personnel are not added and enrollment continues to grow, future compliance with this criterion may be jeopardized.
- Due-process response: The EAC acknowledges receipt of documentation that describes a short term solution of providing evening and/or Saturday laboratory sections, if required, to meet the demands of enrollment increases. The documentation includes a letter from the dean of the College of Liberal Arts and Sciences committing funds to assure that any additional laboratory sections would be appropriately staffed. The documentation further states that in the long term, a new science building is planned.
 - The concern remains unresolved.

Program Observation

1. The course offerings specific to the construction area are limited to one construction management course. For students interested in emphasizing this technical area, additional course offerings specifically devoted to construction topics would be beneficial.

**Computer Engineering
Program**

Program Criteria for Electrical, Computer, and Similarly Named Engineering Programs

Introduction

The computer engineering program is one of five undergraduate programs offered by the Department of Electrical Engineering and Computer Science. The program was established in 1984 and has been accredited since 1990. The department has 33 faculty members, with 17 faculty members supporting the computer engineering program. The program has graduated 79 students in the past six years, with nine graduating in the last academic year.

Program Strengths

1. The housing of computer engineering in the same department as electrical engineering and computer science exposes the students to a broad and diverse faculty, providing an unusual strength to the program.
2. Students were complimentary of the quality of their design projects, of the university support for undergraduate research, and of the faculty for staying current with the latest technical developments in the field.

Program Concerns

1. Criterion 4. Continuous Improvement This criterion requires the use of appropriate, documented processes for assessing and evaluating the extent to which both the program educational objectives and the student outcomes are being attained. The assessment and evaluation of the attainment of the program educational objectives and student outcomes is performed using alumni and employer surveys, senior student surveys, and academic measurement tools in specific courses. The program has recently instituted a new set of employer and alumni surveys. Although processes are in place, the supporting data is relatively weak and the potential exists for non-compliance in the future. In addition, the assessment of outcome (d) relies heavily on project work in a software engineering course (EECS 448) and the methodology adopted by the instructor that embeds and assesses teamwork

in the course. Changes in instructor or instructional methodology associated with the course may adversely impact the attainment of outcome (d).

- Due-process response: The EAC acknowledges receipt of documentation that assessment of the attainment of outcome (d) has been added to a second course in the program, as well as a comment noting potential future changes in this criterion. The shortcoming with respect to program educational objectives was not addressed.
 - The concern remains unresolved.
 - The Engineering Accreditation Commission notes that an approved change to the 2013-2014 Criteria for Accrediting Engineering Programs removes the requirement for assessing and evaluating the extent to which the program educational objectives are attained. Instruction from the ABET Board of Directors concerning implementation of this change renders a portion of this shortcoming moot in the future. No further action is expected from the program relative to assessment and evaluation of the extent to which program educational objectives are attained.
 - The concern is resolved.
2. Criterion 6. Faculty This criterion requires that there be sufficient number of faculty with competencies to cover all curricular areas. The department has lost four, key computer science faculty members who were responsible for teaching courses critical to the computer engineering program. While the department is compensating for this change through the usage of graduate teaching assistants and course rescheduling, failure to support the program with an adequate number of faculty members to cover all curricular areas may jeopardize future compliance with this criterion.
- Due-process response: The EAC acknowledges receipt of documentation that the department is in the process of hiring one faculty member and has funding approval and plans for three additional faculty searches.
 - The concern remains unresolved.

3. Criterion 7. Facilities This criterion requires that laboratories and associated equipment provide an atmosphere conducive to learning. Modern tools, equipment, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded. The laboratories in the Department of Chemistry that are used in the general chemistry courses taken by all engineering students are currently close to maximum capacity and there is no additional laboratory space to handle any increase in enrollment. Additionally, the current general chemistry lecture space is close to maximum capacity. If space, supplies, and personnel are not added and enrollment continues to grow, future compliance with this criterion maybe jeopardized.
- Due-process response: The EAC acknowledges receipt of documentation that describes a short term solution of providing evening and/or Saturday laboratory sections, if required, to meet the demands of enrollment increases. The documentation includes a letter from the dean of the College of Liberal Arts and Sciences committing funds to assure that any additional laboratory sections would be appropriately staffed. The documentation further states that in the long term, a new science building is planned.
 - The concern remains unresolved.

