

Akkreditierungsagentur für Studiengänge  
im Bereich Gesundheit und Soziales  
Accreditation Agency in Health and Social Sciences



## **Assessment Report**

**for the Application of  
Prince Sattam Bin Abdulaziz University,  
College of Applied Medical Sciences,  
Department of Biomedical Technology  
for the Accreditation of the Study Program  
“Biomedical Technology” (Bachelor of Biomedical Technology)**

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Decision	June 25, 2019

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<sup>1</sup> The experts shown in italics did not participate in the on-site visit of the University.

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## 1 Introduction

The Accreditation Agency in Health and Social Sciences (AHPGS) is an interdisciplinary and multi-professional organization. Its mission is to evaluate Bachelor and Master's programs in the fields of health and social sciences, as well as in related domains, such as law or economics. By implementing accreditation and recommendation procedures, the AHPGS contributes to the improvement of the overall quality of teaching and learning. However, the higher education institutions remain responsible for fulfilling the quality assurance, too.

Since 2004 the AHPGS has been a member of the European Consortium for Accreditation (ECA). In 2006, the AHPGS also joined the ENQA and became a member of the International Network for Quality Assurance Agencies in Higher Education (INQAAHE) in 2009. Since 2012, the AHPGS has been a member of the Network of Central and Eastern European Quality Assurance Agencies in Higher Education (CEENQA). Starting from 2009, the AHPGS has been listed in the European Quality Assurance Register (EQAR).

In carrying out accreditation procedures, the AHPGS follows the requirements of the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). In the present case, the decision regarding the accreditation of the study program is carried out by the AHPGS Accreditation Commission based on the following accreditation criteria<sup>2</sup>:

1. Program aims and learning outcomes
2. Curriculum design
3. Personnel
4. Facilities and learning resources
5. Study process and student assessment
6. Program and quality management
7. Gender and equal opportunities

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<sup>2</sup> Approved by the AHPGS Accreditation Commission

The external assessment procedure is carried out in four steps:

### **I. The University's application**

The AHPGS verifies the sufficiency of the documents submitted by the University, namely the self-evaluation report and its corresponding annexes. These are to fulfill the assessment spheres as well as the AHPGS standards. As a result, the AHPGS produces a summary (see Sections 2-5), which is to be approved by the University and subsequently made available for the expert group, together with all other documentation.

### **II. Written review**

The main documents are reviewed by the expert group assigned by the accreditation commission of AHPGS. This is done in order to verify the compliance of the study program with the agreed upon accreditation. Consequently, the experts comprise a short summary regarding the study programs.

### **III. On-site visit (peer-review)**

The experts carry out an external on-site visit at the University. During this visit discussions are held with members of the University, which include University and department administration, degree program management, teachers and students. This provides the expert group with details about the study program beyond the written documents. The task of the experts during the on-site visit is to verify and evaluate the objectives of the program and its projected study results, its structure, staff, material resources, course of studies and methods of assessment (selection of students, assessment of achievements, students' support), as well as of the program management (program administration, external assurance of study quality).

Following the on-site visit, the expert group issues the expert report. This report is based on the results of the visit, the written review of the study programs, and the documents submitted by the University. Finally, the report is made available to the University so that it can issue a response opinion.

The expert report as well as the University's response opinion – together with the provided documents – is submitted to the accreditation commission of the AHPGS.

#### **IV. The AHPGS accreditation decision**

The accreditation commission of the AHPGS examines the documentation made available in the process of application, namely the University's self-evaluation report, its annexes, the summary comprised by the AHPGS, the expert report, as well as the University's response opinion. These documents represent the basis for the commission's decision regarding the recommendation for accreditation of the study program. Consequently, this decision – together with all other documentation – is forwarded to AHPGS Accreditation Commission for it to reach a decision regarding the accreditation of the study program.

## 2 Overview

### 2.1 Procedure-related documents

The Prince Sattam Bin Abdulaziz University (PSAU), also referred to hereinafter as “the University”, delegated the task of accrediting the following Bachelor study programs to AHPGS: “Physical Therapy and Health Rehabilitation”, “Radiology and Medical Imaging”, “Nursing”, “Medical Laboratory Sciences” and “Biomedical Technology”.

The self-evaluation report for accreditation (without the awarding of the official seal of the Accreditation Council of the Foundation for the Accreditation of Study Programs in Germany) of the above-mentioned study programs (hereinafter the Self-evaluation report or SER) of the University was submitted to the Accreditation Agency in Health and Social Science (AHPGS) in electronic format on October 15, 2018. The contract between the University and the AHPGS was signed on September 21, 2018.

On January 21, 2019 the AHPGS forwarded the open questions and explanatory notes (hereinafter OQ) pertaining to the Application for accreditation for the study programs to the University. On February 11, 2019 the University submitted the answers to the open questions and explanatory notes (hereinafter AOQ) to the AHPGS in electronic format.

The present document presents the summary of the AHPGS for the Bachelor study program “Biomedical Technology”. The first cohort for this program was admitted in 2009.

The application documentation submitted by the University follows the outline recommended by the AHPGS. Along with the application request towards accreditation of the Bachelor study program “Biomedical Technology”, the following additional documents can be found in the application package (the documents submitted by the University are numbered in the following order for easier referencing):

### Specific documents for the study program “Biomedical Technology”

<b>Annex</b>	<b>Description</b>
01	Statement of facilities availability
02	Curriculum Vitae for Instructors of the Program
03	Module Guide
04	Module Overview
05	Study Plan
06	Teachers’ Matrix (male section)
07	Exemplary Course Reports
08	Evaluation Form
09	Internship Manual

Alongside the study-program-specific documents, the following documents pertain to all study program submitted for external evaluation:

<b>Annex</b>	<b>Description</b>
A	Vision, mission and goals of the University
B	Final Examination Manual
C	Exemplary Cooperation Agreement
D	Internship Manual
E	Strategic Plan of the Deanship of Scientific Research
F	Executive Plan of the Deanship of Scientific Research
G	Quality Manual
H	Intern Follow Up Report
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The application, the open questions (OQ) and the answer to the open questions (AOQ) as well as the additional documents build the basis for the present summary. The layout bears no significance, as it solely reflects the agreed standard within the University.



## 2.2 Study program

### 2.2.1 Structural data

University	Prince Sattam Bin Abdulaziz University
Faculty/Department	College of Applied Medical Sciences Department of Biomedical Technology
Cooperation partner	- The Ministry of Education - The Ministry of Health - Governmental Hospitals - Public Medical Companies
Title of the study program	Biomedical Technology
Degree awarded	Bachelor of Biomedical Technology
Form of studies	Full-time, on campus
Organisational structure	Sunday to Thursday 08:00 am - 05:00 pm
Language of Studies	English College of Education Modules are in Arabic
Period of education	Nine semesters (preparatory year included) + one-year noncredit internship
Total number of modules	54 (including preparatory year)
Credit Hours (CH) according to the Credit Hour System	140 credit hours (equals 281 ECTS credit points)
Credit Hours/per week	1 Theory Credit Hour = 1 Hour 1 Lab/Practical Hour = 2 Hours
Workload	Total: Contact hours: Individual work: Internship year:
Launch date of the study program	2009
First accreditation	Program has not yet been accredited
Time of admission	Fall semester
Number of available	25-35 each year

places on the program	
Number of currently enrolled students	186 male students
Number of enrolled students by now	269
Number of graduates by now	31
Particular enrollment conditions	<ul style="list-style-type: none"> <li>- Saudi Secondary School Certificate – Science Section (SSSCSS) or its equivalent (not more than 5 years old)</li> <li>- Aptitude Test Certificate (ATC)</li> <li>- minimum qualifying score in SSSCSS &amp; ATC: 75%</li> <li>- applicants must not have been dismissed from another university</li> <li>- passing the Preparatory Year with a GPA of at least 2.0 on a 5.0 scale</li> <li>- students must have Saudi nationality or a mother born in Saudi Arabia</li> <li>- only male students are accepted to the program</li> </ul>
Tuition fees	Tertiary education in the Kingdom of Saudi Arabia is free for all Saudi nationals. Students also receive monthly governmental stipends until they graduate.

