ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes
Physics
Mathematics
Chemistry

Provided by
Majmaah University, College of Education (Saudi Arabia; female campus in Al-Zulfi)

Version: 07 December 2018

Table of Content

A About the Accreditation Process

Name of the degree programme	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
B.Ed. Physics	ASIIN	n/a	13
B.Ed. Mathematics	ASIIN	n/a	12
B.Ed. Chemistry	ASIIN	n/a	09
Date of the contract: 17.09.2014 **Submission of the final version of the self-assessment report:** 31.08.2016 **Date of the onsite visit:** October 4-6th, 2016 **at:** Majmaah University, College of Education, female campus in Al-Zulfi (Saudi Arabia)			
Peer panel: Prof. Dr. Seham Alterary, King Saud University; Prof. Dr. Claudia Cottin, FH Bielefeld University of Applied Sciences; Alexandra Dreiseidler, Emil-Fischer-High-School; Dr. Angela Fösel, FAU University of Erlangen; Prof. Dr. Gabriele Hornung, Technical University Kaiserslautern; Prof. Dr. Kornelia Möller, University of Münster			
Representative of the ASIIN headquarter: Madlen Schweiger, M.A.			
Responsible decision-making committee: Accreditation Commission for Degree Programmes			

[1] ASIIN Seal for degree programmes

[2] TC: Technical Committee for the following subject areas: TC 09 – Chemistry; TC 12 – Mathematics; TC 13 – Physics.

Criteria used:

European Standards and Guidelines as of May 2015

ASIIN General Criteria, as of 28.06.2012

Subject-Specific Criteria of Technical Committees 09 – Chemistry, 12 – Mathematics, 13 – Physics, as of 09.12.2011 and 12.12.2011

B Characteristics of the Degree Programmes

a) Name / Final degree	b) Areas of Specialization	c) Corresponding level of the EQF[3]	d) Mode of Study	e) Duration	f) Credit points/unit	g) Intake rhythm & First time of offer	g) Fees
Physics / B.Ed.	n/a	EQF 6	Full time	8 Semesters	144 credit hours	Fall term; September, 2011	no fees
Mathematics / B.Ed.	n/a	EQF 6	Full time	8 Semesters	144 credit hours	Fall term; September, 2011	no fees
Chemistry / B.Ed.	n/a	EQF 6	Full time	8 Semesters	144 credit hours	September & January; September, 2010	no fees

[3] EQF = The European Qualifications Framework for lifelong learning

For the **Bachelor's degree programme Physics** the institution has presented in the self-assessment report, in the student handbook and on its website the following **intended learning outcomes**:

Table 1.1: Program Intended Learning Outcomes According to NCAAA.

NCAAA Domain		Code	Intented learning Outcomes
by successful completion of this program, students would be able to:			
A	Knowledge	a1	Recognize the basics, principles, and theories of physics, in the different branches.
		a2	Name the basic concepts in Education sceinces, the Arabic language, and Islamic studies.
		a3	Define the basic concepts in physics, Education assistance, such as mathematics, chemistry, and computer.
B	Cognitive Skills	b1	Use the principles and theories of mathematics in solving physics problems of different branches.
		b2	Use of various hardware components of the physical laboratory to conduct physical experiments.
		b3	Apply the knowledge gained and the use of modern teaching strategies in explaining the physical systems.
C	Interpersonal Skills and Responsibility	c1	Take into account the ethical and professional principles in the discussion of issues related to the teaching profession.
		c2	Apply the professional and ethical principles to the teaching profession.
		c3	Develop the cooperative learning through discussions and collaborative work in the classroom.
D	Communication and Numerical Skills	d1	Use computer programs in physical systems applications.
		d2	Take responsibility for self-learning and lead the team.

All students in the Educational Bachelor Degree Program in Physics have the same subject.

For the **Bachelor's degree programme Mathematics** the institution has presented in the self-assessment report the following **intended learning outcomes**:

Table1. Programme intended Learning Outcomes According to **NCAAA**:

NCAAA **Domain**	**code**	**Intended Learning Outcomes**
By successful completion of the programme , students would be able to		
A Knowledge	**a1**	Understanding and grasping the bases of mathematics in its various branches
	a2	Being informed about present scientific researches on the latest developments in the field of Mathematics
	a3	Preparing students for professional practice through mini-education model
B Cognitive Skills	**b1**	Giving students the ability to solve exercises , tutorials and accomplish systematic researches
	b2	Using computer programs in solving mathematical exercises and problems
	b3	Training students to use logical and creative thinking and have the ability to face and solve problems
C Interpersonal Skills and Responsibility	**c1**	Students take responsibility for self-learning by using references, books and scientific journals
	c2	Students' ability to develop communication skills
	c3	The practice of group leadership in a variety situations requiring innovative responses
D Communication and Numerical Skill	**d1**	Student's ability to determine statistical or mathematical methods when studying the issues and problems and to apply them creatively
	d2	Preparing students to participate in forums, workshops and conferences
	d3	Effective oral and writing Communication, and present different issues to different learners appropriately
E Psychomotor Skills		Not Applicable

For the **Bachelor's degree programme Chemistry** the institution has presented in the self-assessment report the following **intended learning outcomes**:

Goals of Chemistry Program

1-	Knowledge: Program majors will demonstrate an understanding of fundamental chemical concepts.
2-	Professional Skills: Program majors will be able to work effectively in a professional or laboratory setting.
3-	Communication: Program majors will be proficient in the communication of chemical information

Objectives of Chemistry Program

1	Achieving Academic excellence in accordance with quality standards.
2	Preparing national competences in the field of chemistry who contribute to the making of society, development programs insofar as education, health, industry and scientific research are concerned.
3	Developing liberally educated professionals who are highly effective teachers and instructional leaders within their subjects and who are knowledgeable and skilled in the areas of child and adolescent development.
4	Participating in the advancement of knowledge through seminars, workshops and publications.
5	Serving state and private sectors by increasing people's awareness of chemistry and exchange programs.
6	Integrating IT in curriculum design in relation to Chemistry.

Chemistry Program Learning Outcomes

	Domain	** Student learning Outcomes	
		On successful completion of this program, students should be able to:	
		Code	Learning Outcome
A	Knowledge	a1	Recognize the knowledge of fundamental concepts in Chemistry
		a2	Covere the major principles and theories in the field of chemistry
		a3	Introduce students to the prominent teaching methods and approaches in relation to chemistry.
		a4	know the specific branches of Chemistry they are going to teach
B	Cognitive Skills	b1	Explain to general audience the Chemistry principles that underlie our understanding of nature
		b2	Develop the skill for analyzing/solving the Chemistry based problems.
		b3	Think creatively about scientific problems and their solutions
		b4	Applying the acquired academic skills to professional and academic contexts.
		b5	Apply the proper procedures in laboratory and regulations for safe handling and use of chemical.
		b 6	Apply different methods and techniques of teaching different branches of Chemistry

C	Interpersonal Skills and Responsibility	c1	work effectively in diverse teams in both classroom and laboratory.
		c2	Take the initiative to identify urgent problems and solve them.
		c3	Assume responsibility for self-learning and professional development.
		c4	Show high commitment to work ethics in accordance with Islamic values
D	Communication IT and Numerical Skills	d1	Think creatively about scientific problems and their solution, both orally and in written
		d2	Locate and retrieve scientific information, using modern computer tools
		d3	Learn how to collect and classify the required topics using internet communication tools.
E	Psychomotor Skills		N.A

Table 2.1: The program learning outcomes according to the NCAAA domains

Field	Code	Learning Outcome/ The students will able to :-
Knowledge A	a1	Recognize the knowledge of fundamental concepts in Chemistry
	a2	Covering the major principles and theories in the field of chemistry
	a3	Introducing students to the prominent teaching methods and approaches in relation to chemistry.
Cognitive Skills B	b1	Explain to general audience the Chemistry principles that underlie our understanding of nature
	b2	Develop the skill for analyzing/solving the Chemistry based problems.
	b3	Think creatively about scientific problems and their solutions
	b4	Applying the acquired academic skills to professional and academic contexts.
Interpersonal Skills and Responsibility C	c1	An ability to work effectively in diverse teams in both classroom and laboratory.
	c2	Taking the initiative to identify urgent problems and solve them.
	c3	Assuming responsibility for self-learning and professional development.
	c4	Showing high commitment to work ethics in accordance with Islamic values
Communication IT and Numerical Skills	d1	Think creatively about scientific problems and their solutions both orally and in written
	d2	Locate and retrieve scientific information, using modern computer tools
	d3	Learn how to collect and classify the required topics using internet communication tools.
Psychomotor Skills		N.A

C Peer Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

Criterion 1.1 Objectives and learning outcomes of a degree programme (intended qualifications profile)

Evidence:

- Study objectives of each programme according to the SAR (self-assessment report) and the objective-module matrices
- Main programme objectives/learning outcomes also available on the internet (access on October 12th 2016):
    - B.Ed. in Physics:
        - https://www.mu.edu.sa/sites/default/files/content/2016/09/Tool%20for%20the%20Objectives-Module%20Matrix_TC%2013_Ba_PHYS.pdf
    - B.Ed. in Mathematics:
        - https://www.mu.edu.sa/en/node/59951
    - B.Ed. in Chemistry:
        - https://www.mu.edu.sa/en/colleges/college-education-zulfi/objectives-10
        - https://www.mu.edu.sa/en/node/59916
        - https://www.mu.edu.sa/sites/default/files/content/2016/09/program%20spesification.pdf
        - https://www.mu.edu.sa/en/colleges/college-education-zulfi/matrices-consistency
        - https://www.mu.edu.sa/en/colleges/college-education-zulfi/asiin
- Discussions with representatives of the university

Preliminary assessment and analysis of the peers:

The responsible programme coordinators apparently put much effort in aligning the learning outcomes of different institutional levels (university, college, department, NCAAA[4], ASIIN). Thus, the provided documentation is well suited to assess whether a respective set of learning outcomes does adequately reflect a given standard (be it from the university, the college or external quality assurance bodies like the national NCAAA or ASIIN). However, due to the manifold documents it was difficult for the peers to judge which documentation should be further assessed. Therefore, the peers based their assessment on the provided learning outcomes according to NCAAA and the provided matrices comparing the intended programme learning outcomes to the exemplary learning outcomes of the relevant ASIIN subject specific criteria (SSC).

In terms of acquired knowledge students of all three degree programmes should have a sound knowledge of the scientific fundamentals including concepts, principles and theories of their respective discipline. Additionally, all graduates should have gained fundamental knowledge of mathematics and the natural sciences which are relevant for their respective discipline. Furthermore, graduates of the Physics programme should be able to "use computer programs in physical systems applications" which should make them familiar with important mathematical methods used in physics, their inherent relation and mathematical formulation and, based on this, have acquired methods suitable for theoretical analysis, modelling and simulation of relevant processes. In addition, by using various "hardware components of the physical laboratory to conduct physical experiments" graduates should be familiar with basic principles of experimentation and be able to use modern physics measurement methods, and are in a position to assess the significance of results correctly. The peers learned that graduates of the Chemistry programme should also be enabled to carry out practical chemical work and should have learned how to handle chemicals independently and safely in lab practicals, however this is not explicitly mentioned in the intended learning outcomes of the Chemistry programme. This aspect should be added from the viewpoint of the peers.

One of the main learning objectives of all degree programmes appears to be the applicability of the acquired knowledge, skills and competences for the solution of related problems. Thus, graduates of the Physics programme should be able to "use the principles and theories of mathematics in solving physics problems of different branches"; in the Chemistry programme, graduates are able to "develop the skill for analyzing/solving the Chemistry based problems" and are capable to "think creatively about scientific problems and their solutions"; and likewise, in the Mathematics programme graduates should have the ability

[4] National Commission for Academic Accreditation and Assessment in the Kingdom of Saudi Arabia http://www.ncaaa.org.sa/en/Pages/default.aspx

"to solve exercises, tutorials and mathematical issues" and be capable of "determining relevant statistical and mathematical methods when examining issues and problems as well as applying them creatively in interpretation of information and suggested solutions". As these learning outcomes are vital for graduates to qualify for the job market, it is important to see how they are implemented in the respective curriculum (see criterion 1.3 and 2.3).

