



APPLIED AND NATURAL SCIENCE ACCREDITATION COMMISSION

Summary of Accreditation Actions

2021–2022 Accreditation Cycle

Jordan University of Science and Technology
Irbid, Jordan

Mathematics (Bachelor of Science)

Physics (Bachelor of Science)

Accredit to September 30, 2024. A request to ABET by January 31, 2023 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 1, 2023. The reaccreditation evaluation will focus on these shortcomings. Please note that a visit is not required.

These are newly accredited programs. Please note that this accreditation action extends retroactively from October 1, 2020.



ABET

APPLIED AND NATURAL SCIENCE ACCREDITATION
COMMISSION

**JORDAN UNIVERSITY OF SCIENCE
AND TECHNOLOGY**

IRBID, JORDAN

FINAL STATEMENT OF ACCREDITATION
2021-22 ACCREDITATION CYCLE

JORDAN UNIVERSITY OF SCIENCE AND TECHNOLOGY

Irbid, Jordan

ABET APPLIED AND NATURAL SCIENCE ACCREDITATION COMMISSION

FINAL STATEMENT

VISIT DATES: NOVEMBER 1-3, 2021

ACCREDITATION CYCLE CRITERIA: 2021-2022

INTRODUCTION & DISCUSSION OF STATEMENT CONSTRUCT

The Applied and Natural Science Accreditation Commission (ANSAC) of ABET has evaluated the Mathematics (Bachelor of Science), and Physics (Bachelor of Science) programs at Jordan University of Science and Technology.

The statement that follows consists of two parts: the first addresses the institution and its overall educational unit, and the second addresses the individual programs.

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 REVIEW

- **Seven-Day Response** No information was received in the seven-day response period.
- **30-Day Due-Process Response** Information was received in the 30-day due-process response

period relative to the Mathematics (Bachelor of Science) and Physics (Bachelor of Science) programs.

- **Post-30-Day Due-Process Response** Information was received in the post-30-day due-process response period relative to the Mathematics (Bachelor of Science) and Physics (Bachelor of Science) programs.

INSTITUTIONAL SUMMARY

Jordan University of Science and Technology (JUST) is a national public university operated by the Ministry of Higher Education and Scientific Research. JUST was established in 1986 as an autonomous national institute of higher learning. Today, it is comprised of 12 faculties or schools, one institute, and 61 academic departments. Over 27,000 students are enrolled in 45 undergraduate and 100 graduate programs at the university. Almost 14 percent of the student body is drawn from 51 countries around the world.

The Faculty of Science and Arts houses six departments: Biotechnology and Genetic Engineering, Chemistry, English Language and Linguistics, Humanities, Mathematics and Statistics, and Physics. The Bachelor of Science programs in physics and mathematics are seeking initial ABET accreditation during this review. At the time of the review, the College of Science and Arts had 2460 undergraduate students and 353 graduate students, and 120 full-time faculty members. During the 2020-21 Academic Year, the College of Science and Arts awarded 524 degrees.

Mathematics

Bachelor of Science Program

There were no applicable ANSAC program criteria.

INTRODUCTION

Jordan University of Science and Technology's Mathematics, Bachelor of Science program is seeking initial ABET accreditation. The mathematics program is housed within the Faculty of Science and Arts. At the time of review, the mathematics program had 437 undergraduate students, 63 graduate students, and 25 full-time faculty members, 12 part-time faculty members, 1 full-time laboratory instructor and 2 staff members dedicated to the program. There are no part-time undergraduate students in the program. The program awarded 113 bachelor's degrees in the 2020-21 academic year.

PROGRAM DEFICIENCY

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 continuous improvement of the program. Other available information may also be used to assist in the continuous improvement of the program. The program has completed collection of assessment data and has established and documented a regular process for assessing and evaluating the extent to which the student outcomes are being attained. The program has claimed the use of student grades from quizzes, midterm exams, and final exams as tools for assessing student outcomes. However, the assessment process uses aggregate student grades on exam subparts to measure attainment of student outcomes. This does not allow the program to differentiate between the levels of attainment of each student outcome when an exam subpart contributes to more than one student outcome.