Chart 1: Structural data of the study program

The College of Applied Medical Sciences was established in 2009 in Al Kharj (main Campus of the University) and in Wadi Addawasir. The College of Applied Medical Sciences in Al Kharj encompasses five academic departments including the Department of Biomedical Technology to which the Bachelor study program “Biomedical Technology” is affiliated. In Wadi Addawasir, there are only two programs offered. However, the programs on both Colleges are run by different administrative staff and faculty members. Thus, there is no exchange between students and faculty members (General AOQ 1). The language of instruction is English – “except for Islamic studies and Arabic language courses which are taught in Arabic” (SER 1.2.8).

The study program is structured as follows:

Semester 1 + 2: preparatory year under the deanship's supervision. Students study at the College of Education together with all other enrolled students).

This preparatory year is "common to all medical and allied health sciences programs at the university". In this year, amongst others, the necessary English skills are thought. For students with a low level of English, the Academic Guidance Unit provides additional English classes (General AOQ 2). Passing the first year is a prerequisite for being admitted to the study program (SER 1.2.2).

Semester 3-5: the students study at the College of Applied Medical Sciences and take some courses at the College of Education but under the supervision of the Department of Biomedical Technology.

Semester 6-9: students study solely under the supervision of the Department of Biomedical Technology. The College of Education is no longer involved (see Study plan Annex 05).

In addition to the nine semesters at the university, the students have to complete a rotary internship (one year without credits). "The training can take place in a public hospital, a private or industry (medical representative) clinic" (SER 1.2.6). The successful completion of the internship is a prerequisite for the award of the Bachelor degree and in order to complete "the licensing procedures with the professional bodies in the kingdom" (SER 1). In Saudi Arabia, any biomedical engineer or specialist should have a license from the Saudi Commission for Health Specialties (SCH) to be able to work in any health institution. Recently, the graduates of PSAU receive this license by default (AOQ 2).

### **2.2.2 Qualification objectives and employment opportunities**

The University strives to train students on the development of new biomedical technology for life science research and advanced health care. Thus, the curriculum comprises advanced courses that include medical instrumentation, image processing, biosensors, nano-devices etc. beside the traditional areas of mechanical and electrical engineering (SER 1.2.8.).

The vision of the University is to be recognized for excellence education and community partnership. "The University endeavors to produce high-caliber

graduates through providing education that aligns with international standards in an academic and research environment of outstanding human resources, effective community partnership and supportive administrative structure”.

For that, the University identified ten strategic goals which are amongst others attending to students’ needs and developing their capabilities, recruiting and retaining distinguished faculty members and assisting graduates (Annex A).

The University provided a list of output-oriented descriptions of all skill fields in the program, including overarching skills, following the categories of the National Qualification Framework (NQF) of the Kingdom of Saudi Arabia. These are categorized into Knowledge Skills; Cognitive Skills; Interpersonal Skills and Responsibility; Communication, Information Technology and Numerical Skills; and Psychomotor Skills and described by the University as follows:

Knowledge Skills are chiefly concerned with the ability to understand and acquire knowledge, concepts and information from different disciplines and sciences, such as (SER 1.3.3.):

- understand the technical background about hospital devices
  - understand the theories and principles of many devices used in health care sector
  - have the ability to repair and maintain biomedical devices
  - have the ability to design and implement medical electronic circuits and software for medical instrumentation
- describe the principle of operation of different biomedical devices

Cognitive Skills stem from the students’ ability to use principles of designing medical devices by using specific theories and to solve occurring problems of designing medical devices by using mathematical and statistical techniques.

Interpersonal Skills and Responsibility concern the skill of working effectively in groups and exercise leadership when appropriate. As the University states, the students will “demonstrate ethical and moral responsibilities in Biomedical technology practice that are consistent with the needs of the labor market and society”, as well as “be responsible for repairing and maintaining biomedical machines and instrumentations” (SER 1.3.3.). Concerning Information Technology Skills, the students are expected to use IT and communication technology to gather, interpret and evaluate information and ideas in the biomedical technology field.

Finally, the Psychomotor section concerns itself with the ability to appropriately and safely operate with biomedical equipment and demonstrate the necessary skills to work safely and competently in health institutions.

The University states that graduates are qualified to pursue their academic career in postgraduate studies at other universities in the Kingdom or seek for a biomedical technology career in hospitals or companies (SER 1 and SER 1.4.1) Moreover, according to the growing developments in Saudi Arabia the University expects that more hospitals will be established in the Kingdom and, thus, the need for Biomedical Technology Specialists increases (SER 1.4.2.). The intended learning outcomes, awarded qualifications and employment information are available for current students, as well as graduates.

As the University states, there are 29 graduates employed (26 of them are working in the biomedical technology field) and 2 started a master study program (AOQ9).

### **2.2.3 Modularization and exam system**

The program comprises 54 modules:38 are offered by the Department of Biomedical Technology (Program Requirements). In addition, 10 courses are offered as College of Applied Medical Sciences (CAMS) requirements, taught in the preparatory year, and 6 as Prince Sattam Bin Abdulaziz University (PSAU) general requirements, taught at the College of Education (SER 1.2.1). Except for 4 modules (BMTS 486, BMTS 485, BMIF 492 and BMIF 484), all modules are obligatory. On average, there are 6 modules provided for each semester. All modules have to be completed within nine semesters. Currently there are no semesters offered as a period for exchange programs (AOQ 8). Exclusive of the internship year (non-credit bearing), students usually<sup>3</sup> complete between a minimum of fifteen and a maximum of seventeen credit hours (CH) per semester (SER 1.2.1.). Thus, 1.624 credit hours per year (equals 54 ECTS credit points per year).

The following study plan lists the required sequence of courses at the University.

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<sup>3</sup> The students 'workload is based on his cumulative GPA. Students with a GPA of 2.0 can register up to 14 credit hours, while those with a GPA of 4.5 or above are eligible for up to 20 credit hours as a maximum.