A strong emphasis is also laid on the development of social and interpersonal skills. Students should be able to effectively communicate, work in teams and should have developed self-learning skills for their professional development. In addition, ethical and professional principles should be taken into account within their profession.

In summary, it has been plausibly demonstrated that the discipline-related skills and competences being defined for the Bachelor's level in the respective SSC are broadly covered by the learning outcomes of the programmes. In general, the Bachelor's degree programmes correspond with the qualifications of the European Qualifications Framework level 6 (Bachelor). Nevertheless, it should be mentioned that, e.g., the intended learning outcome of the Mathematics degree programme "Participation of students in seminars and workshops related to the Mathematical field to exchange information with others" does not match with the ASIIN learning outcome "can use basic methods of computer-aided simulation, mathematical software and programming to solve mathematical problems". In addition, this intended learning outcome is not formulated outcome-oriented. The peers assessed that in general the matrices of the Physics and Chemistry programmes seemed more comprehensive and better aligned, and should be used as a reference when adapting the learning outcomes of the Mathematics programme.

It is noteworthy in this respect that the above cited learning outcomes are broadly and generically defined. With regard to the description of "knowledge" and "cognitive competences" only six rather generic learning outcomes are described in a very brief way in all degree programmes under review. Insofar, it is apparently no coincidence that specific application-oriented and interdisciplinary competences which might specify relevant job profiles for the graduates of all programmes could be improved and should be included. The programme coordinators, e.g., might consult exemplary learning outcomes of ASIIN (SSC) for more detailed and programme-specific learning outcomes.

Furthermore, from the assessment of the intended learning outcomes it seemed unclear to the peers whether the Bachelor of Education degree programmes in Physics, Mathematics and Chemistry fully qualify for becoming future school teachers. The peers learned during the discussion with the programme coordinators that the main objective of the degree programmes is to train future teachers for primary, intermediate and secondary schools and teaching assistants at universities. However, it became also clear that the aims of the degree programmes do not exclusively focus on training future teachers; graduates should

also be able to apply for jobs in field-related industries as well as be able to take up scientific postgraduate studies (Master and PhD degrees). The peers accepted that the degree programmes under review aim to qualify students for various professional sectors, however, as the graduates obtain the degree "Bachelor of Education" and are mostly employed as teachers, the overall programme objectives and learning outcomes should much stronger reflect this focus. For instance the study handbook of the Mathematics degree programme states that graduates may work in "Work in the information Technology as Data analysts and contribute preparing strategic plans", however the learning outcomes do not reflect this possible employment field. No reference is made that graduates should gain knowledge and competences in educational science including the field of *pedagogical content knowledge*[5]. The intended learning outcomes of the Physics and Chemistry programmes put some emphasis on this aspect ("Apply the knowledge gained and the use of modern teaching strategies in explaining the physical systems" and "Introducing students to the prominent teaching methods and approaches in relation to chemistry."), nevertheless, these defined learning outcomes for both programmes are also rather generic and are missing further aspects of science education. Therefore, the aim to educate teachers needs to be reflected precisely in the learning outcomes.

Criterion 1.2 Name of the degree programme

Evidence:

- Websites of the programmes (access on October 13th 2016):

  B.Ed. Physics:

  - https://www.mu.edu.sa/en/colleges/college-education-zulfi/physics-0

  B.Ed. Mathematics:

  - https://www.mu.edu.sa/en/colleges/college-education-zulfi/mathematics-0

  B.Ed. Chemistry:

  - https://www.mu.edu.sa/en/colleges/college-education-zulfi/asiin-1

[5] https://books.google.de/books?id=mk7IAgAAQBAJ&pg=PA353&lpg=PA353&dq=pedagogical+content+knowledge+wynne&source=bl&ots=xo-Yu3K8YM&sig=4srfuhjG-QKWn7Ax7qRM1GRgBhU&hl=de&sa=X&ved=0ahUKEwjctbvJnO_PAhXSKCwKHd4pB_4Q6AEIKjAB#v=onepage&q=pedagogical%20content%20knowledge%20wynne&f=false
https://www.narst.org/publications/research/pck.cfm http://www.idra.org/IDRA_Newsletter/August_2009_Actionable_Knowledge/Pedagogical_Content_Knowledge/
http://www.phystec.org/keycomponents/pck.cfm
http://journals.aps.org/prper/pdf/10.1103/PhysRevSTPER.6.020110
http://iopscience.iop.org/article/10.1088/0031-9120/50/5/573/meta;jsessionid=D07440D0658515E1C861EB593A00B1B2.c1.iopscience.cld.iop.org
http://itp.wceruw.org/documents/Shulman_1986.pdf

- https://www.mu.edu.sa/sites/default/files/content-files/Program_Specification_1.pdf

- Self-assessment report (SAR)
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
The peers confirmed that all three degree programme titles reflect the intended aims and learning outcomes as well as, fundamentally, the main course language. Information about the degree programmes is published in Arabic and English as the main language of instruction is Arabic.
The peers identified inconsistencies in the documentation regarding the final degree students obtain. The programme coordinators clarified during the onsite visit that graduates receive the degree "Bachelor of Education" which properly reflects the aim of the study programmes. However, the self-assessment report of the Mathematics programme and the document "Program Specification" of the Chemistry programme mentioned the degree "Bachelor of Science". With regard to transparency the departments should therefore harmonise the information in the manifold documents which are made available and have also been published on the internet.

Criterion 1.3 Curriculum

Evidence:

- Study plans as publicly available on the internet (access on October 13th 2016):
  - B.Ed. Physics: https://www.mu.edu.sa/sites/default/files/content/2016/09/Physics%20Program%20Study%20Plan_1.pdf
  - B.Ed. Mathematics: https://www.mu.edu.sa/en/colleges/college-education-zulfi/study-plan-8
  - B.Ed. Chemistry: https://docs.google.com/viewerng/viewer?url=http://mu.edu.sa/sites/default/files/field/plan_0.pdf
  - https://www.mu.edu.sa/sites/default/files/content/2016/11/Chemistry%20program%20study%20plan%20new%20version%202016.pdf
- Module handbook (here: "Courses Handbook" or "Courses Specification") (access on October 13th 2016):
  - B.Ed. Physics: https://www.mu.edu.sa/sites/default/files/content/2016/11/Module%20Handbook%20of%20B.Ed_.%20in%20Physics%20program.pdf

- B.Ed. Mathematics: https://www.mu.edu.sa/en/colleges/college-education-zulfi/course-specification
- B.Ed. Chemistry: https://www.mu.edu.sa/sites/default/files/content/2016/02/module%20hand%20book.pdf

- Audit discussions with programme coordinators, teaching staff and students

Preliminary assessment and analysis of the peers:
On the department-specific websites information about the degree programmes under review are published. The peers welcomed that each departmental website entails the description of the curriculum. However, with regard to the module descriptions it should be noted that the educational courses and electives are missing. This is due to the fact that different courses of degree programmes are delivered by different units. The scientific courses are delivered by the respective departments and are therefore published on the website of the departments. Educational courses are delivered by the College and general elective courses by the University. As the websites are department-specific and not degree programme-specific the information on courses from the college and university are not published at all there. In terms of transparency, (prospective) students should be informed about all courses of the degree programmes and therefore, the module descriptions of the educational and elective courses should be published on the websites as well (see also 5.1). Nevertheless, the curricula of the degree programmes could be assessed on-site as the programme coordinators provided the peers with module descriptions on the educational courses.

As outlined under criterion 1.1, the peers could see that the learning outcomes of the programmes match - with some limitations - the outcomes stated in the Subject-Specific Criteria (SSC) of the ASIIN Technical Committees for Mathematics, Physics and Chemistry. The peers based their assessment whether the curricula of the different degree programmes achieve the intended learning outcomes or not on the provided module descriptions and the module-objective matrices. The peers concluded that the imparted scientific curricular content of all three degree programmes is state of the art and adequate for the Bachelor level. The scientific courses are considered to implement the intended learning outcomes in a comprehensible manner.

In criterion 1.1 and 1.2 it was pointed out that a degree “Bachelor of Education” should also include educational contents in order to adequately prepare graduates for becoming teachers. The general programme objective aims to qualify graduates for the profession of teaching is in so far reflected in the curricula that as 20% of each curriculum consist of educational courses. The peers learned that these general pedagogical knowledge courses (“Teaching Techniques and Communications Skills”; “Teaching Strategies”; “Modern

Trends in Teaching Strategy"; "Administration and Educational planning"; "Developmental Psychology"; "Educational Psychology"; "Production of E-learning resources"; "Educational Evaluation"; "Practicum") are mostly for students from all degree programmes. According to information of the educational staff, the courses "Teaching Strategies" and "Modern Trends in Teaching Strategy" are tailored to the needs of each degree programme which means that they are programme-specific for Physics, Mathematics and Chemistry. The peers welcomed this approach; however the programme-specific aspect of the above mentioned courses is not reflected in the respective module descriptions. In the view of the peers, programme-specific course descriptions are essential as teaching strategies are subject specific and should transparently be described in the course descriptions. In addition, the module description of "Modern Trends in Teaching Strategies" should inform that knowledge in micro-teaching is imparted (see criterion 5.1). In addition to these courses, teaching staff members offer an optional counselling if students have specific questions on how to teach a topic in school.

The peers assessed that *pedagogical content knowledge*[6] is only to a very small extend implemented in the respective curricula. They pointed out that the impartation of *pedagogical content knowledge* is international standard in science education. Pedagogical knowledge means the "how" of subject-specific teaching, generally acquired through education coursework and personal experiences. Content knowledge, on the other hand, is the "what" of teaching. It is different from the knowledge of a disciplinary expert and from general pedagogical knowledge. So, *pedagogical content knowledge* is defined "as teachers' interpretations and transformations of subject-matter knowledge in the context of facilitating student learning. […] key elements of pedagogical content knowledge [are]: (1) knowledge of representations of subject matter (content knowledge); (2) understanding of students' conceptions of the subject and the learning and teaching implications that were associated with the specific subject matter; and (3) general pedagogical knowledge (or teaching strategies) […] (4) curriculum knowledge; (5) knowledge of educational contexts; and (6) knowledge of the purposes of education"[7]. The peers were especially missing topics like conceptual change and students' conceptions, modelling in science, learning difficulties in science, content specific learning processes of the pupils in primary, intermediate and

[6] Lee Shulman (1987) Knowledge and Teaching: Foundations of the New Reform. Harvard Educational Review: April 1987, Vol. 57, No. 1, pp. 1-23.
J. van Driel, N. Verloop, W. de Vos; Journal of Research in Science Teaching; VOL. 35, NO. 6, PP. 673–695 (1998)
M. Evens, J. Elen, and F. Depaepe; Education Research International; Volume 2015 (2015), Article ID 790417, 23 pages

[7] http://www.idra.org/IDRA_Newsletter/August_2009_Actionable_Knowledge/Pedagogical_Content_Knowledge/

secondary schools, inquiry based science learning, problem solving methods, nature of science as well as argumentation and communication in math and science. Furthermore, the peers assessed a theory-practice gap between university coursework and teaching experience. Possible solutions for this issue could be for example, including more *pedagogical content knowledge* in the scientific department courses (e.g. teaching scientific experiments in the labs and combine them simultaneously with experiments which can be carried out in school with every day materials) or adding more aspects of *pedagogical content knowledge* to the curricula. In this regard, the cooperation between teachers in school and professors in the college might be strengthened in the future. Therefore, the peers highly recommended to strengthen the competences of the students in the field of *pedagogical content knowledge* also with regard to the different pupils needs in primary, intermediate and secondary schools. This approach is considered even more important given the fact that in primary and intermediate schools in Saudi Arabia pupils have the subject "Science", so that graduates of the degree programmes Physics and Chemistry additionally need interdisciplinary knowledge and competences in order to teach this subject.

