

جامعة الأمير سطام بن عبدالعزيز

PRINCE SATTAM BIN ABDULAZIZ UNIVERSITY



كلية العلوم الطبية التطبيقية  
COLLEGE OF APPLIED MEDICAL SCIENCES

BMT

Student Guide



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PRINCE SATTAM BIN ABDULAZIZ UNIVERSITY

# **Biomedical Technology Student Guide**

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## Head of Department's Message

The Department of Biomedical Technology (BMT) at Prince Sattam bin Abdulaziz University (PSAU) serves as a catalyst for Saudi Arabia's scientific and academic transformation, accelerating Vision 2030 by seamlessly uniting groundbreaking technology with visionary healthcare solutions. BMT drives transformative improvements in medical services, sustainability, and preventive care, aligning with the Kingdom's goals for a thriving society. Committed to cultivating specialists in Biomedical Technology, we empower students through rigorous programs and hands-on training to master medical technology design and innovation. Our graduates are skilled professionals who elevate biomedical services nationwide, fostering a robust healthcare ecosystem and knowledge-based economy.

BMT boasts expert faculty pioneering research in diagnostic systems, medical devices, biomaterials, and health informatics. Department's research areas include AI-driven diagnostic tools for early disease detection and wearable health-monitoring devices, reflecting our commitment to solving real-world challenges. By integrating emerging technologies like AI, nanotechnology, and data analytics into curricula and research, we address healthcare disparities and promote sustainable practices. Collaborations with industry, government, and global institutions amplify our ability to turn discoveries into societal benefits.

Looking ahead, we will continue championing innovation, education, and partnerships to position Saudi Arabia as a global biomedical technology hub. Through talent development, pioneering research, and embracing technological advancements, we aim to redefine healthcare's future while supporting national aspirations. Our mission remains clear: to advance human knowledge, improve lives, and ensure the Kingdom leads in the biomedical field.

Dr. Abdulrahman Alqahtani

Head of the Biomedical Technology Department

## **Overview of BMT**

BMT department is one of the four departments within the College of Applied Medical Sciences (CAMS) at PSAU. Currently the department offers one program, Biomedical Technology, at the bachelor's level. The health sector is rapidly growing in the Kingdom of Saudi Arabia. Therefore, there is a raising national need for biomedical specialists. The Biomedical Technology program started in 2008. The program was established to produce graduates with qualifying distinguished competencies scientifically and skillfully in the field of biomedical technology (with expertise to acquire, install, maintain, calibrate, and ensure quality and safety control of medical devices and instruments), contributing to medical research and providing community services through an advanced academic environment.

The department has qualified faculty, well-equipped laboratories, and intakes students with high GPA from the preparatory year. The Bachelor of Biomedical technology is a 133-credit hours program that extends over 4 years (8 semesters). The first year is the preparatory year, managed through a unified program by the university, followed by 3 years (6 semesters) with the program. Upon completing the required courses and credits, the student must complete an internship year. As of 2024-25, the program has contributed 322 biomedical specialists to the national pool.

## **Relevant Occupational/ Professional Sectors:**

BMT specialists may perform their duties in a variety of environments that involve medical devices maintenance and testing. Certain pertinent occupational sectors offer employment opportunities for BMT specialists:

- Hospitals: BMT professionals acquire, install, maintain, calibrate, and ensure quality and safety control of medical devices and instruments.
- Private companies: BMT specialists work to sell, maintain, and ensure the quality and safety of medical devices.
- Government health agencies: BMT specialists can work in government health agencies at the local, regional, or national level.
- Research: Universities and medical device companies hire BMT professionals to contribute to the design or improvement of medical devices, instruments, and methods.

## **Professions/Jobs for which Students are Qualified**

As per the Saudi Standard Classification of Occupations, the BMT graduates are prepared for the following occupations:

- Biomedical Engineer
- Medical Devices Engineer
- Medical Devices Technical Engineer
- Medical Devices Engineering Technology Specialist
- Medical Devices Technician
- Medical Devices Assembler
- Medical Quality Assurance Specialist

## **BMT Mission**

Qualifying distinguished competencies scientifically and skillfully in the field of biomedical technology, contributing to medical research and providing community services through an advanced academic environment.