<b>Nr.</b>	<b>Title</b>	<b>Sem.</b>	<b>CP</b>
ARAB 101	Language Skills	1	2
ENGL 132	English: Reading	1	2
ENGL 133	English: Writing	1	2
BIOL 106	General Biology	1	4
CT 140	IT Skills	1	3
MC 1400	Communication Skills	1	2
IC 101	Introduction to Islamic Culture	2	2
STAT 106	Biostatistics	2	2
CHEM 106	Organic Chemistry for Health Sciences	2	2
PHYS 106	General Physics	2	4
ENGL 131	English: Listening & Speaking	2	2
ENGL 134	English for Health Sciences	2	3
IC 102	Islam and the Construction of Society	3	2
ARAB 103	Expository Writing	3	2
CAMS 231	Human Anatomy & Physiology	3	4
CAMS 232	Math for Health Sciences	3	2
CAMS 234	Healthcare Emergency	3	2
CAMS 235	Introduction to Pathology	3	2
CAMS 236	Introduction to Applied Medical Sciences	3	2
IC 103	Economic System in Islam	4	2
BMTS 241	Electrical circuits	4	4
BMTS 242	Computer & Systems	4	2
BMTS 243	Math for Biomedical System-1	4	2
BMTS 244	Physics of Medical Instruments	4	3
BMTS 245	Electrical Skills	4	2
BMTS 246	Biomaterials	4	2
IC 104	Fundamentals of Political System in Islam	5	2
BMTS 351	Biomed Analog Electronics-1	5	4
BMTS 352	Electrical Measurement	5	2
BMTS 353	Biomedical Mechanical Instruments-1	5	3

BMTS 354	Math for Biomedical system-2	5	2
BMTS 355	Biomedical digital electronics-1	5	3
BMTS 361	Signal Processing-1	6	2
BMTS 362	Biomedical Analog Electronics-2	6	3
BMTS 363	Electromechanical energy	6	2
BMTS 364	Biomedical Digital Electronic-2	6	3
BMTS 365	Biomedical Mechanical Instruments-2	6	3
BMTS 366	Computer Programming	6	2
BMTS 471	Digital Signal Processing	7	3
BMIS 471	Biomedical Electronic Instruments-1	7	3
BMIS 472	Imaging Systems-1	7	3
BMIS 473	Hospital Safety	7	2
BMIS 474	Instrument Management & Maintenance	7	2
BMTS 484	Computer Application for Biomedical Systems	7	3
BMIS 481	Biomedical Instrument design	8	3
BMIS 482	Imaging system-2	8	3
BMIS 483	Optical and Laboratory instruments	8	3
BMIS 484	Biomedical Control System	8	3
BMIS 486	Molecular Sensors & Nano Devices	8	3
BMIS 491	Biomed Electronic Instruments-2	9	3
BMTS 485	Reverse Engineering in Biomedical Engineering	9	3
BMTS 492	Computer Image Processing	9	3
BMIF 492	Pattern Recognition	9	3
BMTS 491	Project	9	3
BMIF 484	Graphics & Visualization	9	3
		Total	140

chart 2: Moduleoverview

The module descriptions (Annex 3) contain information about each course's name and code, in which semester it is offered, its number of credit hours, its language of instruction, intended learning outcomes, course contents and assessment methods.

According to the University, all newly admitted students are required to complete the preparatory year program with a GPA of at least 2.0 out of 5.0 before starting their undergraduate study (AOQ4). These certain modules provided at the preparatory year represent a prerequisite for being admitted to the study program. The courses aim to equip the students with the ability to communicate effectively in English, deal with information technology and prepare them for advanced science and allied health courses.

The third semester shall prepare the students generally with modules like "Human Anatomy", "Emergency Healthcare" and "Physiology" for the specific programs offered by the College of Applied Medical Science, where the department of Biomedical Technology is included.

The semester 4-6 comprise examine modules which equip the students with fundamental knowledge required to comprehend the Biomedical Technology, such as "Mathematics", "Signal Processing", "Electrical Measurements", etc.

In the higher semesters 7-9 the modules cover the studying of advanced biomedical technology topics, such as "Medical Laboratory Instruments", "Computer Image Processing" and "Molecular Sensors and Nano Devices".

The University operates its own hospital, all the clinical facilities of the Ministry of Health can be utilized by the governmental universities for clinical training and internship purposes.

Therefore, the University is able to utilize local and regional governmental hospitals and public medical companies (SER 1.1.2). For an exemplary cooperation document please see Annex C.

During the "Biomedical Technology" program, students gain their practical experience through an internship training year, right after they successfully completed all modules of the program. A coordinator is assigned to oversee the internships.

The coordinator is in contact with the clinical instructor at the training site and provide the training and assessment manual as well as training regulations. At the end of this internship, the students must be able to "control, maintain, conduct and tender different types of medical equipment". The primary goal of this course is to acquire basic knowledge in repairing and maintaining highly specialized machine that represent the core content of the health devices, and to



develop the capacity to obtain comprehensive basic maintenance skills" (SER 1.2.6.). The students are not considered as graduates until they complete the full clinical training period of 12 months in accredited training centers under supervision of the College. For passing the Internship year, the students must get an average evaluation score of at least 70% (Annex D). For an example of the evaluation form please see Annex O8.

Currently, it is not possible for "Biomedical Technology" students to participate in mobility exchanges (AOQ8). Rather, the University ensures the international relevance of its "Biomedical Technology" program by comparing the program with ten local and international University curriculums in the course of a statistical study. According to the University, this study confirmed the conformity of the program with other universities, thus students of this program have no problems to continue their master study at foreign universities (SER 1.2.8.).

Students are introduced to the essential concepts of research through the modules "Physics of Medical Instruments" (semester 4), "Biomedical Mechanical Instruments" (semester 5 & 6), "Biomedical Electronic Instruments" (semester 7 & 9), "Digital Signal Processing" (semester 7) and "Computer Image Processing" (semester 9). Moreover, the University organizes an annual research conference for students where "several awards are offered" (SER 1.2.7).

The University lists the following methods of teaching: lectures, exercises, class and group discussions, presentations by students etc. (SER 1.2.4). All classrooms are equipped with a smartboard for using multimedia formats.

"The student must attend at least 75% of the total number of classes. If the student is absent for more than 25% classes in any course without an acceptable reason, he will be denied attendance in the final exam and will be given the grade of "Denial" (DN). [...] Sick leave is only accepted on the basis of a medical report issued by the Medical Center of the University or one endorsed by it" (SER 1.2.3).

The process of assessment is implemented through a mix of formal, predetermined examinations and semester-long assessment methods, such as quizzes, presentations, homework assignments, keeping logbooks and participation in discussions. There are at least two major examinations in each module, namely, the midterm and the final examination. The official document where the

attendance rules etc. are regulated is only available in Arabic. The attendance is recorded officially on an electronic system provided at the University level.

The success in a course is based on the combination of a grade awarded for course work plus the grade for the final exam. The grade for the course work is within 50-60 % of the total mark, the remainder builds the final exam. The pass mark of each course is 60, the total mark is 100.

Regarding the examination regulation for the final exam please see Annex B.

Regarding regulations on compensation measures for students with disabilities and chronic illnesses the University explains that for “students who have gaps in their studies over different levels, the Faculty has established a system of guidance and advice. At the beginning of the semester, each member of the teaching staff is responsible for a group of students. In case there is an educational problem for the student, the teacher points out this problem to the administration and try to solve it for the benefit of the student” (SER 1.2.3).

Regarding the rules of recognition for credits, the University explains that the “maximum allowable percentage of credit hours that could be transferred by students from other universities is 40% of the total credit hours in the curriculum. [...]. All of the previous courses he has studied, including his grades and his term and cumulative averages, will be entered into the academic record of a student who has changed from one major to another according to the provisions of the regulations governing examination. [...]. These courses are evaluated by the Department Academic Committee and faculties who teach these courses and approved by the Department head. Transferred credits are not included in the GPA and a pass grade is assigned to those courses” (SER 1.5.3). The regulations for transferring students and the rules of recognition for credits are developed by the University’s Rectorate for Academic and Educational Affairs and posted on its website.

#### **2.2.4 Admission requirements**

Admission policies and procedures along with the requirements are listed in the Admission guide, which is currently only available in Arabic.