With regard to teaching experience students gain practical knowledge and competences in the internship (called "practicum") which is carried out over 15 weeks (12h per week) in the last semester (level 8) of the degree programmes. The peers positively acknowledged that the practical training phase increased over the last 3 years from 1-2 days of teaching practice to a 15 weeks internship. However, with regard to the above stated assessment that *pedagogical content knowledge* is hardly addressed in the present study programmes the internship seems quite short according to international standards. Although the peers understood that in Saudi Arabia an undergraduate degree (Bachelor of Education) with some practical components is required for the profession of teachers they encourage the college/university to further strengthen the teaching practice of the students.

The peers noticed that English language competencies are fostered in the degree programmes only to a small extend. They learned, e.g. that despite the fact that the language of the programmes is Arabic, English teaching terminology is used and that the department of Mathematics developed a glossary for students of subject-specific terms in English. The peers appreciated this approach; nevertheless English language competences should be fostered more systematically, especially in the light of the fact that one of the objectives of the degree programmes under review is to qualify students for postgraduate study programmes (Master/PhD) which are usually taught in English. Moreover, during the onsite visit students explicitly expressed their demand for more English language training.

Criterion 1.4 Admission requirements

Evidence:

- Respective chapter of the SAR
- Saudi Universities Act no. (M/8)/ 1414) (2685/23), 1994 (access on October 13th 2016): https://www.mu.edu.sa/sites/default/files/content/2016/09/The%20Statue%20of%20the%20Higher.compressed.pdf
- Laws of Undergraduate Study and Examinations and Majmaah University Implementation Rules", Articles 2 to 4 (access on October 13th 2016): https://www.mu.edu.sa/sites/default/files/content/2016/09/MU09%20%20%20%20Laws%20of%20Undergraduate%20Study%20and%20Examinations%20And%20Majmaah%20University%20Implementation%20Rules%20%20.pdf
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:

It becomes clear from the SAR, the body of relevant rules and regulations, and the additional comments of the representatives of the college that the admission procedure is put in practice as a multi-stage process. Prospective students do not only have to successfully pass secondary school, but need to pass a joint universities application system also, thereby meeting a series of prerequisites with regard to their educational skills and competences as well as their conduct. Additionally, according to the governing regulation the University Council decides about the number of students to be admitted, taking into account recommendations of the College Councils and the respective departments at the college.

It is well noticed that the university entrance examinations for all programmes comprise the subject fields of mathematics, physics and chemistry. The peers wondered what the additional admission requirement that students "should be medically fit" means with regard to prospective students with disabilities. The programme coordinators convinced the peers that this regulation only refers to, e.g., allergies against certain chemicals or hand problems which wouldn't allow students to participate in laboratory works due to safety reasons.

In sum, the peer panel deemed the admission rules and procedures put in place adequate to ensure the subject-specific qualification of school graduates applying for university admission.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 1:

Criterion 1.1

B.Ed. in Chemistry:

The peers highly appreciated that the programme coordinators redefined the educational objectives/learning outcomes so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree programme. In addition the latest version of the educational objectives/learning outcomes is also published on the programme website and included in the Diploma Supplement. The peers emphasized that these revised educational objectives/learning outcomes should be made available also in the Arabic/English documentation (e.g. programme specification, website, student handbook etc.). Despite the fact that the educational objectives/learning outcomes could be formulated more outcome-oriented the peers assessed for the Bachelor's degree in Chemistry that the requirement is fulfilled as intended.

B.Ed. in Mathematics and B.Ed. in Physics:

The peers thanked the programme coordinators for the electronic version of the learning outcomes for the Bachelor's degree programme in Mathematics (the electronic version for the Physics programme was available to the peers beforehand). In sum, the peers assessed that certain aspects (outcome-oriented formulation, broadly and generic defined learning outcomes, knowledge and competences in educational science including the field of *pedagogical content knowledge*) as described above are missing or rather generically described. Therefore, the peers still suggest revising the educational objectives/learning outcomes so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree programmes. These revised qualification objectives should be accessible for all relevant stakeholders (e.g. Diploma Supplement, student handbook, programme-specific websites) and ensure that the stakeholders can refer to them.

Criterion 1.3

As described above the peers missed the impartation of science education and especially of *pedagogical content knowledge* which is considered as fundamental in teachers' education. In addition to the above mentioned aspects, the peers would like to address that there is no differentiation with regard to content learning (scientific content) and pedagogical content knowledge between future primary, intermediate and secondary teachers. The peers consider the differentiation of teaching in different school types as important as primary and intermediate school teachers impart other contents and should use other teaching methodologies than secondary school teachers. Furthermore, the departments should consider offering councelling to students on a regular/mandatory basis to further strengthen teaching practice skills. Overall, the peers highly recommended to strengthen the competences of the students in the field of pedagogical content knowledge and teaching practice. Within this context the recommendations "to enhance students' ability to teach through adequate didactical means" (see criterion 2.3) and "to further develop the

examination methods in order to enhance students' ability to communicate and teach (see criterion 3)" should be associated. All three recommendations are connected and aiming to enhance the students' ability to teach in the various school types. The peers are aware that enhancing the teaching abilities of the students may only be accomplished if the teaching staff gains further knowledge in the field of *pedagogical content knowledge* (see recommendation criterion 4.2). Therefore, in the course of reaccreditation it should be assessed whether the above mentioned recommendations have been implemented.

In addition, the peers uphold their recommendation to improve English language competences of the students and the teaching staff (see also criterion 4.2).

Overall, the peers assessed this criterion to be partly fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Respective Chapter of the SAR
- Study plans as publicly available on the internet (access on October 13th 2016):
    - B.Ed. Physics: https://www.mu.edu.sa/sites/default/files/content/2016/09/Physics%20Program%20Study%20Plan_1.pdf
    - B.Ed. Mathematics: https://www.mu.edu.sa/en/colleges/college-education-zulfi/study-plan-8
    - B.Ed. Chemistry: https://docs.google.com/viewerng/viewer?url=http://mu.edu.sa/sites/default/files/field/plan_0.pdf
    - https://www.mu.edu.sa/sites/default/files/content/2016/11/Chemistry%20program%20study%20plan%20new%20version%202016.pdf
- Module handbook (here: "Courses Handbook" or "Courses Specification") (access on October 13th 2016):
    - B.Ed. Physics: https://www.mu.edu.sa/sites/default/files/content/2016/11/Module%20Handbook%20of%20B.Ed_.%20in%20Physics%20program.pdf

  - B.Ed. Mathematics: https://www.mu.edu.sa/en/colleges/college-education-zulfi/course-specification
  - B.Ed. Chemistry: https://www.mu.edu.sa/sites/default/files/content/2016/02/module%20hand%20book.pdf

- Laws of Undergraduate Study and Examinations and Majmaah University Implementation Rules", Articles 42ff. (access on October 13th 2016): https://www.mu.edu.sa/sites/default/files/content/2016/09/MU09%20%20%20%20Laws%20of%20Undergraduate%20Study%20and%20Examinations%20And%20Majmaah%20University%20Implementation%20Rules%20%20.pdf
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
The structure of the curriculum of the degree programmes under review were considered by the peers plausible, consistent and – with the reservations made in the previous chapter in the field of *pedagogical content knowledge* and teaching experience (see criterion 1.3) – adequate with respect to the intended learning outcomes. Each curriculum appears to be composed of modules (here named "courses") which the peers assessed as comprehensible and self-contained teaching and learning units, with a plausible range of contents and credit hours / credit points each (see following chapter). Based on the analysis of the curriculum and the module descriptions the peers confirmed that the module objectives and the respective content help to reach both the qualification level and the overall intended learning outcomes.

In general, the undergraduate degree programmes are designed to be completed within four academic years. According to the figures for the degree programme in Physics (intake in 2011 is much higher than graduates in 2015/2016) it seems that many students do not finish this study programme within four years. The peers ask the department/college to explain what might be the reasons for exceeding the regular study duration. Additionally, the departments of Mathematics and Chemistry should provide statistical data on student progression (number of intakes and graduates) and drop-out rates, and if necessary, an explanation what might be the reasons for exceeding the regular duration of study.

Regarding the recognition of competences acquired at other universities, the existing rules largely apply to the transfer of students from one university in Saudi Arabia to another and within Majmaah University, but at least formally leave out the possibility of incoming students from abroad or outgoing students for studying abroad. Moreover, with respect to the recognition issue these rules are not primarily oriented towards the recognition of skills and competences which have been acquired, but towards content and grades earned. The

peers therefore advised the university to consider a further development of the rules so as to allow for the recognition of competences acquired at other universities (either in Saudi Arabia or international) according to the European standard, meaning that the acknowledgement should primarily be based upon the acquired skills and competences of students.

The peers noticed that studying abroad is just starting to become a significant issue in Saudi Arabia. The students expressed their interest in studying abroad, which should be supported by the college and the university. The peers pointed out that the theoretical option to study abroad at other HEIs ("mobility window") should be put into practice by establishing exchange agreements with foreign universities and by actively promoting the possibility to study abroad (e.g., External Joint Supervision Program for Female demonstrator which is a special system for women in Saudi Arabia since 1994 including part time scholarships). The peers pointed out that fostering the English language competences of the students is essential in order to promote study abroad possibilities (see criterion 1.3).

Criterion 2.2 Workload and credits

Evidence:

- Respective Chapter of the SAR
- Study plans as publicly available on the internet (access on October 13th 2016):
    - B.Ed. Physics: https://www.mu.edu.sa/sites/default/files/content/2016/09/Physics%20Program%20Study%20Plan_1.pdf
    - B.Ed. Mathematics: https://www.mu.edu.sa/en/colleges/college-education-zulfi/study-plan-8
    - B.Ed. Chemistry: https://docs.google.com/viewerng/viewer?url=http://mu.edu.sa/sites/default/files/field/plan_0.pdf
    - https://www.mu.edu.sa/sites/default/files/content/2016/11/Chemistry%20program%20study%20plan%20new%20version%202016.pdf
- Module handbook (here: "Courses Handbook" or "Courses Specification") (access on October 13th 2016):
    - B.Ed. Physics: https://www.mu.edu.sa/sites/default/files/content/2016/11/Module%20Handbook%20of%20B.Ed_.%20in%20Physics%20program.pdf
    - B.Ed. Mathematics: https://www.mu.edu.sa/en/colleges/college-education-zulfi/course-specification

  - B.Ed. Chemistry: https://www.mu.edu.sa/sites/default/files/content/2016/02/module%20hand%20book.pdf

- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
The credit hour system, used in the Saudi Arabian higher education system is primarily based on the attendance time of students, not on their actual workload which would have to include also the working hours of private self study. As a rule, the modules are allocated 1 to 6 Saudi Arabian credit hours. In principle, one credit hour is awarded for 1 hour of lectures or – though not always – 2 hours of tutorials / labs. Per semester 18 credit points are awarded in the Bachelor's degree programmes under review. Each semester lasts 17 weeks, including two weeks reserved for exams.

As the credit hour system only encompasses the presence hours of students without referring to (additional) students' self-study, it is virtually incomparable to the European Credit Transfer System (ECTS). It is therefore laudable that the programme coordinators have transferred the credit hours allocated to the courses into the ECTS in an effort to plausibly indicate the actual workload students have to spend for each course. Unfortunately, in doing this, a series of figures in the conversion tables is incorrect or inconsistent. Thus, in purely arithmetical terms the resulting workload of the courses does not only differ across all programmes. But there are also significant discrepancies that aren't self-explaining (cf. table 3.2 in the chemistry self-assessment report; table 2.1 in the physics self-assessment report and the document "workload table", table 3.2.a in the mathematics self-assessment report). It is perfectly well comprehensible, to assume a considerably higher number of student working hours for subject-specific courses despite the same number of credit hours as others. Converted into the ECTS, this nevertheless would normally result in a higher number of ECTS. In turn, the attribution of ECTS staying almost the same, despite expecting a higher student workload, results in a varying workload / ECTS. Utilization of the European Credit Point System would then inevitably become blurred and unreliable, since the allocation of the same number of credit points would rather hide the assumed divergence in the underlying workload. These peculiarities might be attributed to some extent to Saudi Arabian universities not being accustomed to use the ECTS. As a consequence, it seems advisable to revise the conversion of credit hours into the ECTS. Henceforth, it will be of major importance to foster an understanding of the differences between the Saudi Arabian credit hour system and the ECTS among lecturers as well as students. Otherwise, a conversion scheme will basically prove futile with respect to the idea of raising the awareness of the *learner perspective* in developing and conducting degree programmes, which is the underlying premise of the ECTS.

