



8-8-2013

## 2013 Commission Letter and Final Statement of Accreditation

ABET-EAC

Follow this and additional works at: [http://digitalcommons.kettering.edu/abet\\_cheme](http://digitalcommons.kettering.edu/abet_cheme)



Part of the [Educational Assessment, Evaluation, and Research Commons](#)

---

### Recommended Citation

ABET-EAC, "2013 Commission Letter and Final Statement of Accreditation" (2013). *ABET Chemical Engineering*. Paper 5.  
[http://digitalcommons.kettering.edu/abet\\_cheme/5](http://digitalcommons.kettering.edu/abet_cheme/5)

This Report from ABET is brought to you for free and open access by the EAC: Engineering Accreditation Commission at Digital Commons @ Kettering University. It has been accepted for inclusion in ABET Chemical Engineering by an authorized administrator of Digital Commons @ Kettering University. For more information, please contact [digitalcommons@kettering.edu](mailto:digitalcommons@kettering.edu).



ABET  
111 Market Place, Suite 1050  
Baltimore, MD 21202  
Phone: +1.410.347.7700  
Fax: +1.410.625.2238  
[www.abet.org](http://www.abet.org)  
[accreditation@abet.org](mailto:accreditation@abet.org)

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

August 08, 2013

Robert L. Simpson  
Provost  
Kettering University  
1700 W. University Ave  
Flint, MI 48504

Dear Dr. Simpson :

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 Kettering University 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](http://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](http://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](http://www.abet.org)).

Assuring Quality - Stimulating Innovation

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](http://www.abet.org)).

Sincerely,

A handwritten signature in black ink that reads "David B. Beasley". The signature is written in a cursive style with a large, prominent 'D' and 'B'.

David B. Beasley, Chair

Engineering Accreditation Commission

Enclosure: Summary of Accreditation Action  
Final Statement

cc: Robert McMahan, President

Jacqueline El-Sayed, Associate Provost & Associate Vice President for Academic Affairs

Michael G. Murphy, Visit Team Chair

ABET  
Engineering Accreditation Commission  
Summary of Accreditation Actions  
for the  
2012-2013 Accreditation Cycle

**Kettering University**  
**Flint, MI**

**Chemical Engineering (B.S.)**

**Engineering Physics (B.S.)**

Accredit to September 30, 2016. A request to ABET by January 31, 2015 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, 2015. The reaccreditation evaluation will be a comprehensive general review.

This is a newly accredited program. Please note that this accreditation action extends retroactively from October 01, 2011.



Engineering Accreditation Commission

Final Statement of Accreditation  
to

**Kettering University**  
Flint, MI

2012-13 Accreditation Cycle

Assuring Quality • Stimulating Innovation

ABET  
ENGINEERING ACCREDITATION COMMISSION

**KETTERING UNIVERSITY**  
Flint, MI

FINAL STATEMENT  
Visit Dates: October 7-9, 2012  
Accreditation Cycle Criteria: 2012-2013

Introduction & Discussion of Statement Construct

The Engineering Accreditation Commission (EAC) of ABET has evaluated the chemical engineering and the engineering physics programs of Kettering University for initial accreditation.

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.

Kettering University is a private university offering bachelors and masters degrees, primarily in engineering and the applied sciences. The school was founded in 1919, became known as the General Motors Institute in 1926, became a degree-granting college in 1945, and changed its name to Kettering University in 1998. Student enrollment for 2011-12 was 1,706 full-time and 39 part-time undergraduates. Programs in computer engineering, electrical engineering, industrial engineering, and mechanical engineering are accredited by the EAC of ABET, and the computer science program is accredited by the CAC of ABET. The school also offers a Master of Science in Engineering.

The following units were reviewed and found to adequately support the engineering programs: mathematics, physics, mechanical engineering, library, co-op and career services, student success center, registrar, and admissions.

#### Institutional Strength

1. Kettering University has a long-standing professional co-op requirement for all degree programs that provides a distinctive educational experience and excellent preparation for the profession. This includes partnerships with industry that provide opportunities for industry-sponsored student projects and student theses as well as for faculty consulting. Faculty-industry interactions lead to mature, well-scoped theses and capstone senior design projects that address industry needs.

#### Institutional Observation

1. Consideration should be given to adopting an academic administrative structure that includes deans since the current structure tends to require such effort on the part of the provost and the department heads that their effectiveness may be compromised.

## Chemical Engineering Program

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

#### Introduction

The chemical engineering program currently resides within the Department of Chemistry and Biochemistry. It is planned that chemical engineering will become its own independent academic department in July of 2013. Chemical engineering is a cooperative educational (co-op) program where the students alternate between eleven-week co-op terms and on-campus academic terms. The program has 92 full-time students, one part-time student, four tenure-track faculty members, and one full-time and three part-time professional staff members. There were 13 baccalaureate graduates in academic year 2011-12. All chemical engineering faculty members are currently tenure-track assistant professors. The department head is a biochemist who is a full professor and who provides strong leadership in consultation with the chemical engineering faculty and the advisory board.

The institution did not provide a seven-day response to correct any factual errors for this program.