In order to be accepted to the study program, students must complete the admission process for PSAU and the program’s requirements, the foremost of which is, having Saudi nationality or having been born to a Saudi mother. For

regular students, applicants must hold a Saudi Secondary School Certificate Science Section (SSSCSS) or its equivalent that is not more than five years old. In addition, applicants must have an Aptitude Test Certificate (ATC) administered by the National Center for Assessment in Higher Education. The applicants must have a minimum qualifying score in SSSCSS and ATC of 75%. Accepted students start studying at the Preparatory Year Deanship in Medical path, in which they must achieve a cumulative GPA (cGPA) of at least 2.00 out of 5.00 to start the CAMS programs offered by the College of Applied Medical Sciences, where the study program "Biomedical Technology" is included.

## **2.3 Study conditions and quality assurance**

### **2.3.1 Human resources**

According to the University, the workload in the "Biomedical Technology" program is managed by 3 associate professors, 4 assistant professors and 2 lecturers. They are all employed on a full-time basis.

The full teaching load of all regular academic staff members is ten hours for professors, 12 hours for associate professors, 14 hours for assistant professors, 16 hours for lecturers and 18 hours for teaching assistants, teachers and clinical instructors.

Lecturers must hold at least a Master degree. Professors, associate professors and assistant professors should have a PhD degree. The faculty's qualifications are documented in the CVs submitted by the University (Annex 2). Clinical Instructors should be one of the medical maintenance department and have a bachelor degree in Biomedical Engineering or a related field (AOQ7). The faculty requirements are adopted by the Ministry of Education for all the universities.

Considering the total of 186 currently enrolled male students in the "Biomedical Technology" program, this corresponds to a 1:21 student-to-faculty ratio (AOQ11).

According to the University (SER 2.1.3.), all faculty members are encouraged to attend workshops and international or national conference for which they are given financial support such as transportation allowance, registration allowance and daily-pocket money allowance. The University also provides training options to help their faculties improving their teaching effectiveness and the quality of education at the college in general. In addition, the "Biomedical Technology"

program includes long-term career planning, job development and placement, career counseling provided by a Transition Coordinator, who is responsible for work and study services (SER 2.2.1.).

Furthermore, "PSAU faculty members are eligible for one semester sabbatical leave every three years or one year every five years" (SER. 2.1.3).

### **2.3.2 Facilities**

The University states that classrooms are equipped with smart board technology and Wi-Fi, throughout the Biomedical Technology department.

The department is housed within the College of Applied Medical Sciences building, thus students from various departments share some common facilities. According to the University, "all the laboratories follow college safety instructions that ensure the safety of students and equipment" (SER 2.3.1.) There are 9 laboratories for the Department of Biomedical Technology (AOQ13).

The media equipment is listed in the SER (p. 46-84).

The University states to also hold subscriptions to thousands of e-books and hardcopy books in biomedical technology and other relevant sciences. The library is open from 08:00 to 14:00 on Saudi weekdays.

A list of available books is listed in the SER (p.85-87). As the University states, to support the production of high-quality research, the access to research database through channels such as the Saudi Digital Library is ensured (Annex G).

### **2.3.3 Quality assurance**

As a part of quality assurance, PSAU University encourages and supports its academic programs to get accreditation from different agencies. For a detailed description of the received awards please see Annex G. Furthermore, the University states that many quality assurance processes have been established, such as processes for course and program reporting, direct and indirect assessment processes, etc. (ibid). The University also developed a strategic plan for 2012-2021, in which one objective is to develop a quality control system and criteria that enhance the university's outputs (Annex E).

To ensure quality teaching and learning management, the University claims to follow the standards and procedures issued by the NCAAA (National

Commission for Academic Accreditation and Assessment), which has been established “with responsibility for determining standards and procedures for accreditation and quality assurance for post-secondary institutions and programs within the Kingdom of Saudi Arabia” (SER 1.6.1.). Furthermore, the Vice Deanship for Development and Quality, established since the establishment of the university, is responsible for monitoring all issues related to quality at CAMS. According to the University, there are annual developmental accreditation visits, carried out by internal assessors from the Deanship of Development and Quality and an action plan is prepared annually based on each year’s review panel recommendations, where all faculty members are included.

As described by the University, the Department of Biomedical Technology employs following measures to assure quality within the department (SER 1.6.1.):

- Each group of modules (per level) are assigned to a quality coordinator who has the responsibility of ensuring that the NCAAA’s quality-related documents are fully prepared and submitted to the Department’s Quality Coordinator, who is a member of the Development and Quality Unit.
- Students Course Evaluation survey is applied for each module to measure its quality.

In collaboration with the Vice Deanship of Development and Quality, the Department’s Quality Coordinator is responsible on ensuring the completion of various documents.

The University declares that the study program is regularly evaluated. Beside the students’ evaluations which are completed by using electronic surveys, each module coordinator submits a report regarding recommendations for improving the assessment mode or any other difficulties faced during the semester (Annex 07). The evaluation of the practical experiences is ensured by clinical supervisors who submit a follow-up report almost every month to the internship coordinator in the program (Annex H) Furthermore, the students can submit complaints and appeals to the Vice-Head of Department, who works on resolving these complaints and appeals by following internal communications.

The students have access to a system, where details about their academic requirements, number of credits taken/left, the complete academic plan and their attendance is provided through the deanship of admission and registration.

According to the University, the examination process is illustrated by the college examination committee and students are informed about rules and regulations.

For the new students, the department organizes an orientation program, which is designed to inform the new students about the various programs at the college. Furthermore, students are assigned to the faculty staff members for academic advising, who assists them “in getting familiar with the available services, understanding the university and program policies, the curriculum and in any issue affecting the teaching and learning experience” (SER 1.6.8.).

Regarding compensation measures for students with disabilities and chronic illnesses, the University claims that it “follows the structural regulation laid down by the Ministry of Social Welfare, therefore the university facilities are planned to provide a barrier free environment for physically challenged students. As there are no general by-laws governing the compensation for students with disabilities and chronic illnesses these issues, decision on these issues are taken on individual basis by the concerned department and the departments” (SER 1.5.2).

## **2.4 Information about the University**

The University was founded in 2009 under the Royal Decree No. M/7305 as “University of Alkharj” and includes colleges in five governorates of Riyadh Region. In 2015, the University changed its name to “Prince Sattam Bin Abdulaziz University” (PSAU). Currently, more than 28.000 students are enrolled. The University is under the supervision of the Ministry of Education and managed by the Rector of the University. The PSAU main campus has two different campus for male and female students, which are not equally equipped in terms of the number of laboratories and available equipment (General AOQ3). Due to an upcoming move, the female campus is currently housed in a temporary building.

The PSAU includes 10 colleges and offers 69 bachelor and 2 master programs (General AOQ 4).

### **PSAU main campus is located in Al Kharj (approx. 100 km from Riad):**

- College of Medicine
- College of Pharmacy
- College of Dentistry
- College of Computer Science

- College of Engineering
- College of Business Administration (also in Hotat Bani Tamim)
- College of Sciences and Humanities (also in Hotat Bani Tamim, in Aflaj and in Slayel)
- Community College (also in Aflaj)
- College of Education (also in Wadi Addawasir)
- College of Applied Medical Sciences (also in Wadi Addawasir)

The latter was founded in 2008/2009. The Department of Biomedical Technology was also established in 2009 and is under the management of the College of Applied Medical Sciences (CAMS). There are currently 165 students enrolled in the study program "Biomedical Technology" which is the only program offered at the Department of "Biomedical Technology", but there are plans to offer "Biomedical Informatics" in the future.

