

**INTERIM REPORT**

**By**

**The Electrical Engineering Study Program (EESP)**

**Universitas Hasanuddin at Makassar**

**INDONESIA**



In Conjunction to

**ACCREDITATION CYCLE CRITERIA: 2021-2024**

**JUNE, 2021**

**FOREWORD**

The Engineering Accreditation Commission (EAC) of ABET has evaluated the Electrical Engineering (B.Eng) programs at Hasanuddin University for initial accreditation. The EESP would like to thank for the efforts made by ABET to evaluate the program.

The EESP has managed it responses to four ABET statements regarding the weakness of EESP. We have tried hard to response the statements by giving explanations, comments and some evidences.

Once again, we gratefully acknowledge in advance for the ABET effort to evaluate this responses. We are looking forward to hear further suggestions and positive response that our program could be accredited according to ABET criteria.

Best regards,

Task Force of the EESP’s for ABET Accreditation

The EESP Response to ABET Statement #1:

**1. Criterion 4. Continuous Improvement**

This criterion 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 results of these evaluations must be systematically utilized as input for the continuous improvement of the program. In fall 2018, the institution implemented a university- wide outcome-based assessment process. The program presented an assessment plan in which the seven student outcomes were mapped to courses in the curriculum, but the course instructional materials and student work did not always support the student outcomes identified to be assessed in the course. In addition, documentation of the materials and student work used to assess the level to which student outcomes were attained was incomplete. The assessment results were submitted to the university quality assurance office, but the use of the results as input to the continuous improvement of the program was not documented. Thus, the strength of compliance with this criterion is lacking.

**30-Day Due-Process Response**

The EAC acknowledges receipt of documentation detailing recent actions taken to address this shortcoming. The program states that it provided documentation of the materials and student work used to assess the level to which student outcomes were attained during the site visit. However, at the time of the visit, the team did not find those documents satisfactory, especially since very few of them were in English, and the faculty explanations were inadequate. Neither additional material nor explanation was provided in the 30-day response to demonstrate use of appropriate processes for assessing and evaluating student outcome attainment. A translated copy of the fall 2019 program faculty meeting report indicates that the faculty identified improvement steps to be taken in several courses but documentation has not been provided to indicate what and how the improvement steps have been implemented. There is no clear indication as to how outcomes assessment has improved, nor are there any data or indication of how the changes have led to systematic improvement of the program. Although some actions have been initiated, the review process and all assessment tools have not yet been fully developed and implemented. Thus, the strength of compliance with this criterion is lacking.

**Status**

The program weakness is unresolved. In preparation for the next review, the EAC anticipates receiving evidence in the form of documentation that has been translated into English, indicating that an appropriate assessment process has been fully developed and implemented.

**The EESP Response:**

The PDCA (Plan-Do-Check-Action) 5-year assessment cycle for 2015 Curriculum will end this summer. The next PDCA cycle beginning in the First Semester of the year 2021 for the new 2021 Curriculum will comply with the ABET and IABEE criteria. We are planning to improve our methods in measuring the student learning outcomes for each individual student, in addition to what we have done so far with each individual course. Selected courses will be categorized according to their contribution to the student learning outcomes. All lecturers of those selected courses will be required to create and to develop their own methods to make the best assessment of each individual student learning outcomes.

The EESP Response to ABET Statement #2:

**2. Criterion 5. Curriculum**

This criterion requires that the program must include a culminating major engineering design experience that incorporates appropriate engineering standards and multiple constraints. The program has a capstone experience that is distributed over several courses. Appropriate engineering standards and multiple constraints were addressed indirectly in some senior design projects, but most project reports did not include evidence of the incorporation of engineering standards and constraints. Without adequate experience in the application of design constraints and engineering standards, students in the program may not be adequately prepared for engineering practice. Thus, the strength of compliance with this criterion is lacking.

**30-Day Due-Process Response**

The EAC acknowledges receipt of documentation detailing recent actions taken to address this shortcoming. The program has redesigned two existing design courses as capstone design courses to be taken in the final year of the curriculum. In the final project’s students would be asked to incorporate engineering standards and design constraints, but revised syllabi have not been provided requiring this. Of the seven student project assignment statements provided, only one requires engineering standards and constraints to be considered; the other six assignments do not require such considerations. Thus, the strength of compliance with this criterion is lacking.

**Status**

The program weakness is unresolved. In preparation for next review, the EAC anticipates documentation, in English, demonstrating the capstone design courses incorporate appropriate design constraints and engineering standards.

**The EESP Response:**

The term “capstone design” was only known to the EESP faculty in 2018 when the ABET accreditation process began. Some efforts to turn the orientation of the learning process from the R&D-based 2015 Curriculum toward more design-based have been implemented since 2019 when the curriculum itself almost ended. One of these efforts included the integration of R&D activities in several laboratories into a rather large scale “capstone-design” project. In the new 2021 Curriculum (will be implemented in First Semester or Summer Semester of the year 2021), the R&D-oriented courses Laboratory 1 (8 credit-hours) and Laboratory 2 (8 credit-hours) from the previous curriculum are to be replaced by Electrical Engineering System Design 1 having 3 credit-hours and Electrical Engineering System Design 2 having 3 credit-hours, which are design-oriented courses. However, it must be underlined that the R&D activities in the research laboratories have become the ultimate learning process to implement all knowledge and skills attained in the previous courses.

In this report, we have given 9 examples of capstone design course reports, presenting the design constraints and engineering standards that must be fulfilled by student during the design process.

The EESP Response to ABET Statement #3:

**3. Criterion 7. Facilities**

This criterion requires that classrooms, offices, laboratories, and associated equipment must be adequate to support attainment of the student outcomes and to provide an atmosphere conducive to learning. Modern tools, equipment, computing resources, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded to enable students to attain the student outcomes and to support program needs. The program has facilities to support attainment of student’s outcomes, but in some cases the number of students using the facility was large, such that each student may not receive the full benefit of the experience. In addition, the limited functionality of student versions of software for electrical circuit simulation, numerical computation and general office functions impeded the ability of students to fully attain the student outcomes. Without sufficient and appropriate equipment and software, student learning through hands-on laboratory experience may be inadequate. Thus, strength of compliance with this criterion is lacking.

**30-Day Due-Process Response**

The EAC acknowledges receipt of documentation detailing recent actions taken to address this shortcoming. The program has initiated procurement of a professional edition of a numerical simulation program and full version of an electric and electronic circuit simulator, as well as backup units of the lab equipment. No evidence was provided of the actual purchase and installation of the software and equipment. Thus, strength of compliance with this criterion is lacking.

**Status**

The program weakness is unresolved. In preparation for next review, the EAC anticipates translated documentation indicating that the software and equipment needed for students to attain the learning outcomes have been obtained.

**The EESP Response:**

We have purchased the requested software (Matlab for numerical simulation and Cadence PSpice for electric and electronic circuit design and simulation). We have installed the software in some PC in the EESP labs used them in our courses.