Notwithstanding the above stated inconsistencies, for the time being the overall student workload seems to be calculated realistically and in a way that avoids structure-related peaks in the workload, as the students principally confirmed in their oral statements.

Criterion 2.3 Teaching methodology

Evidence:

- Respective Chapter of the SAR
- Teacher's Quality Manual : https://www.mu.edu.sa/sites/default/files/1/Zulfi/maths/Teacher%e2%80%99s%20Quality%20Manual.pdf
- Module handbook (here: "Courses Handbook" or "Courses Specification") (access on October 13th 2016):
    - B.Ed. Physics: https://www.mu.edu.sa/sites/default/files/content/2016/11/Module%20Handbook%20of%20B.Ed_.%20in%20Physics%20program.pdf
    - B.Ed. Mathematics: https://www.mu.edu.sa/en/colleges/college-education-zulfi/course-specification
    - B.Ed. Chemistry: https://www.mu.edu.sa/sites/default/files/content/2016/02/module%20hand%20book.pdf
- Onsite discussions with programme coordinators, teaching staff and students

Preliminary assessment and analysis of the peers:

In general, the teaching methods in use were deemed appropriate to support the attainment of the intended learning objectives. Moreover, it is particularly laudable that programme coordinators and teaching staff are well aware of the connection between intended learning outcomes and the teaching methods referred to for that purpose. Thus, it could be observed that a range of didactical methods is applied in order to make sure that the intended learning outcomes are achieved by the students, as, e.g., lectures, classroom and laboratory exercises, assignments, project work, blended learning and seminars. Nevertheless, it seems that teacher-centered teaching is the main didactic teaching method. The peers recommended to include more active learning and problem solving tasks, especially because graduates mainly become school teachers or teaching assistants and will apply experienced teaching methods. This aspect is of major importance also regarding above mentioned missing impartation of pedagogical content knowledge, which addresses how to teach subject related content (see criterion 1.3).

The peers assessed that the curricula of the Bachelor's degree programmes Physics and Chemistry do not include a final project/graduation project (Bachelor thesis). According to

the ASIIN criteria each degree programme must comprise a thesis/dissertation or final project which ensures that students work on a given research task independently and at the level (Bachelor) aimed for. The Bachelor's degree programme in Mathematics includes a final project called "Research Project"; however from the course description and one sample of project work peers inspected during the onsite visit, they cannot finally assess whether these projects correspond to the international standards on scientific research work at Bachelor's level in terms of subject, depth of study and volume. Referring to the general degree programmes objective that "graduates should be able to contribute to academic scientific research", the peers pointed out to the university that all three programmes, first and foremost, should encompass a Bachelor thesis or a capstone project, wherein the individual student proves that she is capable to carry out an assigned research task independently and at the Bachelor level of qualification. This qualification would have to be accompanied by the student's ability to describe, explain and solve a discipline-related problem before an expert audience. For this purpose the "Research Project" of the degree programme in Mathematics should be revised as well. Since the final project/graduation project (Bachelor thesis) should be placed at the end of the degree programme, the peers couldn't identify any learning unit or teaching form prior to the graduation work appropriately *preparing* students to carry out a scientific task independently and thus encouraging scientific self study. This might, for instance be achieved through implementing an additional seminar in an earlier stage of the study plan. Yet other didactical concepts pursuing this aim are conceivable as well.

Criterion 2.4 Support and assistance

Evidence:

- Respective chapter of the SAR
- Student Affairs (access on October 13th 2016): https://www.mu.edu.sa/en/colleges/college-education-zulfi/units-vice-deanship-students-affairs
- Discussions with students and teaching staff

Preliminary assessment and analysis of the peers:

The peers acknowledged that there are sufficient resources to guarantee support and counselling for students (e.g., tutors, student advisers, psychologist, study coordinators, teaching staff and career service). Both, the staff and the students seemed highly involved in the academic activities, and good relationships evidently exist between students and staff. Reportedly, the teaching staff is highly responsive towards the students' needs and complaints as well.

Highly appreciable are the various student guides and student affairs units mostly available on the internet, they were considered a helpful and instructive source of student information.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 2:

2.1./2.2

The departments provided statistical data on student progression rates (intake and graduates) as well as an explanation on the reasons for exceeding the regular study duration. The student progression in the Chemistry study programme is considered adequate while the progression rate in the Mathematics degree programme is rather low. The Academic Advisory Committee provided collected data on the reasons - namely social conditions, registration for less than 18 hours per semester as they want to have more time for the courses as well as weaker students who need in general more time to complete their studies. As the peers do not have any evidence that the exceeding of the regular study duration is due to structure-related peaks in the workload the peers found the above stated reasons plausible. Nevertheless, they still recommended to monitor the allocation of credit points on a regular basis in order to take appropriate measures, if necessary (see also criterion 6).

The peers reaffirm their recommendation with regard to the establishment of exchange agreements with foreign universities. In addition, students should be proactively informed about the opportunities to complete a period of professional practice or a stay at a different higher education institution without any prolongation of the studies. In the course of reaccreditation it should be assessed whether these recommendation have been put into practice.

2.3

The peers uphold their recommendation that students' ability to teach should be enhanced (e.g. active learning and problem solving tasks tailored to the needs of primary, intermediate and secondary teachers) through adequate didactical means.

Concerning the graduation project the peers acknowledged that the programme coordinators of the Bachelor's degree programmes Physics and Chemistry requested the modification of the study plan in order to include a final project. As the final approval of the University Council is pending the peers uphold the respective requirement. The fulfilment of this requirement might be proven by handing in an approved study plan together with a module descriptions as well as guidelines for the project work. Despite the fact that the Bachelor's degree programme Mathematics already includes a final research project the peers could

not finally assess whether these projects correspond to the international standards on scientific research work at Bachelor's level in terms of subject, depth of study and volume as the project handbook was not handed in. Therefore, within the course of the fulfillment of requirements a module descriptions as well as guidelines/ project handbook should be handed in. The peers positively acknowledged for the Mathematics degree programme that two seminars are held to prepare students for the final project as well as to prepare them to participate in forums, workshops and conferences.

The peers assessed this criterion to be partly fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Respective chapter of the SAR
- Guide of the Evaluation and Measurement Unit for Tests (access on October 13th 2016): https://www.mu.edu.sa/sites/default/files/content/2016/09/MU03%20Evaluation%20and%20Measurment%20Guide.pdf
- Laws of Undergraduate Study and Examinations and Majmaah University Implementation Rules", Articles 2 to 4 (access on October 13th 2016): https://www.mu.edu.sa/sites/default/files/content/2016/09/MU09%20%20%20%20Laws%20of%20Undergraduate%20Study%20and%20Examinations%20And%20Majmaah%20University%20Implementation%20Rules%20%20.pdf
- Module handbook (here: "Courses Handbook" or "Courses Specification") (access on October 13th 2016):
    - B.Ed. Physics: https://www.mu.edu.sa/sites/default/files/content/2016/11/Module%20Handbook%20of%20B.Ed .%20in%20Physics%20program.pdf
    - B.Ed. Mathematics: https://www.mu.edu.sa/en/colleges/college-education-zulfi/course-specification
    - B.Ed. Chemistry: https://www.mu.edu.sa/sites/default/files/content/2016/02/module%20hand%20book.pdf
- Audit talks with programme coordinators, teaching staff and students

Preliminary assessment and analysis of the peers:

First of all, it is highly appreciable that the College of Education apparently cares a lot about the interdependency between the formulation of viable learning outcomes for the different courses, the teaching staff's deliberate decision about appropriate teaching methods to achieve these objectives and the well-thought-out selection of assessment methods fit to measure the students' achievement of the indented learning outcomes. This interrelation is reflected in the various teaching guides/manuals and, consequently, has been included in the course descriptions. Therefore, programme coordinators and teaching staff are obviously aware of the necessary interplay between learning outcomes on the one side and assessment tools on the other. It therefore comes to no surprise that apparently a range of different assessment methods are in use. The university defined the practice of continuous assessment. The examination methods include, depending on the subject and the expected module learning outcomes, a mix of mid-term and final examinations, laboratory works, subject-specific assignments and projects. Notwithstanding, the amount of written examinations reflects that students mostly learn by heart. Considering this, the prevalence of written assessments and the fact that there are no oral assessments, the peers questioned whether the assessment strategy adequately prepares students for their future careers as school teachers, teaching assistants or scientist, where in particular the ability to communicate and teach is required. In other words, the peers recommended to enhance students' ability to communicate and teach by choosing competence-oriented examination methods like oral examination or presentations.

The examination practice in place is clearly and transparently described in the course descriptions, including the examination forms, the different weighting of the examination parts as well as the calculation of the final grade. Regarding the weighting of the examinations the students heavily complaint about the 60% weight of the final exam. The majority of the students considered the weighting of 60% as too high compared to the overall course workload and in consideration of the different learning skills of the students. The peers took note of these complaints and advised the college/university to reconsider the weighting of the examinations.

The relevant rules for examination and evaluation criteria including re-sits, disability compensation measures, illness and other mitigating circumstances are transparently put into a legal framework, as both students and lecturers confirmed in the onsite discussions. On request, students described the organization of examinations as appropriate and responsive to their needs. This judgment explicitly included the possibility of retaking examinations (three times) and the accompanying counselling through the teaching staff. In sum, the discussions with students and lecturers confirmed the impression that the organization

of exams which is carried out by the examination unit is supportive regarding the achievement of the study objectives and in terms of completing studies within the standard period of study.

During the visit, the panel analyzed a number of exam papers and gained the impression that the academic level was adequate.

The lack of a final project/graduation project (Bachelor thesis) where students can proof their ability to work on a set research task independently and at the level (Bachelor) aimed for was already discussed in criterion 2.3.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 3:

The HEI did not comment on criterion 3. Therefore, peers uphold their recommendation to further develop the examination methods in order to enhance students' ability to communicate and teach.

4. Resources

Criterion 4.1 Staff

Evidence:

- Respective chapter in the SAR
- Staff handbook (Annexes); also available on the internet (access on October 13th 2016):
    - B.Ed. in Physics: https://www.mu.edu.sa/en/colleges/college-education-zulfi/physics-0
    - B.Ed. in Chemistry: https://www.mu.edu.sa/en/colleges/college-education-zulfi/department-staff-12
- List of and information about research projects in the staff handbook
- Audit discussions with rectorate, programme coordinators and teaching staff

Preliminary assessment and analysis of the peers:

In principle, the information about the departments' teaching staff available for the Bachelor's programmes is considered sufficient to assess whether the staff does have adequate

qualification and experience in teaching in order to run the programmes and to offer the qualification sought. In the follow-up of the onsite visit the programme coordinators made information available about the teaching staff of the college which is responsible to deliver the educational contents of the degree programmes under review. However, the information published on the respective programme websites differ from the information provided for the accreditation procedure, and in addition, is incomplete on the English websites. Therefore, the peers suggested to harmonize the information provided and to include information on the college staff members for the purpose of transparency. Despite these inconsistencies in the documentation the peers all in all judged the competence, composition and range of staff resources as suitable to conduct the study programmes. Overall, the teaching staff's fields of expertise are supportive to the structure and content of these programmes. Nevertheless, in view of the fact that the degree programmes aim to train future school teachers or teaching assistants at universities, the staff expertise in the field of *pedagogical content knowledge* (see also criterion 1.3, 2.3) should be enhanced.