In **Wadi Addawasir (almost 600 km from main campus)**, the following colleges are located:

- College of Engineering
- College of Education
- College of Applied Medical Sciences
- College of Arts and Sciences

In **Hotat Bani Tamim (approx. 100 km from main campus)**, the following colleges are located:

- College of Business Administration
- College of Sciences and Humanities

In **Aflaj (approx. 350 km from main campus)**, the following colleges are located:

- College of Sciences and Humanities
- Community College

In **Slayel (approx. 450 km from main campus)**, only the College of Sciences and Humanities is located

### **3 Expert Report**

#### **3.1 Preliminary remarks**

The Accreditation Agency in Health and Social Sciences (hereupon, the AHPGS) was commissioned by the Prince Sattam Bin Abdulaziz University (hereupon, the University) to accredit the study programs “Biomedical Technology” (Bachelor of Biomedical Technology), “Nursing” (Bachelor of Nursing Sciences), “Physical Therapy and Health Rehabilitation” (Bachelor of Physical Therapy), “Radiology and Medical Imaging” (Bachelor of Radiological Sciences) and “Medical Laboratory Sciences” (Bachelor of Medical Laboratory Sciences).

The on-site visit evaluation of the study programs “Biomedical Technology”, “Nursing”, “Physical Therapy and Health Rehabilitation”, “Radiology and Medical Imaging” and “Medical Laboratory Sciences” offered at the Prince Sattam Bin Abdulaziz University, was carried out on March 25-26, 2019 at the University in Al Kharj, Kingdom of Saudi Arabia.

The application documents of the University, the feedback from the experts to the documents and the results of the discussions with the representatives of the University during the on-site visit serve as bases for the statements made in the expert report.

The following experts were appointed by the Accreditation Commission of AHPGS for the evaluation of the study programs.

#### **As representatives of higher education institutions:**

##### **Prof. Dr. Gerlinde Egerer**

##### **University of Heidelberg, Germany**

Senior physician at the Medical Clinic and Polyclinic of the University of Heidelberg, Germany;

Head of the Ethics Committee of the State Chamber of Physicians Baden-Wuerttemberg

##### **Prof. Dr. Johannes Gräske**

##### **University of Applied Sciences for Technology and Economy Saarland, Germany**

Professor for Clinical Research and Evaluation at the University of Applied Sciences for Technology and Economy of the Saarland, Germany

##### **Prof. Dr. Christian Grüneberg**

##### **University of Health, Bochum, Germany**

Head of Physiotherapy (Bachelor) at the University of Applied Sciences for



Health  
Dean of the Department of Applied Health Sciences

**Prof. Dr. Johannes Keogh**  
**Fulda University of Applied Sciences, Germany**  
Professor of Nursing Sciences at Fulda University of Applied Sciences, Germany  
Former Dean of the Faculty of Nursing and Health  
Responsible for international affairs of Nursing Degree Programs  
Qualification as nurse, midwife, community nurse and in psychiatric patient care

**Prof. Dr. Gerd Mikus**  
**Heidelberg University Hospital, Germany**  
Clinical pharmacologist and senior physician at the Heidelberg University Hospital, Germany;  
Member of the German Society of Clinical Pharmacology (DGKliPha), of the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT), of the Association of Applied Human Pharmacology (AGAH);  
Deputy head of the Ethics Committee of the State Chamber of Physicians Baden-Wuerttemberg

***Dr. Werner Reiche<sup>4</sup>***  
***Hospital of the city of Ludwigshafen***  
*Central Institute for Diagnostic and Interventional Radiology*  
*Specialist in Diagnostic Radiology, Specialist in Nuclear Medicine in Idar-Oberstein, Germany*

***Prof. Dr. Katharina Scheel<sup>1</sup>***  
***Kiel University of Applied Sciences, Germany***  
*Professor of Physiotherapy,*  
*Department of Social Work and health*  
*GESA Health in the Workplace (Schleswig-Holstein Network for the Workplace health promotion of the Ministry of Social Affairs, Health, Family and Equality)*

**As representatives of professional practice:**

**Tina Hartmann**  
**Association for Technologists and Analysts in Medicine Germany, Hamburg, Germany**  
School for Health Professions at the Hospital Dortmund gGmbH,  
Staff Office School Management Head of MTRA-Training

**Dr. Sylvia Kaap-Fröhlich**

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<sup>4</sup> The experts shown in italics did not participate in the on-site visit of the University. Instead, they took part in the written evaluation.

**Careum Research Zürich**

Registered Biomedical Science Analyst and Head of Careum Research and Education Center in Zürich

**As a student representative:****Anita Eggert, B.A.**

**Student at the Bielefeld University of Applied Sciences**

Graduate of Nursing and Health Care

According to the *Rules for the Accreditation of Study Programs and for System Accreditation* (determined by the decision of the Accreditation Commission, of December 8, 2009 in the version of February 20, 2013, Drs. AR 20/2013), the task of the experts in the accreditation procedures is to evaluate the education concept of a specific study program as well as to estimate the possibility of its successful implementation.

This concerns, in particular, qualification objectives of the study program, its conceptual integration into the system of education, the concept of the study program, feasibility of the content and scope of studies, the examination system, study-relevant collaborations, personnel, material and spacial resources, transparency and documentation, application of the results of quality assurance for further development of the study program (it is especially important to present the analyses and evaluation results of student workload, academic accomplishments and employment of graduates, which are to be documented and taken into account within the framework of continuous development of the study program), as well as the provision of gender equality and equal opportunities.

The on-site visit of the experts is carried out in line with the Accreditation Criteria for International Program Accreditation. They have been developed by the Agency in close accordance with the Standards and Guidelines for Quality Assurance in the European Higher Education Area established by the European Association for Quality Assurance in Higher Education (ENQA). After the announcement of the accreditation decision, the expert report will be published as a part of the final Assessment Report.

### 3.2 Basic information about the study program

The main objective of the Bachelor study program “Biomedical Technology” offered at the College of Applied Medical Sciences of the Prince Sattam Bin Abdulaziz University is to prepare students to become knowledgeable, service-oriented, collaborative and reflective practitioners, who are able to practice as specialists for Biomedical Technology in public and private hospitals, or to start their own practice. The study program requires the obtainment of 140 credit hours (CH) according to the international credit hour system. One credit hour is equal to one contact hour of lectures or two hours of laboratory or clinical training per week.

The total workload of the program constitutes 7,540 hours, out of which 2,730 hours are contact hours, 2,730 hours are individual work and 2,080 hours have to be completed in a 48-weeks rotary internship at the end of the studies. The Bachelor study program “Biomedical Technology” is a full-time study program with a regular duration of 4.5 years / nine semesters plus one year of rotary internship. The curriculum consists of 54 courses, of which 12 are to be taken in a preparatory year and four are elective courses.

Admission requirements include the possession of a Saudi Secondary School Certificate (Scientific Track), or its equivalent, and passing the General Aptitude Test with a total score of at least 75 %. In addition, students must pass the preparatory year with a minimum GPA of 2.0 out of 5.0. Upon completion of the study program, students are awarded with the academic degree “Bachelor of Biomedical Technology”. The average number of enrolled students in the “Biomedical Technology” study program is 25 to 35 per year. Admission takes place every September (fall semester).

The first batch of students has been admitted to the program in 2009. Up to now, there are 31 graduates. The main language of instruction is English. Saudi nationals are not charged tuition fees. Students also receive monthly governmental stipends until they graduate.