## **BMT Goals**

1. Providing fundamental knowledge in basic sciences and biomedical instrumentation.
2. Qualifying distinguished graduates to be able to meet the needs of the labor market in the field of biomedical technology.
3. Inculcating lifelong learning and continuous self-development skills for graduates in the field of biomedical technology.
4. Preparing students for impactful contributions to research in healthcare technology.
5. Empowering graduates with the capacity to utilize their acquired biomedical engineering skills for community services.

## **BMT Graduate Attributes**

- Knowledge that pertains to the principles, concepts, and theories in biomedical instrumentation technology.
- Using acquired knowledge in identifying the various aspects of the latest development of facts and theories in biomedical instrumentation technology and their relevance to other fields.

- Ability to objectively assess different issues, based on given information, and to reach unconventional evaluation of them.
- Ability to identify problems, review previous relevant literature, collect, and analyze data and recommend solutions.
- Having the required biomedical instrumentation technology-related skills.
- Ability to convey information and communicate effectively and appropriately.
- Commitment to continue learning based on self-assessment of needs.
- Demonstrating career-related skills such as teamwork, time-management, negotiation, professionalism, collaboration, cooperation, and accountability.
- Committing to practice the established common and professional ethical principles.
- Contributing one's knowledge and skills to meet the needs of the society.
- Believing in one's acquired knowledge and skills; and demonstrating ability to adjust to new conditions.

### **BMT Program Learning Outcomes (PLOs)**

#### **Knowledge and Understanding**

K1	Identify principles and knowledge of basic sciences, including Mathematics, Physics, and electronics, and engineering sciences and principles related to the field of Biomedical Technology.
K2	Demonstrate the understanding of the basic and engineering sciences related to the field of Biomedical Technology.
K3	Recognize the impact of biomedical technology applications and regulations on the economy, community health, and environment.

#### **Skills**

S1	Use instruments and modern software in dealing with various applications in the field of biomedical technology.
S2	Conduct, analyze, and interpret standard tests, measurements, and troubleshooting to ensure the quality of medical devices.
S3	Utilize critical thinking to evaluate existing biomedical systems and technology.
S4	Model, design, and implement biomedical systems to develop appropriate solutions.
S5	Communicate effectively in written, oral, and graphical information in broadly defined technical and non-technical environments.

#### **Values, Autonomy, and Responsibility**

V1	Commitment to professional duties and making informed judgments based on legal and ethical standards.
V2	Function effectively as a member or leader of a team engaged in biomedical technology activities.
V3	Demonstrate an ability of self- learning and continuing professional development.

## Admission to BMT

### Admission Requirements:

1. The applicant must be a Saudi national, or the child of a Saudi mother, or the child of a Saudi citizen.
2. The applicant must have a high school diploma or an equivalent qualification from within or outside Saudi Arabia. External qualifications must be recognized by the Ministry of Education.
3. No more than five years should have passed since the applicant obtained their high school diploma or its equivalent.
4. The applicant must hold a valid score from the National Center for Assessment tests (General Aptitude Test and Achievement Test) as required by the admission criteria.
5. The applicant must be medically fit and able to meet the academic program requirements.
6. The applicant must not have been dismissed from the university for disciplinary or academic reasons.
7. The applicant must not be enrolled in any other university, inside or outside Saudi Arabia.
8. Applicants exempted from National Center for Assessment tests, due to health or disability reasons, must provide official proof from the center and will compete for admission into humanities and administrative specializations.
9. The applicant must not have previously earned a bachelor's degree.

For more details: <https://psau.edu.sa/en/node/14>

Admission to the BMT program is based on the admission criteria established by PSAU for health colleges. These criteria include the composite percentage, which considers the high school GPA (30%), General Aptitude Test score (30%), and Achievement Test score (40%), along with the successful completion of the preparatory year.

Each year, the CAMS decides the allocated number of students for each program. During their study period in Preparatory Year, especially in the second semester, the students are provided with information on the BMT program, and the students can opt for BMT program by filling in a form expressing their desire to join the program with two other options. These applications are then processed by the Deanship of admissions and registration. Students are then assigned to departments based on their choice and their cumulative GPA (cGPA), and the allocated number specified by each department. For the internal transfer from another program to BMT, students with a cGPA of at least 3.75 out of 5 can enroll.