Program Observation

1. The program should monitor the performance of its students to determine whether the usage of different programming languages in EECS 168 and EECS 268 has an adverse impact on student ability to undertake software development in senior-level courses.

Electrical Engineering Program

Program Criteria for Electrical, Computer, and Similarly Named Engineering Programs

Introduction

The electrical engineering program is one of five undergraduate programs offered by the Department of Electrical Engineering and Computer Science. The department has 33 faculty members with 14 supporting the electrical engineering program. The program currently has 156 undergraduate students and had 28 graduates last academic year. The electrical engineering program was started in 1887 and has been continuously accredited since 1936.

Program Strength

1. The program emphasizes teaching in faculty retention, tenure, and promotion processes resulting in faculty members who are highly dedicated to undergraduate teaching.

Program Concerns

1. Criterion 4. Continuous Improvement This criterion requires the use of appropriate, documented processes for assessing and evaluating the extent to which both the program educational objectives and the student outcomes are being attained. The assessment and evaluation of the attainment of the program educational objectives and student outcomes is performed using alumni and employer surveys, senior student surveys, and academic measurement tools in specific courses. The program has recently instituted a new set of employer and alumni surveys. Although processes are in place, the supporting data is relatively weak and the potential exists for non-compliance in the future.
 - Due-process response: The EAC acknowledges receipt of documentation noting the potential for future changes in this criterion, but the shortcoming was not addressed.
 - The concern remains unresolved.
 - The Engineering Accreditation Commission notes that an approved change to the 2013-2014 Criteria for Accrediting Engineering Programs removes the requirement for assessing

and evaluating the extent to which the program educational objectives are attained. Instruction from the ABET Board of Directors concerning implementation of this change renders a portion of this shortcoming moot in the future. No further action is expected from the program relative to assessment and evaluation of the extent to which program educational objectives are attained.

- The concern is resolved.
2. Criterion 7. Facilities This criterion requires that laboratories and associated equipment provide an atmosphere conducive to learning. Modern tools, equipment, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded. The laboratories in the Department of Chemistry that are used in the general chemistry courses taken by all engineering students are currently close to maximum capacity and there is no additional laboratory space to handle any increase in enrollment. Additionally, the current general chemistry lecture space is close to maximum capacity. If space, supplies, and personnel are not added and enrollment continues to grow, future compliance with this criterion maybe jeopardized.
- Due-process response: The EAC acknowledges receipt of documentation that describes a short term solution of providing evening and/or Saturday laboratory sections, if required, to meet the demands of enrollment increases. The documentation includes a letter from the dean of the College of Liberal Arts and Sciences committing funds to assure that any additional laboratory sections would be appropriately staffed. The documentation further states that in the long term, a new science building is planned.
 - The concern remains unresolved.

Program Observation

1. The department has 33 tenure track faculty members with 14 serving the electrical engineering program. This is a sufficient number to serve the program. However, considering the level of faculty research responsibilities, an increase in the number devoted to electrical engineering would benefit the program and strengthen core program areas such as microelectronics, signals and systems, communications, electromagnetics, antennas, and controls.

Engineering Physics Program

Program Criteria for Engineering, General Engineering, Engineering Physics, and Engineering Science and Similarly Named Engineering Programs

Introduction

The engineering physics program is offered by the Department of Physics and Astronomy within the College of Liberal Arts and Science. The program has strong academic partnerships with the aerospace, chemical, electrical, and mechanical engineering programs in the School of Engineering. The engineering physics program has shown steady growth in enrollment over the last decade and currently has 54 students, the largest enrollment in 40 years. The program has 25 tenure-track faculty members and typically graduates between two and seven students each year. The program was first accredited in 1949.