Currently, the “Biomedical Technology” program is only offered for male students. The implementation of an identical program for female students regarding the admission, education, examination and participation opportunities is planned for the winter semester 2019/2020 and already approved by the management of the University.

### 3.3 Expert Report

The on-site visit was carried out on March 25 and 26, 2019 according to the previously agreed schedule. Representatives from the head office of AHPGS accompanied the expert group.

The expert group met on March 24, 2019 for preliminary talks prior to the on-site visit. They discussed the submitted application documents and the results of the written evaluation as well as the uprising questions. Furthermore, they prepared the plan of the on-site visit at the University.

In the course of the on-site visit, experts conducted discussions with the University management (rector of the University, vice rector for development and quality, vice rector for educational and academic affairs), the dean, the vice dean for educational and academic affairs, the vice dean for quality and post-graduate studies, the vice dean of the female section, the departments chairmen and the teaching staff of the programs as well as with male and female students currently studying in the programs and graduates. Furthermore, they inspected the learning premises, such as lecture halls, seminar rooms, library, and computer rooms. Moreover, the experts had the opportunity to see the equipment and the capacity of the laboratories at the male campus.

In the course of the on-site visit, the University submitted the following additional documents as requested by the experts:

- List of publications by staff of the Biomedical Technology Department
- List of publications by staff of the Radiology and Medical Imaging Department
- List of publications by staff of the Physical Therapy and Health Rehabilitation Department

The expert report is structured according to the "Accreditation Criteria for International Program Accreditation" which are in compliance with the "Standards and Guidelines for Quality Assurance in the European Higher Education Area" (ESG), established by the European Association for Quality Assurance in Higher Education (ENQA). The study program will be described and analyzed in a comprehensive manner below. The documents submitted by the University, the experts' feedback to the documents, the observations made during the on-site visit, the results of discussions with the representatives of the University, the

College and the departments serve as the bases for the statements made in the expert report.

### **3.3.1 Program aims and their implementation**

The University itself has set the mission to train highly qualified graduates by providing education that aligns with international standards in an academic and research environment of effective community partnership and supportive administrative structure. The program's aim is to qualify graduates to be able to compete locally and internationally in the fields of professional medical sciences, and able to conduct distinguished scientific research in the fields of applied medical sciences. In the experts' opinion, the University provides optimal capacities of human and technical resources. The University states that the aim is to develop the regional education and, thus, avoid the immigration of young and qualified people to bigger cities. In accordance with the mission of the University, the "Biomedical Technology" program has been implemented in 2009 in order to meet the need for qualified biomedical technology specialists.

The Bachelor study program "Biomedical Technology" pursues specific qualification objectives. The program's goal is to prepare individuals who fulfill their professional obligation to contribute to the health needs of society through education, scholarly activities, service and professional practice. The students know the interdependence of different biomedical engineering disciplines in the development of modern medical devices. Furthermore, the University states that medical informatics system will be included in the program. According to the University, graduates of the "Biomedical Technology" program will be able to work as engineers in the rapidly expanding medical equipment, medical informatics and medical system industry or to continue their studies at foreign universities. Currently, there are 50 students of the Prince Sattam Bin Abdulaziz University studying in different regions of the world, e.g. Britain, USA, Australia and Canada and completing their PhD studies.

The learning objectives of the "Biomedical Technology" program are based on the National Qualification Framework (NQF) of the Kingdom of Saudi Arabia and are categorized in Knowledge Skills; Cognitive Skills; Interpersonal Skills and Responsibility; Communication, Information Technology and Numerical Skills as well as Psychomotor Skills. According to the University, the institutional accreditation by NCAAA will be carried out this year.

The experts confirm that the study program focuses on specific qualification objectives. These objectives cover professional and interdisciplinary aspects and particularly refer to the domain of academic competences, competences necessary for a qualified employment, skills of social commitment and personal development.

Out of the 31 graduates of the “Biomedical Technology” program 29 are employed (26 of them are working in the biomedical technology field) and two started a master study program.

From the experts’ point of view, the requirements of this criterion are fulfilled.

### **3.3.2 Structure of the study program**

The Bachelor study program “Biomedical Technology” is a full-time study program with a regular duration of 4.5 years (nine semesters) plus internship (two semesters). The program curriculum consists of 54 courses, of which ten are to be taken in a preparatory year. This study period is followed by a non-credit-bearing but obligatory one-year internship. Hence, students require 5.5 calendar years to fully complete the program cycle.

The first year, also called the preparatory year, is common to all medical and allied health sciences programs at the university. Passing the first year is a prerequisite for being admitted to the study programs. In semester 3-5 the students study at the College of Applied Medical Sciences and take some courses at the College of Education, but under the supervision of the Department of Biomedical Technology. In semester 6-9 the students study solely under the supervision of the Department of Biomedical Technology.

The Health Sciences’ Preparatory Year contains English language skills, Arabic language skills and communication skills, as well as basic sciences courses in biology, chemistry, medical physics and medical foundation in order to reinforce skills and knowledge to provide a strong basis upon which to build the study of “Biomedical Technology”. Courses in computer skills and Islamic culture are also part of the Preparatory Year.

Being admitted to the Department of Biomedical Technology (*see Criterion 3*), students start accumulating more program-specific knowledge for the remaining 3.5 years.

Thus, the experts conclude that students acquire specialized and program-specific knowledge as well as interdisciplinary knowledge and professional, methodological and general competences.

Furthermore, the experts acknowledge the very detailed course files with its contents and aims, which allows a high level of transparency. In the experts' opinion, the structure of the curriculum seems to make the workload manageable. Nevertheless, the curriculum appears very detailed, consisting of a large number of more or less isolated courses and, therefore, a lot of examinations. Thus, the experts recommend revising the module manual and suggest to combine some modules in order to reduce the number of examinations. Professional skills are gained through practical hours in the College's laboratories (*see also Criterion 5*). In addition, students gain experience in clinical practice in the internship year, which they complete in cooperating hospitals. During this year, students receive a comprehensive training in controlling, preventive maintenance and service of laboratories, imaging, exploration, and surgical equipment. Although comprising a one-year full-time workload, the final internship year is not credit-bearing as it is not formally part of the study program but rather of the legal recognition/licensing process according to the Saudi Arabian health system.

Expectations for students' qualifications and the structure of the internships are clearly defined in the "Internship Manual". The experts appreciate that supervisors from both the University and the clinic are assigned to oversee students during their internship. To assure the quality of the practical skills of the students, a member of the faculty staff accompanies the students to the hospital and assures that the course specifications are fulfilled. Moreover, the hospitals encourage its staff members to participate in conferences to acquire the newest information and techniques. The University has collaborations with governmental, military and private hospitals in which the graduates mostly work after their internships. However, the internship can also take place in non-cooperating hospitals of Saudi Arabia. In this case, the University has implemented a logbook including the regulations, the curriculum, and evaluation forms, which the cooperating institutions have to adhere to. The hospitals are regularly contacted by the University, i.e. an internship coordinator who follows up the development of the students and has regularly contact with the responsible staff members of the hospital. During the internship, the University drafts a contract for the students to ensure that they receive a salary and are treated as staff. The

students have to reach 70% in the evaluation form filled in by the internship coordinator in order to pass. During the on-site visit, the students confirm that the University offers support in finding hospitals and during the internship.

The study program has a course-related examination system. Its implementation, including the grading system, course load regulations, repetition of courses and exams is regulated and transparent for the students.

From the expert's point of view, the requirements of the criterion are fulfilled.