## Academic Registration

1. Create University Email: Start by creating a university email.
2. Access the Academic System: Login to the academic system using the username and password from the university email.
3. Confirm Registration: Students must confirm their registration in the first week of classes. Failure to do so will result in automatic withdrawal.
4. Electronic Registration (Add/Drop): Students can register, add, or drop courses online without visiting the college or department.
5. Course Registration: Register for the desired courses, ensuring you meet the required credit hours.
6. Add/Drop Period: Students can add/drop courses within the first week, as long as they meet the minimum and maximum credit hour limits.

For more information, please visit <https://eservices.psau.edu.sa/?category=1>

## Study Rules and Regulations

Students can modify their registration by adding or dropping courses through the online portal during the specified period, according to the following guidelines:

### First: Conditions for Dropping Courses:

- The total number of registered credit hours must not fall below the minimum allowed for enrollment (the minimum is 12 hours).
- If the course to be dropped is a co-requisite with another course, the student can only drop it by dropping both courses together.

### Second: Conditions for Adding Courses:

- There must be no schedule conflicts.
- The course must be part of the academic plan, or one of the approved elective or free courses if available.
- Slots must be available in the desired course.
- There must be no unmet prerequisites.
- The total number of registered hours must not exceed the maximum allowed, based on the student's cumulative GPA.

Note: It is essential to adhere to the specified deadlines for adding and dropping courses.

## **Attendance and Absenteeism**

- Attendance and absence are recorded for all courses from the first day of the semester until the end of the semester.
- Students are required to be present in the classroom at the start of the lecture.
- It is the student's responsibility to track their absence percentage in all courses.
- A student will be prohibited from taking the final exam for a course if their absence exceeds 25% of the actual hours. The student will receive a "Denied" grade and will need to retake the course in the following semester.

## **Exams Policy**

### **Article Twenty-Nine**

1. The University Council, based on the recommendation of the College or Institute Council and the proposal of the relevant Department Council, determines the mechanism for calculating the grade for coursework, the final examination, and the assessment method according to the nature of the course.
2. The final examination for the course is held once, and the University Council may, based on the recommendation of the College Council and the proposal of the Department Council, make exceptions to this rule according to the nature of the course.

### **Article Thirty**

The College or Institute Council is responsible for organizing the final examination process to ensure the smooth operation of the educational process, and the final examination grade and overall grade must be recorded within a timeframe specified by the executive regulations of this policy.

Executive Regulations for Prince Sattam bin Abdulaziz University:

1. The College Council establishes procedures and regulations that assist in conducting examinations and ensure that they measure the desired outcomes and objectives.
2. The College Council may decide to implement confidentiality in the procedures for final examinations.
3. A student may not be tested in more than two courses in one day, although the University Council may make exceptions to this rule.
4. A student is not allowed to enter the final examination after thirty minutes have passed since its start, nor is the student allowed to leave the examination before thirty minutes have passed.
5. The course instructor is responsible for recording the final grades in the academic system, and the grades must be approved by the Department Head within a maximum of three days from the date of the examination.

**Article Thirty-One**

A student who is absent from the final examination will receive a grade of zero for the course they missed, and their grade will be based on their coursework grades obtained in that course.

**Article Thirty-Two**

If a student is unable to take the final exam for a valid reason, the College or Institute Council may accept the excuse and allow the student to take a substitute exam, which must be completed by the end of the following academic level, or the next semester, or the following academic year for colleges or institutes that implement a full academic year system. The grade awarded to the student will be based on the performance in the substitute exam, or a failing grade (F) if the substitute exam is not taken.

**Article Thirty-Three**

The department council responsible for teaching the course may, based on the recommendation of the course instructor, allow the student to complete the requirements of any course in the next academic level, or the next semester, or the following academic year for colleges or institutes that apply a full academic year system. The student will receive a grade in their academic record, which will not be calculated in the semester or cumulative GPA unless the requirements of that course are completed. An incomplete grade (IC) will be recorded in the student's academic record, and if the period referred to in this article elapses without changing the incomplete grade (IC) or completing the course requirements, it will be replaced with a failing grade (F), which will then be calculated in the semester and cumulative GPA.

**Article Thirty-Four**

If the study of research-based courses requires more than one semester, the student will receive a continuous grade (IP) after completing the course. If the student does not complete the course within the specified time, the department council responsible for teaching the course may approve the recording of an incomplete grade (IC) in the student's record.

**Article Thirty-Five**

The university council may, based on the recommendation of the college or institute council that follows the full academic year system, determine the number of failing units in courses for which a student can take a final exam (second round) in the course they failed.

