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August 10, 2017

Tadeusz Slomka
Rector
al. Mickiewicza 30
Krakow, malopolskie 30-059
Poland

Dear Prof. Dr. Slomka :

I am pleased to transmit to you the findings of the Engineering Accreditation Commission (EAC) of ABET with respect to the evaluation conducted for AGH University of Science and Technology in Krakow during 2016-2017. Each of ABET's Commissions is fully authorized to take the actions described in the accompanying letter under the policies of the ABET Board of Directors.

We are pleased that your institution has elected to participate in this accreditation process. This process, which is conducted by approximately 2,000 ABET volunteers from the professional community, is designed to advance and assure the quality of professional education. We look forward to our continuing shared efforts toward this common goal.

Sincerely,

Wayne R. Bergstrom
President

Enclosure: Commission letter and attachments



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August 10, 2017

Krzysztof Mendrok
Deputy Dean of Faculty of Mechanical Engineering
al. Mickiewicza 30
Krakow, malopolskie 30-059
Poland

Dear Dr. Mendrok :

The Engineering Accreditation Commission (EAC) of ABET recently held its 2017 Summer Meeting to act on the program evaluations conducted during 2016-2017. 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 AGH University of Science and Technology in Krakow 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 2016-2017 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 2016-2017 Accreditation Policy and Procedure Manual (available at www.abet.org).

ABET requires that each accredited program publicly state the program's educational objectives and student outcomes as well as publicly post annual student enrollment and graduation data as stated in Section II.A.6. of the Accreditation Policy and Procedure Manual (available at www.abet.org).

ABET will examine all newly accredited programs' websites within the next two weeks to ensure compliance.

Please note that appeals are allowed only in the case of Not to Accredit actions. Also, such appeals may be based only on the conditions stated in Section II.L. of the 2016-2017 Accreditation Policy and Procedure Manual (available at www.abet.org).

Sincerely,

A handwritten signature in blue ink that reads "John A. Orr". The signature is written in a cursive style with a large, stylized initial "J".

John A. Orr, Chair

Engineering Accreditation Commission

Enclosure: Summary of Accreditation Action
Final Statement

cc: Tadeusz Slomka, Rector

Valana Lorraine Wells, Visit Team Chair



8/10/2017

Engineering Accreditation Commission
Summary of Accreditation Actions
for the
2016-2017 Accreditation Cycle

AGH University of Science and Technology in Krakow
Krakow,

Mechatronic Engineering - Mechatronic Design (M.Sc.)

Accredit to September 30, 2023. A request to ABET by January 31, 2022 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, 2022. 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, 2016.

Mechatronic Engineering (B.Sc.)

Accredit to September 30, 2019. A request to ABET by January 31, 2018 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, 2018. The reaccreditation evaluation will focus on these shortcomings. Please note that a visit is not required.

This is a newly accredited program. Please note that this accreditation action extends retroactively from October 01, 2016.



ABET

Engineering Accreditation Commission

Final Statement of Accreditation
to

AGH University of Science and Technology in Krakow
Krakow, Poland

2016-2017 Accreditation Cycle

**ABET
ENGINEERING ACCREDITATION COMMISSION**

AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY IN KRAKOW
Krakow, Poland

FINAL STATEMENT
Visit Dates: October 20-22, 2016
Accreditation Cycle Criteria: 2016-2017

Introduction & Discussion of Statement Construct

The Engineering Accreditation Commission (EAC) of ABET has evaluated the mechatronic engineering with English as instruction language (B.Sc.) program and the mechatronic engineering – mechatronics design with English as instruction language (M.Sc.) program of AGH University of Science and Technology in Krakow.

This statement is the final summary of the EAC evaluation at the institutional and engineering-program levels. The 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.

Information Received After the Visit

1. Seven-day response: The institution did not provide a seven-day response.
2. 30-day due process response: Information was received in the 30-day due-process response period relative to the mechatronic engineering and mechatronic engineering – mechatronic design programs.
3. Post 30-day due-process information: Information was received after the 30-day due-process period relative to the mechatronic engineering program in English B.Sc. program.