### **3.3.3 Admission and Feasibility**

The admission policies and procedures along with the requirements are properly documented and made publicly available. However, they are currently only available in Arabic. Admission requirements include a Saudi Secondary School Certificate – Science Section (SSSCSS) or its equivalent which is not older than five years and an Aptitude Test Certificate (ATC) administered by the National Center for Assessment in Higher Education with a summed qualifying score of at least 75 %. Furthermore, the applicants must not have been dismissed from another university for disciplinary reasons. All newly admitted students are required to complete the Preparatory Year program before starting their undergraduate studies. Passing this year, students get an orientation and are approved to the study programs depending on their desire, available seats and their GPA. To be placed to the “Biomedical Technology” study program, students must pass the Preparatory Year with a Grade Point Average (GPA) of at least 2.0 on a 5.0 scale.

As the Preparatory Year comprises medical foundations as well as basic knowledge in medical biology, chemistry and physics in order to compensate deficiencies from secondary school, the experts determine the admission procedure and requirements to be appropriate. They correspond to the standards of the study program.

The experts draw attention to the relatively high number of exams to be passed during the “Biomedical Technology” program. In order to prepare students for the level of difficulty and volume of exams, the type as well as the time of the different examinations is defined and communicated to the students transparently at the beginning of the course. The experts confirm that the University takes measures to guarantee the feasibility of the study program despite the



high workload. As a whole, the organization of the education process ensures the successful implementation of the study program.

On site, it became obvious that the teaching staff follows an “open-door-policy”. The students confirm the supportive and easy communication between staff and students and emphasize that the teaching staff adequately reacts to students’ questions. Furthermore, in the first week of each year, students and instructors alike undergo an orientation which familiarizes them with available support services. An academic advisor is responsible for a small number of students from the beginning of each semester and students are supported through the academic counseling student unit with their registration process, selecting a study program, financial and personal issues and their performance during the semester.

The experts find the support services at the University to be exemplary and conducive to the health and success of the student body.

From the experts’ point of view, the requirements of the criterion are fulfilled.

#### **3.3.4 Examination system and transparency**

The University uses a continuous assessment process to ensure the quality of education for its students. This is achieved by evaluating the performance of the student through a series of exams and quizzes that are scheduled during the academic semester. Students in the “Biomedical Technology” program are not required to write a Bachelor thesis but have to conduct a research project instead. Furthermore, the students are encouraged to write research papers and give presentations. The experts were told that some students already published their research papers. However, the experts recommend introducing research skills earlier in the course of studies and implementing a Bachelor thesis as final proof of academic competences.

In the experts’ opinion, the study program includes a very high number of exams which causes a high workload not only for students but also for the teaching staff. Discussing the issue on site, staff as well as students are apparently satisfied with the exam procedures and see clear benefits in the current practice. The transparent information of examination methods and of the examination schedule at the beginning of each term makes the great number of assessments during and at the end of each semester manageable. An examination can be

repeated twice, if the students have special reasons, e.g. illness, they get a third chance to pass the exam.

Thus, the experts conclude that the examinations, although numerous, serve to determine whether the envisaged qualification objectives have been achieved or not. These examinations are focused on students' knowledge. To compensate the high workload through the great amount of exams, the experts recommend implementing a greater variety and flexibility in examination methods and focusing stronger on a competence-oriented examination design.

The requirements to students' performance in examinations are regulated and published. The frequency of examinations, as well as their organization, is appropriate.

Regarding students with disabilities and chronic illnesses, the experts highly recommend implementing compensation measures.

From the experts' point of view, the requirements of this criterion are fulfilled.

### **3.3.5 Teaching staff and material equipment**

In general, the "Biomedical Technology" program is carried out by three associate professors, four assistant professors and two lecturers. Compared to the other programs at the College of Applied Medical Sciences, the student-to-faculty ratio with 1:21 is the highest.

Regarding the employment process, the qualification and experience of the teaching staff is closely evaluated prior to the appointment decision. The experts are convinced that the instructors involved in study programs reveal a high level of competency in the relevant field.

New teaching staff is thoroughly briefed about the program and their teaching responsibilities before they can start working. Students evaluate the performance of all teaching and other staff periodically.

Overall, the teaching and academic staff of the College of Applied Medical Sciences at the Prince Sattam Bin Abdulaziz University shows a very high level of commitment and potential for the execution as well as further development of the study program they are responsible for. The expert group comes to the conclusion that there is a strong corporate identity and positive group dynamics among the University and the faculty administration.

The experts find the amount of human resources allocated to the program to be sufficient to carry out its functions. The teaching staff within the Bachelor program "Biomedical Technology" is in possession of academic and technical credentials and experience adequate to their responsibilities. The University informs its employees about opportunities for personal and professional development transparently and actively encourages their participation in workshops, training courses and conferences intended to further their ability which is confirmed during the talks with the staff on site. Still, the experts recommend implementing requirements in order to guarantee the didactic skills of new staff members and to encourage the staff at the Prince Sattam Bin Abdulaziz University to participate at the offered workshops to improve their didactic methods further.

During the on-site visit, the experts gained the impression that research is an important issue at Prince Sattam Bin Abdulaziz University. According to the University, there has been a high increase of publications and research during the last years. The College of Applied Medical Sciences encourages its staff to do research and supports them by decreasing the Credit Hours they have to teach. The University has an internal research fund for staff members and students, in order to award them for publications. Furthermore, the research qualification is an important issue for the hiring process. If staff members want to be promoted, they must be able to show various publications, depending on the level they intend to achieve. The staff is also encouraged to attend workshops to improve their scientific research skills. The experts were told that ISI indexed publications are already disclosed in different journals.

On-site, the experts were shown around the College of Applied Medical Sciences' premises at the female and the male campus. The male campus is located at the main campus of the College of Applied Medical Sciences, the female campus, called Aja campus, is currently located in a temporary building near to the male campus, with less equipment regarding the quantity and quality compared to the male campus. During the talks with the vice dean and the staff of the female College of Applied Medical Sciences, the experts were assured that the new building will be ready for use by the end of 2019. The new building is supposed to be completely equal in terms of the number of laboratories and equipment as the male campus, which is regulated by contract. According to the vice dean of the female campus, there is an intense communication between the female and male staff regarding the equipment and overall progress at the new building. The female staff, especially the female vice dean, was strongly

included in the planning of the building. Furthermore, there will be orientation courses for the female staff to be able to operate the new machines. The experts highly encourage the University to accelerate the finalization of the move into the new building, as it is absolutely necessary to the female college to be equally equipped in terms of quantity and quality of facilities and equipment. Furthermore, the experts recommend establishing a position which is responsible for the maintenance, operation and safety of the equipment in the laboratories to guarantee a smooth execution of the practical modules.

At the male campus, the experts were impressed with the quality of the laboratories and clinical facilities used to train students in the “Biomedical Technology” program. Currently, the “Biomedical Technology” program is not offered at the female campus, the program will be implemented in the new building and is already approved by the rector of the University.

The College’s library offers room for individual studies and provides the most basic literature as printed books. On site, the experts were informed that the main part of specialized literature is provided through an impressive number of electronic books, supplemented by databases. As a whole, it was ascertained by the experts that the “Biomedical Technology” program has ample teaching facilities at its disposal. The infrastructure and the equipment at the male campus are suitable to guarantee teaching and research.

Overall, the experts conclude that the requirements of the criterion are fulfilled.