In addition, from the evidence provided by the program it appears that the assignments used to assess SOs 4, 5, and 6 do not contain any appropriate elements for assessing communication skills, understanding of ethical and professional responsibilities, and teamwork, respectively. MATH 321 (Numerical Analysis) and MATH 395 (Mathematical Computer Applications) are examples of courses used to assess SOs 4, 5, and 6. The assessed exams mapping into SOs 4, 5, 6 do not show any elements appropriate for assessing the skills in SOs 4, 5, and 6. Also, there is little evidence of a connection between the assessment results and the improvement actions taken by the program. Without appropriate assessment of student outcome attainment, the program is not able to evaluate the extent to which student outcomes are being met. Thus, the program is not in compliance with the criterion.

30-Day Due-Process Response

The ANSAC acknowledges the receipt of documentation describing a plan for revising the

assessment process but the plan is yet to be completely implemented. Furthermore, the program has requested permission to submit a post 30-day response.

Status

The program deficiency is unresolved.

Post-30-Day Due-Process Response

The ANSAC acknowledges receipt of documentation describing the creation of rubrics and utilizing them in assessing the attainment of the Student Outcomes. The program has Course Learning Objectives (CLOs) for its courses, which are mapped to student outcomes (SOs). While these are measures taken toward improving the assessment process, there is a lack of correlation between assessment activities and determine the level of student attainment needed for program improvement. This results in inappropriate data feeding to the continuous improvement process, which ultimately impacts the effective evaluation of the continuous improvement process.

Status

The program deficiency is now cited as a program weakness.

Physics

Bachelor of Science Program

There were no applicable ANSAC program criteria.

INTRODUCTION

Jordan University of Science and Technology's Physics Bachelor of Science program is seeking initial ABET accreditation. The physics program is housed within the Faculty of Science and Arts. At the time of review, the physics program had 306 undergraduate students, 57 graduate students, 21 full-time faculty members, 4 part-time faculty members, 2 full-time laboratory technicians, and 1 staff member dedicated to the program. There are no part-time undergraduate students in the program. The program awarded 37 bachelor's degrees in the 2020-21 academic year.

PROGRAM DEFICIENCY

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 continuous improvement of the program. Other available information may also be used to assist in the continuous improvement of the program. The program has completed collection of assessment data and has established and documented a regular process for assessing and evaluating the extent to which the student outcomes are being attained. The program has claimed the use of student grades from quizzes, lab reports, midterm exams, and final exams as tools for assessing student outcomes. However, the assessment process uses aggregate student course grades to measure attainment of student outcomes. This does not allow the program to differentiate between the levels of attainment of each student outcome when a course contributes to more than one student outcome.

In addition, from the evidence provided by the program it appears that the assignments used to assess SOs 4, 5, and 6 do not contain any appropriate elements for assessing communication skills, understanding of ethical and professional responsibilities, and teamwork, respectively. PHY 303 (Computational Physics) and PHY 353 (Modern Physics Lab) are examples of courses used to assess SOs 4, 5, and 6. The assessed exams mapping into SOs 4, 5, 6 do not show any elements appropriate for assessing the skills in SOs 4, 5, and 6. Also, there is little evidence of a connection between the assessment results and the improvement actions taken by the program. Without appropriate assessment of student outcome attainment, the program is not able to evaluate the extent to which student outcomes are being met. Thus, the program is not in compliance with the criterion.

30-Day Due-Process Response

The ANSAC acknowledges the receipt of documentation describing a plan for revising the assessment process but the plan is yet to be completely implemented. Furthermore, the program has requested permission to submit a post 30-day response.

Status

The program deficiency is unresolved.

Post-30-Day Due-Process Response

The ANSAC acknowledges receipt of documentation describing the creation of rubrics and utilizing them in assessing the attainment of the Student Outcomes. The program provided data in the form of graphs, which are based on the final grades of each of the courses identified to assess attainment of student outcomes. While these are measures taken toward improving the assessment process, there is a lack of correlation between assessment activities and determine the level of student attainment needed for program improvement. This results in inappropriate data feeding to the continuous improvement process, which ultimately impacts the effective evaluation of the continuous improvement process.

Status

The program deficiency is now cited as a program weakness.