Institutional Summary

AGH University of Science and Technology in Krakow is a federally supported technical university overseen by the Polish Ministry of Science and Higher Education. Founded in 1919 as Akademia Górnicza (Academy of Mining), the institution is the second largest technical university in the country. With a student population of approximately 33,000, the university is composed of 16 faculties (colleges or schools) offering 58 programs (majors or degree programs). The Faculty of Mechanization of Mining and Metallurgy was founded in 1952, and the name was changed in 1992 to Faculty of Mechanical Engineering and Robotics (WIMIR). The faculty has four administrative departments; however, academic programs, including the two mechatronics engineering programs, are administered at the faculty level rather than through the departments. The Faculty of Mechanical Engineering and Robotics has 220 academic staff personnel (faculty members), 2,639 undergraduate students, 452 master's students and 95 Ph.D. students. The faculty produced 529 B.Sc. graduates and 284 M.Sc. graduates during the 2015-16 academic year.

The following units were reviewed and found to adequately support the engineering programs: chemistry, physics, library, career services, continuous improvement, dean's office (registrar equivalent), computer center, and admissions.

Institutional Strengths

1. The Polish Ministry of Science and Higher Education ranks the Faculty of Mechanical Engineering and Robotics as the top mechanical engineering faculty in the country. In addition, the mechanical engineering program, the automatics and robotics program, and the mechatronics program, all within the Faculty of Mechanical Engineering and Robotics, are ranked number one by the Fundacja Edukacyjna Perspektywy (Perspektywy Educational Foundation). The Perspektywy Foundation is an independent organization established to promote and support education in Poland.
2. Several student organizations are very active and well supported, and they regularly participate in international student design competitions. In particular, both the AGH "Aero Team" and the AGH Space Systems "Skydivers" have placed highly in the SAE Aerodesign West and the AAS/AIAA CanSat competitions in recent years.

**Mechatronic Engineering in English
B.Sc. Program**

No Applicable Program Criteria

Introduction

The mechatronic engineering B.Sc. program grew from the Automatics and Robotics - Mechatronics in English program, which was established in 1995. In 2006, the Faculty of Mechanical Engineering and Robotics formally established degree programs in mechatronics. The name of the program was changed to mechatronic engineering in 2016. The undergraduate degree in mechatronic engineering is a full-time program that is 3.5 years in length. The program enrolled 201 students during fall 2016. The program has 27 full-time faculty members and two technicians. The program produced 31 graduates during the 2015-16 academic year.

Program Strength

1. The entire program is conducted in English. The English skills of the students, as evidenced by their written reports and oral participation in meetings, are very good. This will be to the program's advantage in attracting high-quality students and will benefit graduates when they seek employment globally. The program is to be commended on providing this high level of attainment.

Program Deficiencies

1. **Criterion 4. Continuous Improvement** This criterion requires the program to regularly use appropriate, documented processes for assessing and evaluating the extent to which the student outcomes are being attained. It further requires that the results of these evaluations be systematically utilized as input for the continuous improvement of the program. Student attainment of student outcomes currently is measured by adequate completion of a course as evidenced by a course grade higher than 50 percent. Though each course outcome is mapped to a student outcome, and problems on examinations appear to evaluate student attainment of course outcomes, no evidence was found of a process for separating the results for individual problems or collecting data to assess attainment of individual student outcomes. Also, no evidence was found that the results of these evaluations are systematically used as input for

the continuous improvement of the program. Thus, the program lacks compliance with this criterion.

- 30-day due-process response: The EAC acknowledges receipt of materials describing a revision to the program's assessment process. The revised process requires each instructor to individually assess course (module) outcomes and to report the results using a web-based application. The vice dean for education compiles the results, maps the course outcomes to the student outcomes, and reports the extent to which each student outcome is attained. The faculty team for education quality meets to analyze the data and make recommendations regarding program improvement. This meeting results in a report to the faculty board. The process has been approved by resolution of the faculty board and has been partially implemented; however, the program has not yet completed the full assessment cycle. The current state of partial implementation represents a lack in strength of compliance with this criterion.