### **3.3.6 Quality assurance**

The University developed a strategic plan for 2012-2021, in which one objective is to develop a quality control system and criteria that enhance the university’s outputs. To ensure the quality of the various study programs at the Prince Sattam Bin Abdulaziz University, the University strives to accredit all of its programs. Currently, 19 programs are accredited. Furthermore, the institutional accreditation carried out by the National Commission for Academic Accreditation and Assessment is planned for this year. From the experts’ point of view, the University has a well-structured system of quality assurance spread across all of its units. The University has established a quality assurance hierarchy which ranges from the vice rector of quality and development to the vice dean of quality and development to the head of the department to the coordinator of the program and then to the committees.

The Deanship of Quality and Development carries out internal and external quality assurance procedures on a cyclical basis, among them are course evaluations and student and teaching staff surveys. At the end of each semester, a course report is written and course specifications may be amended according to evaluation results. There are also regular university council meetings in which issues and needs of the departments are discussed. Students' workload is assessed and regulated through the Grade Point Average (GPA). Students with a GPA of 2.0 out of 5.0 are eligible to register up to 14 credit hours per semester, while those with a GPA of 4.5 or above are eligible for up to 20 credit hours per semester as a maximum.

The experts conclude that the University has a well-established, documented and published concept of quality assurance regarding the education process, teaching and research, which serves as the basis for the quality-oriented development and implementation of its study programs and, therefore, also for further development of the "Biomedical Technology" program.

The results of the internal quality assurance management are applied to the continuous development of the study program. In doing so, the University takes into close consideration the quality evaluation results as well as the analyses of students' workload, their academic accomplishments and feedback from graduates. The evaluation of the staff is done every semester in every course and has to reach at least 60 % evaluated by the students. The experts acknowledge that the University implemented arrangements for student participation, such as student councils in every college and the student clubs in every department. The participation of the students is a very important issue at the University, it takes place in different advisory committees and student clubs in which topics are discussed every semester in regular meetings. The students on site confirm that, also because of the good student-to-faculty ratio, the communication with the staff is well and problems are dealt with, even outside of the intended round of talks. The students appreciate that their evaluations have an impact, e.g. their feedback results in changes in the curriculum.

From the experts' point of view, the requirements of the criterion are fulfilled.

### **3.3.7 Gender equality and equal opportunities**

Currently, the "Biomedical Technology" program is only offered for male students. The implementation of an identical program regarding admission,

education, examination and participation opportunities is planned for the winter semester 2019/2020 and has already been approved by the management of the University.

Overall, the University demonstrates its commitment to the provision of equal opportunities for all students, within the cultural boundaries of the local society, and shows openness for diversity and social developments. During the on-site visit, the experts were convinced that there is a regular exchange between the female and male staff. In addition to that, the University offers activities shared by male and female students and there are already some modules taught together, though only via virtual classes.

The experts acknowledge that female as much as male staff is encouraged to participate in workshops and national and international conferences.

However, as mentioned in Criterion 5, the quality of facilities and the availability of space is currently not equal. The experts highly recommend eliminating these differences along with the further development of the University's implementation and the planned new building for the female campus. The expert group encourages the University to exploit the full potential of communication possibilities between the male and the female campuses of the University in order to promote the exchange of experiences and ideas for the further development of the study program.

To enable every young Saudi with a secondary school certificate to attend higher education, the Kingdom of Saudi Arabia grants full scholarships to all female and male students.

Taking into account the societal norms and cultural context of the Kingdom of Saudi Arabia, the expert group concludes that the requirements of the criterion are met.

### **3.4 Summary**

The experts sum up that the overall impression of the Prince Sattam Bin Abdulaziz University is very positive. The University presents itself convincingly as an open-minded and dynamic institution, within the cultural boundaries of the local society, with willingness to import new ideas and recommendations for further enhancement. The experts find that the University strongly benefits from its dedicated, involved and interested Rector, who is aware of challenges but

keen to pushing forward the University's development and enhancement. The University shows a strong commitment to social issues, to the development of societies through educating young professionals and to supporting well qualified students in every possible way.

The experts positively emphasize the fact that a new building of the College of Applied Medical Sciences for the female students is currently under construction and that the University is planning to build its own hospital in the near future.

A number of additional favorable characteristics and achievements of the study program "Biomedical Equipment Technology" were demonstrated by the management of the University, the representatives of the college, those of the department as well as of the student body, such as a strong commitment to quality assurance. Moreover, the experts highlight the thorough and comprehensive curriculum of the study program. Hence, the objectives meet the requirements of the current job market of the Kingdom of Saudi Arabia.

Based on the information from written documents and the results of the on-site visit, the experts come to the conclusion that the study program "Biomedical Technology" offered at the Prince Sattam Bin Abdulaziz University fulfills the above described criteria. Hence, the experts decided to submit a recommendation to the Accreditation Commission of the AHPGS for a positive decision regarding the accreditation of the study program.

For the continuous development of the study program, the experts have outlined the following recommendations:

- Research skills should be introduced earlier in the course of studies and a Bachelor thesis as a final proof of academic competences should be implemented.
- Differences between the male and female campus should be eliminated and same standards and quality in equipment and facilities for male and female students should be assured along with the further development of the University's implementation.
- The module manual should be revised and the number of examinations should be reduced, e.g. through combination of modules.
- A greater variety and flexibility in examination methods should be implemented, thus, focusing more on the development of competencies.

- Compensation measures regarding students with disabilities and chronic illnesses should be implemented.
- Didactic abilities of the teaching staff should be ensured through mandatory participation in the offered workshops and trainings (e.g. didactic methods).
- A position which is responsible for the maintenance, operation and safety of the equipment in the laboratories to guarantee a smooth execution of the practical modules should be established.
- The University should exploit the full potential of communication possibilities between the male and the female campuses in order to promote the exchange of experiences and ideas for the further development of the study program.



#### **4 Decision of the accreditation commission**

##### **Prince Sattam Bin Abdulaziz University, Al Kharj, Saudi Arabia, Bachelor Study Program "Biomedical Technology"**

This resolution of the Accreditation Commission of the AHPGS is based on the University's application, as well as the expert review and the on-site visit covered in the expert report.

The on-site visit of the University took place on March 25-26, 2019, according to the previously agreed-upon schedule.

The accreditation decision is based on the Expert Report which is structured according to the Accreditation Criteria developed by the AHPGS. The Accreditation Criteria are developed by the AHPGS in close accordance with the existing criteria and requirements valid in the Federal Republic of Germany and based on the "Standards and Guidelines for Quality Assurance in the European Higher Education Area" (ESG), established by the European Association for Quality Assurance in Higher Education (ENQA).

The Accreditation Commission of the AHPGS discussed the procedural documents and the vote of the expert group of the University regarding the expert report.

The Accreditation Commission of the AHPGS considers that all Accreditation Criteria are fulfilled and adopts the following decision:

The study program requires the obtainment of 140 credit hours (CH) according to the University's credit hour system. The regulated study period in the program "Biomedical Technology" are 4.5 years (9 semesters), including a Preparatory Year, followed by a non-credit bearing one-year clinical internship after completing the studies. The study program comprises 54 mandatory courses, of which 10 belong to the Preparatory Year, and 44 are compulsory. The main language of instruction is English. The Bachelor study program "Biomedical Technology" is completed with the conferral of the academic degree "Bachelor of Biomedical Technology".

The study program "Biomedical Technology" is accredited for the duration of five years, until September 30, 2024.

For further development and enhancement of the study program, as well as of the University as a whole, the Accreditation Commission of the AHPGS supports the recommendations articulated in the expert report.