Despite the university's efforts to broaden its scientific/research basis, committee work, teaching duties, and student counseling result in a high workload for the teaching staff. This leads to time restrictions on research activities. Consequently, it generally affects the research strength of the departments and the College itself. Nevertheless, the level and quality of the degree programmes very much depend on the research basis of the College of Education and its teaching staff. As research-oriented work is among the best methods to train the capacity of creating new ideas and of solving scientific problems independently, the quality of teaching in the study programmes would highly benefit from the further development of the research capacity of College of Education. Therefore, the peers encouraged the university to further support the teaching staff in conducting research by providing adequate institutional support. In addition, it is recommended to also strengthen the research activities in the field of educational science as well as on teaching and learning math and science in order to foster the adaptability of the programmes and the competences of students.

Though acknowledging the already ongoing research activities of individual professors, the peers welcomed and strongly encouraged the College's strategy to follow this path and broaden those activities. One way to achieve this is through deepening the cooperation of the College and the university with other universities in Saudi Arabia and abroad. Fostering the English language competences would be essential in order to conduct further research activities.

Criterion 4.2 Staff development

Evidence:

- Respective information in the SAR
- Capacity development offers / Further education
- Audit discussions with the teaching staff

Preliminary assessment and analysis of the peers:
Notwithstanding the above remarks about research opportunities, the peers found that the teaching staff of the College of Education has opportunities for further developing their professional and teaching skills (e.g. workshops on e-learning, measurement and assessment, how to plan teaching, learning outcomes and teaching methods) and that the teaching staff uses these opportunities frequently and on a regular basis. They highly appreciated the great attention, the College and its departments respectively, devoted to both the teaching and professional skills of the staff.

The peers observed that English language competences of the teaching staff could be improved in order to maintain competitiveness and to foster international research activities. The peers acknowledged the self initiative of the departments to improve English language competences of their teaching staff, but suggested that the university/college should support them somewhat more by for example offering English language courses provided by the English language department, especially in the light of the peers' recommendation to increase the English language competences of the students (see criterion 1.3).

Criterion 4.3 Funds and equipment

Evidence:

- Respective chapter of the SAR
- Special reports about the facilities and laboratories of the departments
- Onsite inspection of the facilities and laboratories of the College of Education
- Audit discussions with the rectorate, programme coordinators, teaching staff and students

Preliminary assessment and analysis of the peers:
The institutional organization of the College of Education and its departments, the organizational processes and available resources satisfactorily support the attainment of the objectives of the degree programmes under review.

Both the teaching staff and the students are satisfied with the amount and quality of rooms, laboratories (5 Physics and 3 Chemistry labs), Mathematical software (Matlab and Mathematica), equipment, online access on discipline-related data bases and literature and IT infrastructure. During the visit of the departments and their facilities the peers convinced

themselves of the modern and comprehensive resources in working rooms, laboratories and equipment. In particular, they noticed the very good state of the laboratories including safety rules and instructions as well as the awarded OSHA certifications. The peers advised the academic staff responsible for the labs to include in their documentation of accidents the date when the accident happened as well a short description of what happened.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 4:

The HEI did not comment on criterion 4. Therefore, peers uphold their above mentioned recommendations to a) intensify the support of the teaching staff in conducting research in general and especially in the field of educational science in order to foster the adaptability of the programmes and the competences of students and b) enhance the staff expertise in the field of *pedagogical content knowledge.*

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Module handbook (here: "Courses Handbook" or "Courses Specification") (access on October 13th 2016):
    - B.Ed. Physics: https://www.mu.edu.sa/sites/default/files/content/2016/11/Module%20Handbook%20of%20B.Ed_.%20in%20Physics%20program.pdf
    - B.Ed. Mathematics: https://www.mu.edu.sa/en/colleges/college-education-zulfi/course-specification
    - B.Ed. Chemistry: https://www.mu.edu.sa/sites/default/files/content/2016/02/module%20hand%20book.pdf

Preliminary assessment and analysis of the peers:
The peers noted that the module descriptions are, in principle, available online to the relevant stakeholders, as students and teachers. However, as they already mentioned above (see criterion 1.3) all module/course descriptions including the educational courses and university electives should be made transparent on the respective websites and in the module handbooks. Overall, the module descriptions were considered encompassing and altogether adequate to describe the intended learning outcomes as well as the content of the respective courses.

The peers identified some copy and paste errors; moreover occasional inconsistencies or confusion of numbers and data were observed. Sometimes learning outcomes of modules were formulated rather generic and not in a competence-oriented way. As an example learning outcomes 6 (Distinguish between mathematical concepts) and 7 (Contact her class mates) of the module descriptions "Calculus 1 and 2" can be mentioned or the very generic description of knowledge gained ("gives the students a wide look…") in the course "Nuclear Physics 1". In addition, the educational courses which are programme-specific (e.g. "Teaching Strategies"; "Modern Trends in Teaching Strategy") should be revised in terms of programme-specific learning outcomes and content (see also criterion 1.3).

During the onsite visit the peers received module descriptions based on the NCAAA template which give very detailed information on the teaching as well as assessment methods. The peers encouraged the programme coordinators to publish these very informative module descriptions and to further use them for accreditation procedures.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Programme specific samples of the Diploma Supplement for all degree programmes under review

Preliminary assessment and analysis of the peers:
The departments have provided programme-specific samples of the Diploma Supplement that are tailored according to the one commonly in use in the European Higher Education Area (EHEA). The sample of the Chemistry programme contains information about the study objectives, the intended learning outcomes ("qualification profile"), the structure, level, content and status of the studies as well as the respective workload of students. The Diploma Supplement of the Bachelor's degree programme Mathematics lacks the intended learning outcomes and the sample of the Physics degree programme lacks the study objectives as well as the intended learning outcomes. The Diploma Supplement of the Bachelor's degree programmes Physics includes information on the national Higher Education system, which – though referred to under chapter 8 – is missing in the sample for the Mathematics and Chemistry programme. Regarding this, it is assumed that this attachment is normally added. The peers therefore regarded it dispensable to ask for the revised Diploma Supplement of the Bachelor's degree programmes with that missing content added. After the revision of the educational objectives/learning outcomes in terms of the academic, subject-specific and professional classification of the qualifications gained in the degree programmes (see criterion 1.1) the information in the Diploma Supplements should be adapted as well.

With the Diploma Supplement conveyed to the graduates on a regular basis along with the final documents, potential stakeholders outside the university (potential employers or other HEIs, national and international, for instance) are able to assess and compare the individual final grade of graduates.

Criterion 5.3 Relevant rules

Evidence:

- Saudi Universities Act no. (M/8)/ 1414) (2685/23), 1994 (access on October 13th 2016): https://www.mu.edu.sa/sites/default/files/content/2016/09/The%20Statue%20of%20the%20Higher.compressed.pdf
- Laws of Undergraduate Study and Examinations and Majmaah University Implementation Rules" (access on October 13th 2016): https://www.mu.edu.sa/sites/default/files/content/2016/09/MU09%20%20%20%20Laws%20of%20Undergraduate%20Study%20and%20Examinations%20And%20Majmaah%20University%20Implementation%20Rules%20%20.pdf

- The Statute of the Council of the Higher Education and Universities; available on the internet (access on October 13th 2016): https://www.mu.edu.sa/sites/default/files/content/2016/09/The%20Statue%20of%20the%20Higher.compressed.pdf

Preliminary assessment and analysis of the peers:
The regulations for study-relevant issues are in place and made available. These regulations include all the information necessary about the admission, courses and completion of the degree.

It has been noticed that some information about the programmes are inconsistent in the manifold documents which have been made available in printed form, and have also been published on the internet. University and departments should therefore consider reducing the range of documents relating to essentially the same pieces of information, so as to simplify keeping the information universally up to date. Furthermore many links provided to appendices either weren't working nor formulated in a programme-specific way as they referred to the Bachelor of Science programmes at the male campus in Zulfi.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 5:

5.1

The peers acknowledged that the module descriptions of the educational courses included in the module handbook of the Physics degree programme have been modified in terms of content taught.

Nevertheless, the module descriptions of all programmes should be revised according to the above mentioned aspects (see also criterion 1.3). In term of transparency, each programme-specific module handbook as well as the respective programme websites should include the educational courses as well as the university electives, so that students and other stakeholders may refer to them. Therefore, the peers uphold their requirement regarding the revision of the module description for each study programme.

5.2

The additionally handed in Diploma Supplement of the Bachelor's degree programme Chemistry now includes all relevant aspects as well as the revised educational objectives/learning outcomes.

The Diploma Supplement of the Bachelor's degree programme Physics now includes the educational objectives and intended learning outcomes, however they refer to students on

the male instead of on the female campus. The Diploma Supplement of the Bachelor's degree programme Mathematics still lacks the intended learning outcomes. However, as the educational objectives/intended learning outcomes should be revised anyway (see criterion 1.1) the department may hand in a revised Diploma Supplement in the course of the fulfilment of requirements.

5.3.

The programme coordinators received the revised study plan for the Bachelor's degree programme Chemistry, however on the following website the "old" version is still published: https://www.mu.edu.sa/sites/default/files/content-files/chemistry%20plan.pdf

In terms of consistency and transparency this document should be revised with regard to a unified layout, a brief and precise descriptions, consistent presentation of numbers (sometimes written in Arabic in the English version and vice versa), complete tables (see p. 33-35) which should include course name, course symbol, course number, credit hours, actual hours and prerequisite courses. Furthermore, the peers suggested to provide a separate English and Arabic version in order to avoid inconstancies. In addition, the department manual is not published on the website. The peers repeated their advice to update and reduce the range of documents relating to essentially the same pieces of information, so as to simplify keeping the information universally up to date.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- Respective chapter of the SAR
- Quality guide
- Guide of the Evaluation and Measurement Unit for Tests
- Teacher's Quality Manual : https://www.mu.edu.sa/sites/default/files/1/Zulfi/maths/Teacher%e2%80%99s%20Quality%20Manual.pdf
- Quality Manual: https://www.mu.edu.sa/sites/default/files/1/Zulfi/physics/ZCS_11_Effective_Planning_Principles.pdf
- Audit discussion with the involved parties

Preliminary assessment and analysis of the peers:
Regarding the material presented in the SAR, the College of Education and the departments responsible for the study programmes pay much attention to all relevant aspects of quality assurance. In the first place, this commitment may be attributed to institutional as well as programme-related accreditation procedures the university and its institutional sub-units have undergone. The SAR in itself is pervaded with references to quality assurance, thus reflecting an understanding of quality assurance which is incorporated to the point of the departmental organization with its multiple committees as constitutive actors. Continuous assessment aiming at identifying strengths and weaknesses with respect to individual dimensions of quality as well as measuring the effectiveness of steering activities confirm a conscious utilization of the quality assurance approach.

Obviously, the College and the departments have put in place a number of quality assurance measures. Students and teaching staff confirmed that the diverse evaluation tools have proved to be effective elements of quality assurance. Students, for instance, reported on measures concerning the improvement of teaching and learning conditions and modifications in study or module content that had been initiated through critical comments of students in the course of evaluations. At this point, the students' participation and active involvement in developing and conducting the quality assurance of the programmes is particularly laudable. On general, the means for quality assurance have been found useful as a reliable benchmark for substantially checking whether the intended objectives are achievable and reasonable, and for identifying any failure in achieving those objectives.

Several surveys were carried out among students to encompass certain aspects of teaching and learning. However, as mentioned in criterion 2.2 the credit point system is not oriented towards the amount of work required from students, in consequence the overall student workload is not assessed. The peers commented that in light of the quality assurance and student progression the instrument of monitoring the workload of the students is very useful. Therefore, the peers recommended to monitor the allocation of credit points as a measure of the actual student workload on a routine basis so as to impose corrections, if necessary (see criterion 2.2).