The EAC also acknowledges receipt of evidence, including specific examples, that the program has systematically utilized results of its current assessment process as input for improvement of the program.

- The deficiency is now cited as a weakness.
- Post 30-day due-process information: The EAC acknowledges receipt of material including assessment data that addresses outcomes separately and distinctly. Furthermore, the provided material contains evidence that the faculty team for education quality has reviewed the data and has made preliminary recommendations for changes to the program in response to these data. However, since some of the student outcomes have yet to be assessed, the program has not completed the full assessment cycle so that strength of compliance with this criterion is still lacking.
- The weakness remains and will be a focus of the next review. In preparation for the next review EAC anticipates documentation providing evidence of the regular use of appropriate, documented processes for assessing and evaluating the extent to which the

student outcomes are being attained and the systematic utilization of the results of these evaluations as input for the continuous improvement of the program.

2. Accreditation Policy and Procedures Section II.A.1 of the Accreditation Policy and Procedures Manual (APPM) requires institutions to represent the accreditation status of each program accurately and without ambiguity. The policy also states that an institution may not use the same program name to identify both an accredited program and a non-accredited program. The institution has requested evaluation of the mechatronic engineering B.Sc. program and the mechatronic engineering – mechatronic design M.Sc. program. However, the institution offers two versions of these programs, one in English only and one in Polish. The program evaluated by the EAC is the English-only program. Neither the request for evaluation nor the student transcripts correctly identifies the evaluated program as the one delivered in English only. Without a clear distinction between the two programs, the accreditation status of the mechatronic engineering B.Sc. program would be ambiguous; therefore, compliance with this policy is lacking.

Furthermore, the APPM section II.A.6.a. requires each ABET-accredited program to publicly state the program's educational objectives and student outcomes. While this information is present on the website, the program's educational objectives and student outcomes are not labeled as such. In addition, APPM section II.A.6.b. requires each ABET-accredited program to publicly post annual student enrollment and graduation data per program. Enrollment and graduation data are published on the program's website, but the data do not properly reflect the total number of students enrolled in the program. Also, the webpage is difficult to utilize, making the data difficult for webpage users to locate.

The program is not in compliance with the APPM for three reasons. First, the accreditation status of the program is not represented in a clear and unambiguous fashion. Second, the program has not published and clearly identified its student outcomes and program educational objectives. Third, the published student enrollment and graduation data that are published do not properly reflect the number of students enrolled in the program.

- 30-day due-process response: The EAC acknowledges receipt of documentation addressing the three components of this shortcoming. The program has requested, and the

request has been approved, that all transcripts and diplomas for students graduating from the mechatronic engineering program with English as the instruction language have this degree name explicitly stated. Students graduating from the program as of January, 2017 are receiving diplomas with the program name listed as “Mechatronics Engineering in English.” Also, system records for students graduating after October 1, 2016 have been corrected to include the current program name. In addition, the institution’s website has been updated to explicitly differentiate the mechatronic engineering program in English from the Polish program. The student outcomes and program educational objectives are clearly indicated and are associated with the mechatronic engineering program with English as the instruction language. Furthermore, the published student enrollment and graduation data has been corrected and accurately reflect the number of students enrolled.

The name of the program in the title of this section of the final statement, originally given as “Mechatronic Engineering”, has been revised to “Mechatronic Engineering in English” to reflect the information received in due process.

- The deficiency is resolved.
- Post 30-day due-process information: The EAC acknowledges receipt of additional student transcripts and diplomas explicitly stating the correct name of the program as “Mechatronic Engineering in English.”