## Executive Regulations of PSAU:

1. Courses are offered in the annual system throughout the academic year, and the final examination for each course is held at the end of the academic year, except for semester courses in the study plan. For practical and clinical courses that have a training nature, the final examination may be conducted at the end of the training period.
2. The number of years a student can register for courses they have failed is limited to two consecutive years at most.
3. The second-round examination is held at least two weeks before the start of the academic year, and students who have failed in courses, as determined by the College Council regarding their nature and total credit hours, are allowed to take this examination. Those who pass the second round will receive a passing grade (D) instead of the previous failing grade (F).
4. A student who fails in the first round of the final examination in a number of courses exceeding what the College Council has stipulated in paragraph (3) is not allowed to take the second-round examination. They will remain in the same academic year and will retake only the courses they have failed.
5. A student who fails in the second round or in courses that do not have a second round in the same year will remain and retake the courses they have failed. The College Council may allow them to study courses from the following year.

## Grades

الرمز العربي	الرمز الإنجليزي	حدود الدرجة	النقاط	المدلول بالعربية	المدلول بالإنجليزية
أ+	A+	٩٥ إلى ١٠٠	٥,٠٠	ممتاز مرتفع	Exceptional
أ	A	٩٠ أقل من ٩٥	٤,٧٥	ممتاز	Excellent
ب+	B+	٨٥ أقل من ٩٠	٤,٥٠	جيد جدا مرتفع	Superior
ب	B	٨٠ أقل من ٨٥	٤,٢٥	جيد جدا	Very Good
ج+	C+	٧٥ أقل من ٨٠	٣,٥٠	جيد مرتفع	Above Average
ج	C	٧٠ أقل من ٧٥	٣,٢٥	جيد	Good
د+	D+	٦٥ أقل من ٧٠	٢,٥٠	مقبول مرتفع	High Pass
د	D	٦٠ أقل من ٦٥	٢,٢٥	مقبول	Pass
هـ	F	أقل من ٦٠	١,٠٠	راسب	Fail
م	IP	-	-	مستمر	In-Progress
ل	IC	-	-	غير مكتمل	In-complete
ح	DN	-	١,٠٠	محروم	Denied
ند	NP	٦٠ وأكثر	-	ناجح دون درجة	No grade-Pass
هد	NF	أقل من ٦٠	-	راسب دون درجة	No grade-Fail
ع	W	-	-	منسحب بعذر	Withdrawn
هت	PF	-	١,٠٠	مفصول تأديبي	Separated Disciplinary

## Transitioning from Another Program and Course Equivalency

Transfer of students from another accredited university to the program (and vice versa) is permitted based on the approval of the departmental and college councils, in accordance with the policies and regulations for undergraduate studies (as mentioned in the Rule 23 of the Study Regulations and Tests handbook).

For detailed information, refer to Deanship of Admission and Registration portal, available at <https://dar.psau.edu.sa/en>.

## **BMT Comprehensive Exam**

The program's exit exam, designed to reflect the requirements of the Saudi Commission for Health Specialties (SCFHS) exam. The SCFHS exam, as of now, is not mandatory for biomedical specialists. Therefore, BMT uses a comprehensive exam that evaluates students on essential knowledge, practical skills, and ethical competencies necessary for professional success.

## **BMT Internship Year**

The BMT academic study period extends for four years, in addition to a mandatory internship year. Graduates are not allowed to practice the profession without completing this year, and the student is not considered a graduate until they have completed a full year of training. The internship program is a key requirement set by the Ministry of Education to obtain a bachelor's degree to expose the students to the labor market.

## **BMT Graduation**

A student is awarded a bachelor's degree in Biomedical Technology after successfully completing the graduation requirements according to the BMT academic plan, provided that their cumulative GPA meets the minimum required by the University Council and they have successfully completed the internship year.

The general grade of the student upon graduation (based on their cumulative GPA) is determined as follows:

- Excellent: if the student's cumulative GPA is not less than 4.50.
- Very Good: if the student's cumulative GPA ranges from 3.75 to less than 4.50.
- Good: if the student's cumulative GPA ranges from 2.75 to less than 3.75.
- Pass: if the student's cumulative GPA ranges from 2 to less than 2.75.

The First Honor Rank is awarded to the students with a cumulative GPA ranging from 4.75 to 5 at the time of graduation. The Second Honor Rank is awarded to students with a cumulative GPA ranging from 4.25 to less than 4.75 at the time of graduation.