Overall, the panel judged the Quality Assurance System to be very sophisticated and to incorporate relevant processes for the successful implementation and development of the programmes. Solely, the rather poor employment records of graduates raised concerns about either the responsiveness of the programmes to the job market or the employability of the graduates. However, the programme coordinators convincingly explained that the reasons for these results are the rather limited job opportunities for female graduates in the Zulfi area and that the job market for teachers/teaching assistants is saturated. Since

the reasons are not in the range of the university's responsibility the peers didn't require the university to take action on this matter.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:

The HEI did not comment on criterion 6. Therefore, peers uphold their recommendation to monitor the allocation of credit points on a regular basis in order to take appropriate measures, if necessary (see also criterion 2.2).

D Additional Documents

Before preparing their final assessment, the panel asks that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

D1. (Criterion 2.1) Explanation on what might be the reasons for exceeding the regular study duration.
D2. (Criterion 2.1) Departments of Mathematics and Chemistry: statistical data on student progression (intake and graduates) equivalent to the information provided by the Physics department.
D3. (Criterion 5.2) Samples of Diploma Supplements revised according to the report
D4. B.Ed. in Physics: Internet link to the module handbook of the B.Ed. in Physics
D5. B.Ed. Mathematics: Electronic version of the table “Learning outcomes according to NCAAA”
D6. B.Ed. Mathematics: Internet links to the main programme objectives/learning outcomes
D7. B.Ed. Chemistry: Study plan including the number of the credit hours of each course as well as if it has a combined tutorial or lab (compared to the study plans of the Mathematics and Physics programmes

E Comment of the Higher Education Institution (07.11.2016)

The institution provided a detailed statement as well as the following additional documents:

1. (Criterion 2.1) Departments of Mathematics and Chemistry: statistical data on student progression (intake and graduates)
2. (Criterion 5.2) Samples of Diploma Supplements revised according to the report
3. B.Ed. Mathematics: Electronic version of the table “Learning outcomes according to NCAAA”
4. B.Ed. Chemistry: Study plan including the number of the credit hours of each course as well as if it has a combined tutorial or lab

F Summary: Peer recommendations (14.11.2016)

Taking into account the additional information and the comments given by HEI the peers summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditaiton
B.Ed. Mathematics	With requirements	-	30.09.2022
B.Ed. Physics	With requirements	-	30.09.2022
B.Ed. Chemistry	With requirements	-	30.09.2022

Requirements

For the degree programmes Physics and Mathematics

A 1. (ASIIN 1.1) Draft the educational objectives/learning outcomes so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree programmes. Make the revised qualification objectives accessible for all relevant stakeholders (e.g. Diploma Supplement, student handbook, programme-specific websites) and ensure that the stakeholders can refer to them.

For all degree programmes:

A 2. (ASIIN 3) The programme must encompass a Bachelor thesis or a capstone project including a written thesis comparable to international standards, wherein the student proves that she is capable to carry out an assigned research task independently and at the Bachelor level of qualification.

A 3. (ASIIN 5.1) Rewrite the module descriptions so as to include more specific information about the content, and qualification objectives/learning outcomes (compare respective paragraph in the report). Make the latest version of the module descriptions accessible for students and teaching staff.

Recommendations

For all degree programmes:

E 1. (ASIIN 1.3) It is highly recommended to strengthen the competences of the students in the field of *pedagogical content knowledge* and teaching practice.

E 2. (ASIIN 2.1) It is highly recommended to establish exchange agreements with foreign universities and to proactively inform the students about the opportunities to complete a period of professional practice or a stay at a different higher education institution without any prolongation of the studies.

E 3. (ASIIN 1.3, 4.2) It is recommended to improve English language competences of staff members and students.

E 4. (ASIIN 2.3) It is recommended to enhance students' ability to teach through adequate didactical means.

E 5. (ASIIN 3) It is recommended to further develop the examination methods in order to enhance students' ability to communicate and teach.

E 6. (ASIIN 4.1, 4.2) It is recommended to enhance the staff expertise in the field of *pedagogical content knowledge.*

E 7. (ASIIN 4.1, 4.2) It is recommended to support teaching staff in conducting research in general and especially in the field of educational science in order to foster the adaptability of the programmes and the competences of students.

E 8. (ASIIN 2.2; 6) It is recommended to monitor the allocation of credit points on a regular basis in order to take appropriate measures, if necessary.

G Comment of the Technical Committees

Technical Committee 09 - Chemistry (28.11.2016)

Assessment and analysis for the award of the ASIIN seal:

In summary, the report shows the typical weak points of other accreditation procedures in Saudi-Arabia. The Technical Committee holds the opinion that it is important for women in Saudi-Arabia to be able to study at a university and to take up a profession in the educational sector. The Technical Committee agrees with the suggestions of the peer panel.

The technical committee 09 – Chemistry recommends the award of the seals as follows:

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
B.Ed. Chemistry	With requirements	-	30.09.2022

Technical Committee 12 – Mathematics (18.11.2016)

Assessment and analysis for the award of the ASIIN seal:

The technical committee discusses the procedure and follows the proposal for a decision of the peer panel in all aspects.

The technical committee 12 – Mathematics recommends the award of the seals as follows:

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
B.Ed. Mathematics	With requirements	-	30.09.2022

Technical Committee 13 – Physics (22.11.2016)

Assessment and analysis for the award of the ASIIN seal:

The technical committee discusses the procedure. It follows the proposal for a decision of the peers in all aspects.

The technical committee 13 – Physics recommends the award of the seals as follows:

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
B.Ed. Physics	With requirements	-	30.09.2022

Requirements

For the degree programmes Physics and Mathematics

A 1. (ASIIN 1.1) Draft the educational objectives/learning outcomes so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree programmes. Make the revised qualification objectives accessible for all relevant stakeholders (e.g. Diploma Supplement, student handbook, programme-specific websites) and ensure that the stakeholders can refer to them.

For all degree programmes:

A 2. (ASIIN 3) The programme must encompass a Bachelor thesis or a capstone project including a written thesis comparable to international standards, wherein the student proves that she is capable to carry out an assigned research task independently and at the Bachelor level of qualification.

A 3. (ASIIN 5.1) Rewrite the module descriptions so as to include more specific information about the content, and qualification objectives/learning outcomes (compare respective paragraph in the report). Make the latest version of the module descriptions accessible for students and teaching staff.

Recommendations

For all degree programmes:

E 1. (ASIIN 1.3) It is highly recommended to strengthen the competences of the students in the field of *pedagogical content knowledge* and teaching practice.

E 2. (ASIIN 2.1) It is highly recommended to establish exchange agreements with foreign universities and to proactively inform the students about the opportunities to complete a period of professional practice or a stay at a different higher education institution without any prolongation of the studies.

E 3. (ASIIN 1.3, 4.2) It is recommended to improve English language competences of staff members and students.

E 4. (ASIIN 2.3) It is recommended to enhance students' ability to teach through adequate didactical means.

E 5. (ASIIN 3) It is recommended to further develop the examination methods in order to enhance students' ability to communicate and teach.

E 6. (ASIIN 4.1, 4.2) It is recommended to enhance the staff expertise in the field of *pedagogical content knowledge.*

E 7. (ASIIN 4.1, 4.2) It is recommended to support teaching staff in conducting research in general and especially in the field of educational science in order to foster the adaptability of the programmes and the competences of students.

E 8. (ASIIN 2.2; 6) It is recommended to monitor the allocation of credit points on a regular basis in order to take appropriate measures, if necessary.

H Decision of the Accreditation Commission (09.12.2016)

Assessment and analysis for the award of the ASIIN seal:

The Accreditation Commission for Degree Programmes discusses about the procedure, especially about the students` workload and the importance of subject specific didactics in the different degree programmes. It finally decides to follow the suggestions of the peers and the involved Technical Committees and leaves the requirements and recommendations unchanged.

The Accreditation Commission for Degree Programmes decides to award the following seals:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
B.Ed. Mathematics	With requirements for one year	n.a.	30.09.2022
B.Ed. Physics	With requirements for one year	n.a.	30.09.2022
B.Ed. Chemistry	With requirements for one year	n.a.	30.09.2022

Requirements

For the degree programmes Physics and Mathematics

A 1. (ASIIN 1.1) Draft the educational objectives/learning outcomes so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree programmes. Make the revised qualification objectives accessible for all relevant stakeholders (e.g. Diploma Supplement, student handbook, programme-specific websites) and ensure that the stakeholders can refer to them.

For all degree programmes:

A 2. (ASIIN 3) The programme must encompass a Bachelor thesis or a capstone project including a written thesis comparable to international standards, wherein the student proves that she is capable to carry out an assigned research task independently and at the Bachelor level of qualification.

A 3. (ASIIN 5.1) Rewrite the module descriptions so as to include more specific information about the content, and qualification objectives/learning outcomes (compare respective paragraph in the report). Make the latest version of the module descriptions accessible for students and teaching staff.

Recommendations

For all degree programmes:

E 1. (ASIIN 1.3) It is highly recommended to strengthen the competences of the students in the field of *pedagogical content knowledge* and teaching practice.

E 2. (ASIIN 2.1) It is highly recommended to establish exchange agreements with foreign universities and to proactively inform the students about the opportunities to complete a period of professional practice or a stay at a different higher education institution without any prolongation of the studies.

E 3. (ASIIN 1.3, 4.2) It is recommended to improve English language competences of staff members and students.

E 4. (ASIIN 2.3) It is recommended to enhance students' ability to teach through adequate didactical means.

E 5. (ASIIN 3) It is recommended to further develop the examination methods in order to enhance students' ability to communicate and teach.

E 6. (ASIIN 4.1, 4.2) It is recommended to enhance the staff expertise in the field of *pedagogical content knowledge.*

E 7. (ASIIN 4.1, 4.2) It is recommended to support teaching staff in conducting research in general and especially in the field of educational science in order to foster the adaptability of the programmes and the competences of students.

E 8. (ASIIN 2.2; 6) It is recommended to monitor the allocation of credit points on a regular basis in order to take appropriate measures, if necessary.

I Fulfilment of Requirements (08.12.2017)

Analysis of the peers and the Technical Committees (29.11.2017)

Requirements

For the degree programmes Physics and Mathematics

A 1. (ASIIN 1.1) Draft the educational objectives/learning outcomes so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree programmes. Make the revised qualification objectives accessible for all relevant stakeholders (e.g. Diploma Supplement, student handbook, programme-specific websites) and ensure that the stakeholders can refer to them.

Initial Treatment	
Peers	**Fulfilled** Justification: The peers confirm that the Diploma Supplements for both programmes are available on the university's website. The DS include the educational objectives/learning outcomes for the degree programme and fulfill the required specification of academic, subject-specific and professional classification. Moreover, for Physics the objective matrix is online available. For Mathematics is in addition a comprehensive Academic Guidance Handbook as well as a program handbook available which also includes the objective and learning outcomes and other very detailed and useful information.
TC 09	**Fulfilled** Justification: The Technical Committee follows the assessment of the peers.
TC 12	**Fulfilled** Justification: The Technical Committee takes the documentation on the fulfillment of the requirements into consideration and follows the assessment of the peers to consider the requirements as fulfilled.
TC 13	**Fulfilled** Justification: The technical committee follows the proposal for a decision of the peers and assesses requirement 1 to be fulfilled.

For all degree programmes

A 2. (ASIIN 3) The programme must encompass a Bachelor thesis or a capstone project including a written thesis comparable to international standards, wherein the student proves that she is capable to carry out an assigned research task independently and at the Bachelor level of qualification.