#### Program Strengths

1. The program supports up-to-date laboratories for hands-on laboratory-based work. There are five chemical engineering laboratory courses in addition to the four chemistry laboratory courses that each student takes in the program. This exceptional emphasis on hands-on experiments not only demonstrates important concepts to the students but also allows them to operate modern analytical and process instrumentation. The quality of the equipment and the lab assignments is extraordinary.
2. Faculty members demonstrate passion in mentoring their students. Students are supportive and highly appreciative of faculty efforts in teaching, advising and placement. Communication is extremely effective among faculty members, students, co-op employers, advisory board members, and various external constituency groups.

3. The innovative curriculum with students spending time in industry while pursuing their academic degree exposes students to contemporary and transformative issues that impact today's engineers.

**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 administered by the Department of Physics that became an independent degree-granting academic department in 2007 as part of an organizational realignment. Programs in applied physics have been offered since 1995 and engineering physics since 2007. In addition, minors in optics, physics, acoustics, materials and medical physics have been offered since 1984, 1984, 1997, 1998, and 2009, respectively. The engineering physics program is offered with concentration options in mechanical engineering, industrial engineering, electrical engineering, and computer engineering.

The department has eight tenured/tenure-track faculty members who are heavily oriented to teaching and service, spending approximately 25-75 percent of their time in teaching, about one quarter of their time in service, and only a lesser fraction in research. Since 2007, the total engineering physics program enrollment has grown to a peak of over 32 in 2012. The program has had an increasing number of graduates with a total of eight alumni by 2012.

The institution did not provide a seven-day response to correct any factual errors for this program.

**Program Strengths**

1. Engineering physics students obtain interdisciplinary team experience by participating in the engineering capstone design courses offered by other majors.
2. The Department of Physics maintains laboratories in photonics and acoustics that are unique for an undergraduate program. The laboratories are supported by faculty with suitable expertise that complements other programs in the university.

3. The well-known and industrial quality Crashworthiness Laboratory has been integrated into the physics program. This lab is particularly relevant to the program's relationship to the auto industry and to a commitment to "real life" labs.

#### Program Weakness

1. Criterion 4. Continuous Improvement Criterion 4 requires that the program must regularly use appropriate, documented processes for assessing and evaluating the extent to which the program educational objectives are being attained. Although a process is in place, the instruments that assess the program educational objectives (e.g., alumni and industry advisory board surveys) do not appear to directly address the objectives. Therefore, the assessment of the attainment of the program educational objectives is not as strong or consistent as required. This criterion also requires that the program must regularly use appropriate, documented processes for assessing and evaluating the extent to which the student outcomes are being attained. The assessment tools are primarily indirect with limited direct measures and the documentary evidence for providing and evaluating these direct measure assessment results is not convincingly presented. Therefore, assessment of the attainment of the student outcomes is ad hoc and should be more systematic. In summary, the strength of compliance with this criterion is lacking.

- Due-process response: The EAC acknowledges receipt of documentation of plans for systematic assessment, evaluation, and continuous improvement associated with both student outcomes and program educational objectives. At this point, the plans represent a work in progress with implementation incomplete.
- The weakness remains unresolved.
- Supplemental information: The EAC acknowledges the submission of supplemental information documenting that effective processes for assessing and evaluating student outcomes have been developed, put into place, and applied to support continuous improvement. An alumni survey has been redesigned and implemented to provide feedback on program educational objectives even though this is no longer required by the criterion.
- The weakness is resolved.

Program Concern

1. Criterion 5. Curriculum Criterion5 requires that the professional component must include one and one-half years of engineering topics, consisting of engineering sciences and engineering. There is an inconsistency between the assignment of both math/basic science and engineering credit to physics courses in Table 5.1 of the self-study report and the syllabi for physics courses that show only basic science credit and no engineering credit. By careful assignment of some engineering credit to key physics courses, the program meets the minimum 48 semester equivalent of engineering credits. Because of the possible lack of clarity in how the engineering credit hours are allocated for physics courses, future compliance with this criterion may be jeopardized.

- Due-process response: The EAC acknowledges receipt of plans to formally clarify the assignment of credit to physics courses with respect to math/basic science and engineering but the mapping of credits and the obtaining the concurrence of all parties involved have not yet been completed.
- The concern remains unresolved.
- Supplemental information The EAC acknowledges the submission of supplemental information regarding this concern. Assignment of credit to physics courses with respect to math/basic science and engineering has been clarified. In particular, several courses for Engineering Physics students that are not considered basic science for other engineering areas are now prefixed EP for Engineering Physics rather than the traditional PHYS, and this change has been approved institutionally.
- The concern is resolved.

Program Observations

1. There are few safety signs permanently posted at lab entrances to alert persons entering each lab of potential hazards and required/available safety equipment (e.g., laser sign warning signs with laser goggles available at the entrance). In addition, the availability of a material safety data sheet station for lab visitors was not obvious. Posting signs and making safety equipment

readily available are not only good practice but would make the university's academic environment consistent with that in industry's work environment. Some signage issues were addressed during the campus visit, but continued vigilance should be maintained.

2. The two laboratory technicians bring a wealth of technical and educational experience to the program. However, in terms of laboratory exercise development, course assessment and program evaluation, this experience is generally overlooked and use of these skills and background would benefit the program.