To be eligible for the First or Second Honors degree, the following conditions must be met:

- The student must not have failed any course taken at the university or any other university.
- The student must have completed the graduation requirements within a time frame that does not exceed the average between the minimum and maximum duration allowed for staying in their college.
- The student must have completed at least 60% of the graduation requirements at PSAU.

For more information, Visit <https://dar.psau.edu.sa/en>

### **Guidance and Orientation Programs for New Students**

BMT participates in a CAMS orientation session for all new students at the beginning of each academic year. The orientation provides students with a comprehensive understanding of the program's goals, mission, curriculum, teaching strategies, and assessment methods. Additionally, the orientation provides students with information regarding BMT, CAMS and PSAU resources, graduation requirements, medical services, academic, social, and psychological support services, as well as extracurricular activities that are available at BMT, CAMS. Also, BMT management meets with the newly enrolled students to provide essential information about BMT, study plan, academic services, program and student guides. BMT provides a supportive academic environment through the availability of a range of services including well-equipped classrooms and laboratories, learning management system (Blackboard), and a well-furnished library. The BMT management encourages the students to periodically meet their academic advisors and check the BMT website and notice board for all electronic links (in the form of QR code). Moreover, PSAU outlines the rights and responsibilities of its students. BMT notifies the students about the Grievances and Complaints, Duties and Rights handbook created by PSAU. There are no financial fees for students enrolled in any of the PSAU programs.

### **Academic Advising @ BMT**

BMT Students Affairs and Academic advising Committee is responsible for follow-up academic affairs, distribution of students to academic advisors, and coordinate with CAMS academic advising unit. Every student in BMT is allocated to an academic advisor. Each student's academic advisor's name will appear on their academic portal, and the academic advisor can see the list of all his student advisees through the same portal. Students can connect with their academic advisor either through an online platform or in person by scheduling an appointment during the academic advisor's counseling hours.

BMT students receive guidance from their respective academic advisors regarding their academic, psychological, social, and professional challenges, course registration issues, and other matters. The PSAU academic advising guide gives the procedures and forms to be used by academic supervisors. Furthermore, the BMT collaborates with the CAMS academic advising unit to conduct seminars for students as well as academic advisors.

BMT academic advisors, without directly offering, transfer students in need of advanced psychological/social assistance and assist them in using the appropriate resources available at PSAU. Also, the student himself can directly contact the university's guidance and counseling unit or book an appointment with the university specialist. For more information, please visit <https://dar.psau.edu.sa/en>.

## **PSAU Counseling Services**

Counseling services are provided by the university counseling unit, and include:

- Psychological Counseling: Focuses on resolving personal or psychological issues.
- Social Counseling: Helps students adapt to social challenges and connect better with peers and faculty.
- Career Counseling: Guides students in making informed career choices based on their academic performance and personal strengths.
- Academic Counseling: Assists students in understanding their abilities and planning their study path.

## **Student Rights**

### **A) Academic Rights**

1. Students have the right to an appropriate learning environment that facilitates easy and smooth understanding, with all available educational resources provided to support this goal.
2. Students have the right to receive the academic content and knowledge related to the university courses they are studying, in accordance with the university's regulations governing academic work.
3. Students have the right to access the study plans of the college or department and available specializations, as well as to review course schedules before the start of the semester and register for courses as per the system and registration rules. Priority for course registration should be fairly managed when it is not possible to meet the desires of all students in registering for a specific course.

4. Students have the right to add or drop courses, or withdraw from an entire semester, as per the university's registration system, within the designated and announced period.
5. Students have the right to expect that faculty members adhere to the lecture schedules, fulfill the required lecture and lab hours, and avoid canceling or changing lecture times unless absolutely necessary, with proper announcements made. Make-up lectures should be coordinated with students and the department concerned.
6. Students have the right to engage in respectful academic discussions with faculty members without fear of punishment, provided the discussion adheres to proper etiquette and decorum, whether during class or office hours.
7. Students have the right for exam questions to be based on the course content and topics discussed during lectures, and for fair and logical distribution of grades to ensure proper evaluation of student capabilities.
8. Students have the right to attend all exams unless there is a legal reason preventing it, in accordance with university rules. Students should be notified well in advance if they are barred from taking an exam.
9. Students have the right to review model answers for midterm exams, when possible, and the distribution of grades to understand the basis of their evaluation before the final exam.
10. Students have the right to request a review of their final exam answers, in accordance with the university's procedures for review and re-evaluation.
11. Students have the right to know their exam results after grading is complete and approved.