Program Weakness

1. Criterion 1. Students This criterion requires the program to have and enforce policies for accepting both new and transfer students, and for awarding appropriate academic credit for courses taken at other institutions. It also requires the program to have and enforce procedures to ensure and document that students who graduate meet all graduation requirements. One of the student transcripts examined during this review contained transfer credits for work completed at another institution. The total number of credits for mathematics and basic sciences for this student did not meet the requirement for one year of a combination of mathematics and basic sciences. The student was not required to make up this shortfall but was allowed to graduate without satisfying the required credits in mathematics and basic sciences.

While the program has processes in place regarding transfer credit and for monitoring of progress toward the degree, these processes do not appear to be adequate to assure that all students meet all graduation requirements. Thus, the program lacks strength of compliance with this criterion.

- 30-day due-process response: The EAC acknowledges receipt of material documenting a resolution of the faculty board mandating that all transfer students meet the same graduation requirements as non-transfer students. The resolution specifically requires that the dean provide a remedy for transfer students whose transfer courses do not have the same number of credits (ECTS points) as the equivalent AGH course.
- The weakness is resolved.

2. Criterion 2. Program Educational Objectives This criterion requires the program to have published program educational objectives that are consistent with the mission of the institution, the needs of the program's various constituencies, and the engineering accreditation criteria. It further requires that the program have a documented, systematically utilized, and effective process, involving program constituencies, for the periodic review of these program educational objectives that ensures they remain consistent with the institutional mission, the program's constituents' needs, and the engineering accreditation criteria. It was not clear from the documentation provided that the program educational objectives are consistent with the needs of the constituencies of the program. The program lists as constituencies its students, faculty, industrial advisory board members, major employers, and alumni. No evidence was found to indicate that alumni participated in the periodic review of the program educational objectives, nor was evidence found that all constituencies will be involved in future reviews of the program educational objectives. Without involvement on the part of the program constituents in the review of program educational objectives, the program is unable to ensure its program educational objectives are consistent with the needs of its various constituencies. Thus, the program lacks strength of compliance with this criterion.

- 30-day due-process response: The EAC acknowledges receipt of documentation showing that members of the faculty's Board for Social Affairs (an advisory board for the program), in the majority made up of graduates of the mechanical engineering faculty and employers

of graduates, have participated in the review of the program educational objectives. This documentation includes a list of board members, their alumni status and information about whether or not their organization employs graduates of the mechanical engineering faculty. It also includes a copy of a questionnaire completed by all board members that addresses the appropriateness of program educational objectives. Furthermore, the program provided documentation of a formal resolution of the faculty board that all program educational objectives and student outcomes will be reviewed on a two-year cycle.

- The weakness is resolved.

**Mechatronic Engineering – Mechatronic Design in English
M.Sc. Program**

No Applicable Program Criteria

Introduction

The mechatronic engineering – mechatronic design M.Sc. program was established in 2007 as a program in mechatronics – mechatronic design. In 2016, the name was changed to mechatronic engineering – mechatronic design. The degree is administered by the Faculty of Mechanical Engineering and Robotics. The master’s degree in mechatronic engineering – mechatronic design has three specializations: mechatronic design, mechatronic processing, and intelligent systems. The first of these specializations has one program, which is offered in English. The program is seeking accreditation only for the mechatronic design specialization in English. The program has 29 students and 22 faculty members. The program produced 10 graduates in the 2015-16 academic year.

Program Strength

1. Students appreciate the practical application of their mechatronics courses through multiple hands-on projects, laboratory experiences, and the opportunity to be employed while continuing their graduate studies. The students report that their broad-based mechatronic engineering background has opened doors to current and future employment opportunities in a variety of industries. This strength, combined with the program delivery in the English language, will continue to make this program attractive to both Polish and international students.