Initial Treatment	
Peers	**Fulfilled** Justification: The students have to compile a research project (8th semester) plus seminars (7th semester) to assist in the work of the research project. The course research project itself is a two-hour approved course at the last semester. This is the only issue, the peers raised as the ECTS points allocated to the module is only 3-4 (depending on the programme) out of 240 ECTS. However, the students workload is only one issue to be assessed, the requirements seem to be convincing. For Physics and Chemistry, other educational courses for example Principles of Educational Research (EDU217) and Production of E-learning resources (EDU317) are supposed to also prepare students to conduct a research project. For Mathematics, the university provides a very detailed and useful document “Project Research Rules and Regulations” including information on how the project is to be implemented, the criteria of evaluation and assessment etc.
TC 09	**Fulfilled** Justification: The Technical Committee discusses about requirement A2 and the regulations for the final thesis. They agree that the degree programmes now include a compulsory final thesis but they are not fully content with its scope and the relation between the actual workload and the awarded ECTS credit points. For this reason the TC suggest including a reference into the notifying letter to the HEI: “As the number of ECTS points for the Bachelor thesis or capstone project including a written thesis seems to be very low for the intended work to be done, a survey should be conducted on the actual workload in order to collect data on the (re-)allocation of ECTS points to this module. The results will be reviewed in the context of the re-accreditation.”
TC 12	**Fulfilled** Justification: The Technical Committee takes the documentation on the fulfillment of the requirements into consideration and follows the assessment of the peers to consider the requirements as fulfilled. Regarding requirement 2, the TC appreciates the efforts to implement a Bachelor thesis or a capstone project including a written

	thesis in the curricula. The committee considers the comprehensive documentation on how to conduct such a written thesis as very valuable for the students. Nevertheless, it is doubted whether the rather low number of ECTS (ca. 3) for this tasks reflects the actual workload accordingly. Thus, the TC recommends an indication in the decision letter regarding a survey on the actual workload for the Bachelor thesis or capstone project including a written thesis in order to review this issue again during the re-accreditation process: "As the number of ECTS points for the Bachelor thesis or capstone project including a written thesis seems to be very low for the intended work to be done, a survey should be conducted on the actual workload in order to collect data on the (re-)allocation of ECTS points to this module. The results will be reviewed in the context of the re-accreditation." The recommendations can only be finally assessed in the framework of the re-accreditation process as the changes which were necessary to fulfill the recommendations are comprehensive and take time.
TC 13	**Not fulfilled** Justification: Regarding requirement 2 (Bachelor Thesis) the technical committee has a different opinion: • The requirement explicitly demands a Bachelor Thesis / Capstone Project that is comparable to international standards. Against this background the estimated value of two credit hours appears much too low. • The technical committee principally agrees with the technical committee 12 – Mathematics that the actual workload may be higher than the estimated credit points. However, a reliable assessment requires information at least on the topics the bachelor theses • It remains unclear whether the research project is fully implemented. In the revised diploma supplement the section "program details" for example contains no information on the research project. • Due to those significant uncertainties the technical committee assesses requirement 2 to be not yet fulfilled.

A 3. (ASIIN 5.1) Rewrite the module descriptions so as to include more specific information about the content, and qualification objectives/learning outcomes (compare respective paragraph in the report). Make the latest version of the module descriptions accessible for students and teaching staff.

Initial Treatment	
Peers	**Fulfilled** Justification: The module descriptions have been revised and are available online.
TC 09	**Fulfilled** Justification: The Technical Committee follows the assessment of the peers.
TC 12	**Fulfilled** Justification: The Technical Committee takes the documentation on the fulfillment of the requirements into consideration and follows the assessment of the peers to consider the requirements as fulfilled.
TC 13	**Fulfilled** Justification: The technical committee follows the proposal for a decision of the peers and assesses requirement 3 to be fulfilled.

Decision of the Accreditation Commission (08.12.2017)

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
B.Ed. Chemistry	Requirement 2 not fulfilled	n.a.	6 months prolongation
B.Ed. Mathematics	Requirement 2 not fulfilled	n.a.	6 months prolongation
B.Ed. Physics	Requirement 2 not fulfilled	n.a.	6 months prolongation

J Fulfilment of Requirements (07.12.2018)

Analysis of the peers and the Technical Committees (23.11.2018)

Requirements

For the degree programmes Physics and Mathematics

For all degree programmes

A 2. (ASIIN 3) The programme must encompass a Bachelor thesis or a capstone project including a written thesis comparable to international standards, wherein the student proves that she is capable to carry out an assigned research task independently and at the Bachelor level of qualification.

Initial Treatment	
Peers	**Fulfilled** Justification: The students have to compile a research project (8th semester) plus seminars (7th semester) to assist in the work of the research project. The course research project itself is a two-hour approved course at the last semester. This is the only issue, the peers raised as the ECTS points allocated to the module is only 3-4 (depending on the programme) out of 240 ECTS. However, the students workload is only one issue to be assessed, the requirements seem to be convincing. For Physics and Chemistry, other educational courses for example Principles of Educational Research (EDU217) and Production of E-learning resources (EDU317) are supposed to also prepare students to conduct a research project. For Mathematics, the university provides a very detailed and useful document “Project Research Rules and Regulations” including information on how the project is to be implemented, the criteria of evaluation and assessment etc.
TC 09	**Fulfilled** Vote: unanimous Justification: The Technical Committee discusses about requirement A2 and the regulations for the final thesis. They agree that the degree programmes now include a compulsory final thesis

	but they are not fully content with its scope and the relation between the actual workload and the awarded ECTS credit points. For this reason the TC suggest including a reference into the notifying letter to the HEI: "As the number of ECTS points for the Bachelor thesis or capstone project including a written thesis seems to be very low for the intended work to be done, a survey should be conducted on the actual workload in order to collect data on the (re-)allocation of ECTS points to this module. The results will be reviewed in the context of the re-accreditation."
TC 12	**Fulfilled** Vote: unanimous Justification: The Technical Committee takes the documentation on the fulfillment of the requirements into consideration and follows the assessment of the peers to consider the requirements as fulfilled. Regarding requirement 2, the TC appreciates the efforts to implement a Bachelor thesis or a capstone project including a written thesis in the curricula. The committee considers the comprehensive documentation on how to conduct such a written thesis as very valuable for the students. Nevertheless, it is doubted whether the rather low number of ECTS (ca. 3) for this tasks reflects the actual workload accordingly. Thus, the TC recommends an indication in the decision letter regarding a survey on the actual workload for the Bachelor thesis or capstone project including a written thesis in order to review this issue again during the re-accreditation process: "As the number of ECTS points for the Bachelor thesis or capstone project including a written thesis seems to be very low for the intended work to be done, a survey should be conducted on the actual workload in order to collect data on the (re-)allocation of ECTS points to this module. The results will be reviewed in the context of the re-accreditation." The recommendations can only be finally assessed in the framework of the re-accreditation process as the changes which were necessary to fulfill the recommendations are comprehensive and take time.
TC 13	**Not fulfilled** Vote: unanimous Justification: Regarding requirement 2 (Bachelor Thesis) the technical committee has a different opinion: • The requirement explicitly demands a Bachelor Thesis / Capstone Project that is comparable to international standards. Against this background the estimated value of two credit hours appears much too low.

	• The technical committee principally agrees with the technical committee 12 – Mathematics that the actual workload may be higher than the estimated credit points. However, a reliable assessment requires information at least on the topics the bachelor theses • It remains unclear whether the research project is fully implemented. In the revised diploma supplement the section "program details" for example contains no information on the research project. • Due to those significant uncertainties the technical committee assesses requirement 2 to be not yet fulfilled.
AC	**Not fulfilled** Vote: unanimous Justification: The requirement explicitly demands a Bachelor Thesis / Cap-stone Project which is comparable to international standards. Against this background the estimated value of two credit hours appears too low. For Mathematics, the university provides a very detailed and useful document "Project Research Rules and Regulations" including information on how the project is to be implemented, the criteria of evaluation and assessment etc. The requirements seem to be convincing. The Accreditation Commission principally agrees with the Technical Committee 12 – Mathematics that the actual workload may be higher than the allocated 3-4 ECTS points (depending on the programme) out of 240 ECTS. However, as noted by the Technical Committee 13 – Physics, a reliable assessment of the actual workload requires information at least on the topics of the research project. Finally, it remains unclear whether the research project is fully implemented. For example, the revised Diploma Supplement does not contain information on the research project.
Second Treatment	
Peers	not fulfilled Justification: The university has not submitted any additional information and is not interested in further pursuing the procedure.
TC 09	not fulfilled The TC follows the judgement of the peers.
TC 12	not fulfilled

	The TC follows the judgement of the peers.
TC 13	not fulfilled The TC follows the judgement of the peers.

Decision of the Accreditation Commission (07.12.2018)

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
B.Ed. Chemistry	Requirement 2 not fulfilled	n.a.	Accreditation not prolonged
B.Ed. Mathematics	Requirement 2 not fulfilled	n.a.	Accreditation not prolonged
B.Ed. Physics	Requirement 2 not fulfilled	n.a.	Accreditation not prolonged

Appendix: Programme Learning Outcomes and Curricula

The following **curriculum** is presented for the **B.Ed. in Physics**:

6- Suggested distribution of courses on levels					
Levels	Course Number and Code	Course	Credit Hours	Requisites	
				Former	Simultaneous
1st Level	SALM 10*	Islamic Requisites	(2+0+0) 2	-	-
	ARAB 102	Arabic Requisites	(2+0+0) 2	-	-
	***	University Requisites	(2+0+0) 2	-	-
	EDU 116	Teaching Techniques and Communications Skills	(2+0+0) 2	-	-
	EDU 117	Fundamentals of Islamic Education	(2+0+0) 2	-	-
	EDU 118	The System and Policy of Education in KSA	(2+0+0) 2	-	-
	CHEM 111	General Chemistry (1)	(1+1+0)2	-	-
	MATH 111	Calculus (1)	(1+1+0)2	-	-
	PHYS 111	General Physics (1)	(1+1+0)2	-	-
Total			**18**		
2nd Level	**Course Number and Code**	**Course**	**Credit Hours**	**Requisites**	
				Former	**Simultaneous**
	SALM 10*	Islamic Requisites	(2+0+0) 2		-
	EDU 126	Developmental Psychology	(2+0+0) 2		-
	PHYS 121	Mathematical Physics (1)	(3+1+0)4	MATH 111	-
	PHYS 122	Classical Mechanics (1)	(2+1+0)3	PHYS 111	-
	PHYS 123	General Physics (2)	(2+1+0)3		-
	PHYS 124	Optics	(3+0+0)3		PHYS 126
	PHYS 126	Optics Lab.	(0+1+0)1		PHYS 124
Total			**18**		

	Course Number and Code	Course	Credit Hours	Requisites	
				Former	Simultaneous
3rd Level	SALM 10*	Islamic Requisites	(2+0+0) 2	-	-
	EDU 216	Psychological Health	(2+0+0) 2	EDU 126	-
	EDU 217	Principles of Educational Research	(2+0+0) 2	-	-
	PHYS 212	Mathematical Physics (2)	(2+1+0)3	PHYS 121	-
	PHYS 213	General Physics (3)	(2+1+0)3	PHYS 123	PHYS 214
	PHYS 214	Thermodynamics	(3+0+0)3		PHYS 213
	PHYS 215	Classical Mechanics (2)	(2+1+0)3	PHYS 122	
Total			**18**		

	Course Number and Code	Course	Credit Hours	Requisites	
				Former	Simultaneous
4th Level	***	University Requisites	(2+0+0) 2		-
	EDU 226	Educational Psychology	(2+0+0) 2	EDU 126	-
	PHYS 221	Mathematical Physics (3)	(2+1+0)3	PHYS 212	PHYS 223
	PHYS 222	Electricity and Magnetism (1)	(3+1+0)4	PHYS 111	-
	PHYS 223	Wave motion and Vibrations	(2+1+0)3	PHYS 121 PHYS 123	PHYS 221
	PHYS 224	Modern Physics	(3+1+0)4	PHYS 123	-
Total			**18**		