Program Strength

1. The faculty and leadership council of the engineering physics program are excellent as a result of very effective coordination between the School of Engineering and the Department of Physics and Astronomy.

Program Concern

1. Criterion 7. Facilities This criterion requires that laboratories and associated equipment provide an atmosphere conducive to learning. Modern tools, equipment, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded. The laboratories in the Department of Chemistry that are used in the general chemistry courses taken by all engineering students are currently close to maximum capacity and there is no additional laboratory space to handle any increase in enrollment. Additionally, the current general chemistry lecture space is close to maximum capacity. If space, supplies, and personnel are not added and enrollment continues to grow, future compliance with this criterion maybe jeopardized.
 - Due-process response: The EAC acknowledges receipt of documentation that describes a short term solution of providing evening and/or Saturday laboratory sections, if required,

to meet the demands of enrollment increases. The documentation includes a letter from the dean of the College of Liberal Arts and Sciences committing funds to assure that any additional laboratory sections would be appropriately staffed. The documentation further states that in the long term, a new science building is planned.

- The concern remains unresolved.

Mechanical Engineering Program

Program Criteria for Mechanical and Similarly Named Engineering Programs

Introduction

The mechanical engineering program is offered by the Department of Mechanical Engineering. The program currently has 448 full-time and 15 part-time undergraduate students. In 2012 the program graduated 81 students. Sixteen full-time faculty members are responsible for the program. The program began in 1899 and was initially accredited in 1937.

Program Strengths

1. The program is growing in enrollment, and the university is responding to that growth with additional faculty positions. The growth in faculty will ensure that program quality is maintained and will allow the establishment of additional emphasis areas such as energy.
2. The program offers a breadth of senior design project opportunities, each led by a faculty member with a passion for the topic area. This allows the students to also follow their passions. As a result some go on to do graduate research in the area of their senior design project.

Program Concerns

1. Criterion 4. Continuous Improvement This criterion requires that the program regularly use appropriate and documented processes for assessing and evaluating the extent to which the program educational objectives are being attained. The program uses three assessment instruments relative to the program educational objectives: alumni surveys, advisory board feedback, and employer surveys. The program's documented process calls for the alumni and employer surveys to be administered every two to three years. However, over the past six years, both of these surveys were only administered once, in 2010. While the program has assessed the program educational objectives, the failure to follow its own documented process may result in the objectives not receiving sufficient evaluation to identify possible program improvements. The potential therefore exists for the program to fall out of compliance with this criterion in the future.

Criterion 4 also requires that the results from evaluating of the extent to which student outcomes are being attained be systematically used as input for the continuous improvement of the program. The program uses 11 student outcome assessment instruments. However, only a few of these are regularly mapped to specific outcomes in a manner that facilitates reaching conclusions that can be acted upon for program improvement. Faculty input is identified as one of the more useful instruments in the continuous improvement cycle. However, results from this instrument are documented only occasionally. Although this criterion is currently being met, the current approach is not systematic and creates the potential for non-compliance in the future.

- Due-process response: The EAC acknowledges receipt of documentation that acknowledges the issues related to the assessment of student outcomes and states that over the coming year the program will reevaluate and modify the assessment instruments. The EAC also acknowledges receipt of documentation noting possible future changes in this criterion.
 - The concern remains unresolved.
 - The Engineering Accreditation Commission notes that an approved change to the 2013-2014 Criteria for Accrediting Engineering Programs removes the requirement for assessing and evaluating the extent to which the program educational objectives are attained. Instruction from the ABET Board of Directors concerning implementation of this change renders a portion of this shortcoming moot in the future. No further action is expected from the program relative to assessment and evaluation of the extent to which program educational objectives are attained.
 - The part of the concern pertaining to assessing the attainment of the student outcomes remains unresolved.
4. Criterion 7. Facilities This criterion requires that laboratories and associated equipment provide an atmosphere conducive to learning. Modern tools, equipment, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded. The laboratories in the Department of Chemistry that are used in the general

chemistry courses taken by all engineering students are currently close to maximum capacity and there is no additional laboratory space to handle any enrollment increase. Additionally, the current general chemistry lecture space is close to maximum capacity. If space, supplies, and personnel are not added and enrollment continues to grow, future compliance with this criterion maybe jeopardized.