Program Deficiency

1. Accreditation Policy and Procedures. Section II.A.1 of the Accreditation Policy and Procedures Manual (APPM) requires institutions to represent the accreditation status of each program accurately and without ambiguity. The policy also states that an institution may not use the same program name to identify both an accredited program and a non-accredited program. The institution has requested evaluation of the mechatronic engineering B.Sc. program and the mechatronic engineering – mechatronic design M.Sc. program. However, the

institution offers two versions of these programs, one in English only and one in Polish. The program evaluated by EAC is the English-only program. Neither the request for evaluation nor the student transcripts correctly identifies the evaluated program as the one delivered in English only. Without a clear distinction between the two programs, the accreditation status of the mechatronic engineering – mechatronic design M.Sc. program would be ambiguous; therefore, compliance with this policy is lacking.

Furthermore, the APPM section II.A.6.a. requires each ABET-accredited program to publicly state the program’s educational objectives and student outcomes. While this information is present on the website, the program’s educational objectives and student outcomes are not labeled as such. In addition, APPM section II.A.6.b. requires each ABET-accredited program to publicly post annual student enrollment and graduation data per program. Enrollment and graduation data are published on the program’s website, but the data do not properly reflect the total number of students enrolled in the program. Also, the webpage is difficult to utilize, making the data difficult for webpage users to locate.

The program is not in compliance with the APPM for three reasons. First, the accreditation status of the program is not represented in a clear and unambiguous fashion. Second, the program has not published and clearly identified its student outcomes and program educational objectives. Third, the published student enrollment and graduation data that are published do not properly reflect the number of students enrolled in the program.

- 30-day due-process response: The EAC acknowledges receipt of documentation addressing the three components of this shortcoming. The program has requested, and the request has been approved, that all transcripts and diplomas for students graduating from the mechatronic engineering – mechatronic design program with English as the instruction language have this degree name explicitly stated. Students graduating from the program as of January, 2017 are receiving diplomas with the program name listed as “Mechatronic Engineering – Mechatronic Design in English.” Also, system records for students graduating after October 1, 2016 have been corrected to include the current program name. In addition, the institution’s website has been updated to explicitly differentiate the mechatronic engineering – engineering design program in English from the Polish

program. The student outcomes and program educational objectives are clearly indicated and are associated with the mechatronic engineering – engineering design program with English as the instruction language. Furthermore, the published student enrollment and graduation data has been corrected and accurately reflect the number of students enrolled.

The name of the program in the title of this section of the final statement, originally given as “Mechatronic Engineering – Mechatronic Design”, has been revised to “Mechatronic Engineering – Mechatronic Design in English” to reflect the information received in due process.

- The deficiency is resolved.

Program Weakness

1. General Criteria for Master’s Level Programs - Students and Curriculum This criterion requires that the master’s level engineering program have and enforce procedures for verifying that each student has completed a set of post-secondary educational and professional experiences that supports the attainment of the student outcomes of criterion 3 of the general criteria for baccalaureate level engineering programs. Currently, the majority of students attending the master’s degree program have graduated from the mechatronic engineering baccalaureate program at AGH University, which administers a final comprehensive examination with questions covering all student outcomes. Polish students who are not graduates of AGH University must successfully complete an equivalent mechatronic engineering baccalaureate degree program, and pass an entrance exam that contains questions related to assessment of student outcomes. Non-Polish students who have completed an equivalent mechatronic engineering program are admitted by decision of the Rector of AGH University and are not required to pass the entrance exam. It is not clear that the academic records of students who are admitted by decision of the Rector have been reviewed to ensure that they have completed a set of post-secondary educational and professional experiences that supports the attainment of the student outcomes of criterion 3 of the general criteria for baccalaureate level engineering programs. Thus it is not clear that the program ensures that, by the time of graduation, every student has completed a set of post-secondary experiences

that support the attainment of criterion 3 student outcomes. For this reason, the program lacks strength of compliance with this criterion.

- 30-day due-process response: The EAC acknowledges receipt of documentation describing a formal resolution of the faculty board stating that all students admitted to the mechatronic engineering – mechatronic design program in English must take and pass an entrance examination that contains questions related to attainment of the student outcomes of criterion 3. This policy is clearly stated on the program’s web page, and in the current recruitment cycle, the program has denied admission to two applicants who did not meet this requirement.
- The weakness is resolved.