	Course Number and Code	Course	Credit Hours	Requisite	
				Former	Simultaneous
5th Level	EDU 316	Administration and Educational planning	(2+0+0) 2	-	-
	EDU 317	Production of E-learning Resources	(2+0+0) 2	EDU 116	-
	PHYS 311	Quantum Mechanics (1)	(3+0+0)3	PHYS 224	-
	PHYS 312	Electricity and Magnetism (2)	(3+1+0)4	PHYS 222	PHYS 314
	PHYS 313	Electronics (1)	(2+1+0)3		-
	PHYS 314	Electrodynamics	(3+1+0)4		PHYS 313
Total			**18**		

	Course Number and Code	Course	Credit Hours	Requisites	
				Former	Simultaneous
6th Level	EDU 326	Teaching Strategies	(2+0+0) 2	EDU 316	-
	EDU 327	Educational Curricula	(2+0+0) 2	EDU 317	-
	PHYS ***	Elective course	(2+0+0) 2	-	-
	PHYS 324	Electronics 2	(2+1+0)3	PHYS 311	-
	PHYS 322	Quantum Mechanics 2	(3+0+0)3	PHYS 121	-
	PHYS 321	Statistical Physics	(3+0+0)3	PHYS 214	-
	PHYS 323	Solid State Physics (1)	(2+1+0)3	PHYS 224	-
Total			**18**		

	Course Number and Code	Course	Credit Hours	Requisites	
				Former	Simultaneous
7th Level	EDU 416	Modern Trends in Teaching Strategy	(2+0+0) 2	EDU 326	-
	EDU 417	Educational Evaluation	(2+0+0) 2	EDU 327	-
	PHYS 411	Computational Physics (1)	(2+1+0)3	PHYS 321	-
	PHYS 412	Solid State Physics (2)	(2+1+0)3	PHYS 323	-
	PHYS 413	Atomic and molecular Spectra	(3+1+0)4	PHYS 324 PHYS 322	-
	PHYS 415	Nuclear Physics (1)	(3+1+0)4	PHYS 322 PHYS 321	-
Total			**18**		

	Course Number and Code	**Course**	**Credit Hours**	**Requisites**	
				Former	**Simultaneous**
8th Level	EDU 427	Practicum	(0+0+12)6	EDU 416 EDU 417	-
	PHYS 421	Computational Physics (2)	(2+1+0)3	PHYS 411	-
	PHYS 423	Nuclear Physics (2)	(3+1+0)4	PHYS 415	-
	PHYS 424	Laser Physics and its Applications	(2+1+0)3	PHYS 413	-
	PHYS 425	Research Project	(2+0+0)2	Pass 120 CH.	
Total			**18**		

The following **curriculum** is presented for the **B.Ed. in Mathematics**:

Level 1 •						
(Notes) Prerequisite	Business Sector			Hours	Course Name	Course Code
	Training	Practical	Theoretical			
University Requirement			2	2	Introduction to Islamic culture	Salm 101
University Requirement			2	2	Language skills	Arab 101
University Requirement			2	2	University Requirement (optional)	
Educational decision			2	2	Learning techniques and communication skills	Educ 112
Educational decision			2	2	Islamic pedagogy	Educ 111
Educational decision			2	2	The system of education policy in the Kingdom of Saudi Arabia	Educ 113
		2	1	2	Calculus (1)	Math 101
		2	1	2	General Physics (1)	Phys 111
		2	1	2	General Chemistry (1)	Chem 111
18 hours	Total					

Level 2 •						
(Notes) Prerequisite	Business Sector			Hours	Course Name	Course Code
	Training	Practical	Theoretical			
			2	2	University Requirement	
Educational decision			2	2	Developmental Psychology	Educ 121
Math 101 (Prerequisite)		2	3	4	Calculus (2)	Math 102
		2	2	3	The foundations of mathematics	Math 131
		2	3	4	Analytic Geometry	Math 111
		2	2	3	Principles of Statistics and Probability	Stat 101
18 hours	Total					

Level 3 •						
(Notes) Prerequisite	Business Sector			Hours	Course Name	Course Code
	Training	Practical	Theoretical			
			2	2	University Requirement	
Educational decision			2	2	Mental Health	Educ 211
Educational decision			2	2	Principles of Educational Research	Educ 212
Math 102 (Prerequisite)		2	3	4	Calculus in several variables	Math 203
Math 203 (Synchronous)		2	3	4	Vector analysis	Math 204
Math 131 (Prerequisite)		2	3	4	Linear Algebra	Math 241
18 hours	Total					

Level 4 •						
(Notes) Prerequisite	Business Sector			Hours	Course Name	Course Code
	Training	Practical	Theoretical			
			2	2	University Requirement	
Educational decision			2	2	Educational Psychology	Educ 221
Prerequisite) Math 203 (		2	3	4	**Statics** 1	Math 212
Prerequisite) Math 131 (		2	2	3	Number Theory	Math 242
Prerequisite) Math 203 (		2	3	4	**Introduction to Ordinary Differential Equations**	Math 221
(Prerequisite) Stat 101 + (Prerequisite) Math 102		2	2	3	**Principles of Probability Distributions Theory**	Stat 202
18 hours	Total					

Level 5 •						
(Notes) Prerequisite	Business Sector			Hours	Course Name	Course Code
	Training	Practical	Theoretical			
Educational decision			2	2	Educational Planning and Management	Educ 311
Educational decision			2	2	Production and sources of e-learning	Educ 312
Math 204 (Prerequisite)		2	3	4	Numerical Analysis	Math 351
Math 203 (Prerequisite)		2	3	4	Real Analysis (1)	Math 381
Math 221 (Prerequisite)		2	3	4	Mathematical Applications	Math 313
-		2	1	2	Mathematics Lab	Math 352
18 hours	Total					

Level 6 •						
(Notes) Prerequisite	Business Sector			Hours	Course Name	Course Code
	Training	Practical	Theoretical			
Educational decision			2	2	Teaching strategies	Educ 321
Educational decision			2	2	Curricula	Educ 322
Math 351 (Prerequisite)		2	2	3	Mathematical applications on the Computer	Math 352
Math 242 (Prerequisite) + Math 241 (Prerequisite)		2	2	3	Group Theory	Math 343
Math 312 (Prerequisite)		2	3	4	Introduction to topology	Math 371
Math 223 (Prerequisite)		2	3	4	Mathematical methods	Math 305
18 hours	Total					

Level 7 •						
(Notes) Prerequisite	Business Sector			Hours	Course Name	Course Code
	Training	Practical	Theoretical			
Educational decision			2	2	New trends in teaching strategies	Educ 411
Educational decision			2	2	Educational Evaluation	Educ 412
Math 312 (Prerequisite)		2	3	4	Real Analysis (2)	Math 482
Math 312 (Prerequisite)		2	2	3	Complex Analysis	Math 483
Math 322 (Prerequisite)		2	3	3	Rings and fields	Math 444
Math 324 (Prerequisite)		2	3	4	Introduction to Partial Differential Equations	Math 422
18 hours	Total					

Level 8 •						
(Notes) Prerequisite	Business Sector			Hours	Course Name	Course Code
	Training	Practical	Theoretical			
Pass 26 hours	12			6	Education Field	Educ 421
Math 223 (Prerequisite)		2	3	4	Differential Geometry	Math 421
Math 411 (Prerequisite)		2	2	3	**Introduction to Functional Analysis**	Math 484
Complete 88 credit hours at least specialized		-	2	2	Research Project	Math 491
Stat 221 (Prerequisite)		2	2	3	**Introduction to Statistical Inference**	Stat 403
18 hours	Total					

The following **curriculum** is presented for the **B.Ed. in Chemistry**:

Level	Course Code	Course Title	Credit Hours	Prerequisite	College or Department
Level 1	EDU 116	General Chemistry (1)	(1+1+0)2		Department
	EDU 117	Teaching Techniques and Communication Skills	(2+0+0)2		College
	EDU 118	Fundamentals of Islamic Education	(2+0+0)2		College
	MATH 111	The System and Policy of Education in KSA	(2+0+0)2		College
	PHYS 111	Calculus(1)	(1+1+0)2		Department
	EDU 116	General Physics (1)	(1+1+0)2		Department
		University Requirement	(2+0+0)2		University
		University Requirement	(2+0+0)2		University
		University Requirement	(2+0+0)2		University
Level 2	CHEM121	Organic Chemistry (1)	(3+1+0)4		Department
	CHEM122	Inorganic Chemistry (Main Group Elements)	(2+0+0)2		Department
	COMP125	Introduction to Computer	(2+1+0)3		Department

	EDU 126	Developmental Psychology	(2+0+0)2		College
	MATH123	Introduction to Differential Equations	(2+1+0)3	MATH111	College
	STAT 101	Biostatistics	(1+1+0)2		Department
		University Requirement	(2+0+0)2		University
Level 3	CHEM211	Organic Chemistry (2)	(3+1+0)4	CHEM121	Department
	CHEM212	Physical Chemistry-Phase Rule	(1+1+0)2		Department
	CHEM213	General chemistry (2)	(2+1+0)3	CHEM111	Department
	EDU 216	Psychological Health	(2+0+0)2	EDU 126	College
	EDU 217	Principles of Educational Research	(2+0+0)2		College
	PHYS 123	General Physics (2)	(2+1+0) 3	PHYS 111	Department
		University Requirement	(2+0+0)2		University
Level 4	CHEM221	Heterocyclic Compounds Chemistry	(2+2+0)4	CHEM211	Department
	CHEM222	Quantum Chemistry (1)	(2+0+0)2	MATH 123	Department
	CHEM223	Physical Organic Chemistry	(2+0+0)2	CHEM 211	Department

	CHEM224	Descriptive Analytical Chemistry	(2+1+0)3		Depart-ment
	CHEM225	Electro-Reversible Chemistry (1)	(2+1+0)3		Depart-ment
	EDU 226	Educational Psycho-logy	(2+0+0)2	EDU126	College
		University Require-ment	(2+0+0)2		University
Level 5	CHEM311	Quantum Chemistry (2)	(2+0+))2	CHEM 22	Depart-ment
	CHEM312	Thermodynamic Che-mistry	(2+1+0)3		Depart-ment
	CHEM314	Organic Chemistry (polymers and patrol)	(2+1+0)3	CHEM211	Depart-ment
	CHEM315	Quantitative Analyti-cal Chemistry	(2+1+0)3	CHEM224	Depart-ment
	CHEM316	Physical Chemistry (Surfaces, Colloid s & Catalysis)	(2+1+0)3		Depart-ment
	EDU316	Administration and Educational Planning	(2+0+0)2		College
	EDU317	Production of E-learn-ing	(2+0+0)2		College
Level 6	CHEM321	Biochemistry (1)	(2+1+0)3		Depart-ment
	CHEM322	Inorganic Chemistry(Transition Elements)	(4+0+0)4	CHEM122	Depart-ment
	CHEM323	Electro-Reversible Chemistry(2)	(3+1+0)4	CHEM 225	Depart-ment

	CHEM324	Coordination Chemistry	(2+1+0)3	CHEM 122	Department
	EDU 326	Teaching Strategies	(2+0+0)2		Department
	EDU 327	Curricula	(2+0+0)2		Department
Level 7	CHEM411	Instrumental Analysis Chemistry	(3+1+0)4		Department
	CHEM412	Kinetic Chemistry	(2+1+0)3	CHEM 312	Department
	CHEM413	Organic Chemistry (Organic Compounds Spectra)	(3+1+0)4		Department
	CHEM414	Biochemistry (2)	(2+1+0)3	CHEM 321	Department
	EDU 416	Modern Trends in Teaching Strategies	(2+0+0)2	EDU 326	College
	EDU 417	Educational Evaluation	(2+0+0)2		College
Level 8	CHEM421	Natural Products Chemistry	(2+1+0)3	CHEM221	Department
	CHEM 422	Chemistry of Organic Reactions Mechanisms	(2+0+0)2	CHEM211	Department
	CHEM423	Research Project	(1+3+0)4		Department
	CHEM 424	Nuclear and Radiation Chemistry	(3+0+0)3		Department
	EDU426	Practicum	(0+0+6)6	EDU326، EDU 416	College