- Due-process response: The EAC acknowledges receipt of documentation that describes a short term solution of providing evening and/or Saturday laboratory sections, if required, to meet the demands of enrollment increases. The documentation includes a letter from the dean of the College of Liberal Arts and Sciences committing funds to assure that any additional laboratory sections would be appropriately staffed. The documentation further states that in the long term, a new science building is planned.
- The concern remains unresolved.

Program Observations

1. The program uses a large number of assessment instruments. Although each provides useful information to the program faculty for a variety of purposes, not all are necessarily appropriate for outcomes assessment.
2. Students in the program have expressed a desire for greater flexibility in the curriculum and additional opportunities to apply what they are learning in a real-world context.

**Petroleum Engineering
Program**

Program Criteria for Petroleum and Similarly Named Engineering Programs

Introduction

The petroleum engineering program resides in the Department of Chemical and Petroleum Engineering. The petroleum engineering program covers the four basic technical sub-discipline areas (drilling, production, formation evaluation, and reservoir) with major emphasis on chemistry and enhanced oil recovery. The program currently has 119 undergraduate students and had 14 graduates in the last academic year. The department has 18 tenure-track and four non-tenure-track faculty members with five faculty members dedicated to the petroleum engineering program.

Program Concerns

1. Criterion 1. Students This criterion requires that student progress is monitored to foster success in attaining student outcomes and that students are advised regarding curriculum and career matters. Although advisors meet with students on a regular basis to monitor progress, transcripts revealed several instances where students had not completed the appropriate prerequisites prior to taking a course. Without consistent enforcement of prerequisites, student success in attaining student outcomes could be limited and continued compliance with this requirement may be jeopardized.
 - Due-process response: The EAC acknowledges receipt of documentation that checking of the program's prerequisites has been added to the university's on-line advising system.
 - The concern is resolved.
2. Criterion 6. Faculty This criterion requires that the faculty be of sufficient number and have the competencies to cover all of the curricular areas of the program. Undergraduate enrollment in the program has tripled from 32 in 2007 to 119 in 2012. There has been no net addition of faculty to keep up with increased enrollment. If the increasing enrollment trend continues without a commensurate increase in faculty, future compliance with this criterion may be jeopardized.

- Due-process response: The EAC acknowledges receipt of documentation that the department has funding approval with plans to conduct two faculty searches over the next two years.
 - The concern remains unresolved.
3. Criterion 7. Facilities This criterion requires that laboratories and associated equipment provide an atmosphere conducive to learning. Modern tools, equipment, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded. The laboratories in the Department of Chemistry that are used in the general chemistry courses taken by all engineering students are currently close to maximum capacity and there is no additional laboratory space to handle any enrollment increase. Additionally, the current general chemistry lecture space is close to maximum capacity. If space, supplies, and personnel are not added and enrollment continues to grow, future compliance with this criterion maybe jeopardized.
- Due-process response: The EAC acknowledges receipt of documentation that describes a short term solution of providing evening and/or Saturday laboratory sections, if required, to meet the demands of enrollment increases. The documentation includes a letter from the dean of the College of Liberal Arts and Sciences committing funds to assure that any additional laboratory sections would be appropriately staffed. The documentation further states that in the long term, a new science building is planned.
 - The concern remains unresolved.

Program Observation

1. Professional engineering licensure is becoming increasingly important in petroleum engineering practice. If faculty members were to become licensed, they would better serve as role models for the students.