#### B) Non-Academic Rights

1. Students have the right to benefit from social assistance and care provided by the university and participate in university activities, following university regulations.
2. Students have the right to receive adequate healthcare at university-affiliated hospitals and health centers.
3. Students have the right to access university services and facilities (such as textbooks, university housing, central and branch libraries, sports fields, dining halls, parking, etc.), as per university rules.
4. Students are entitled to receive statutory incentives and financial rewards.

5. Students have the right to be nominated for training courses, programs, and internal or external trips, as well as increased participation in cultural and community service activities.
6. Students have the right to file complaints or grievances related to their relationship with faculty members, departments, colleges, or any university unit, according to the regulations of the Student Rights Protection Unit, and be informed about the outcome of their complaint.
7. Students have the right to defend themselves in any disciplinary proceedings within the university, and no penalties can be imposed without hearing their side unless they fail to appear without a valid excuse after a second summons.
8. Students have the right to appeal against any disciplinary decision made against them, following the rules governing student discipline.
9. Students have the right to privacy regarding their university file, which should not be disclosed to anyone except the student, their guardian, or an authorized representative, unless required by investigative or judicial authorities or other government entities.
10. Students with special needs have the right to appropriate services that cater to their needs, as per relevant rules and regulations.

For more information, visit [\(To add the link for PSAU student Rights Duties\)](#)

## **Student Responsibilities**

### **A) Academic Responsibilities**

1. Students are required to attend classes regularly and fulfill all academic requirements, adhering to the rules for starting and ending semesters, transferring, registering, withdrawing, and dropping courses, in accordance with university regulations.
2. Students must respect faculty, staff, contractors, other students, visitors, and guests of the university, refraining from any form of verbal or physical harm.
3. Students must comply with the rules and arrangements for attending lectures, maintaining order and not being absent without a valid excuse as per university regulations.
4. When preparing research papers or course requirements, students must avoid cheating or plagiarism, claiming others' work as their own, or using any unauthorized means in preparing assignments.

5. Students must comply with exam rules and avoid cheating, attempting to cheat, or assisting in cheating in any form. Students should also avoid impersonating others, forging documents, or bringing prohibited materials or devices into the exam or lab.
6. Students must follow the instructions given by supervisors or proctors during exams and maintain a calm atmosphere.
7. Students must register and regularly check their university email, ensuring it is functional, and review it daily for announcements or notifications.
8. Students must pay any fines imposed by the university for violations they committed or caused.

#### B) Non-Academic Responsibilities

1. Students must adhere to the university's regulations and decisions, avoiding attempts to circumvent or violate them, and must not submit forged documents to obtain any benefits or rights contrary to university rules.
2. Students are required to carry their university ID card while on campus and present it to faculty or staff when requested.
3. Students must respect university property, avoiding any form of vandalism, tampering, or obstruction of university facilities or equipment.
4. Students must follow the rules for organizing and using university facilities, ensuring they have prior permission for their intended use.
5. Students must wear appropriate attire and behave in a manner consistent with university and Islamic norms, avoiding any conduct that violates Islamic ethics or public decency.
6. Students must maintain quiet and calm within university premises, refrain from smoking, and avoid engaging in disruptive or unauthorized gatherings.

For more information, refer to [PSAU student Rights Duties Complaints Grievances](#) guide.

#### **Formal Complaint Procedures for Students**

Students must adhere to the following procedures and regulations when submitting a complaint:

1. **Timeframe:** The complaint must be filed within thirty (30) days from the date of the incident giving rise to the complaint.
2. **Submission:** The student must submit the complaint to “Students Affairs and academic Advising” Committee in the BMT department.
3. **Form Completion:** The official complaint form must be filled out accurately and completely, ensuring that all required information is provided.
4. **Initial Review:** All issues that can be resolved amicably or formally shall first be reviewed and addressed by a committee within the department, by the aid of the head of the department. The process will maintain complete confidentiality and aim for a prompt resolution.
5. **Escalation (Stage 1):** If the complaint cannot be resolved at the departmental level either by the committee or the head of the department, the student may escalate the matter to the College Complaints Committee.
6. **Escalation (Stage 2):** If the complaint cannot be resolved at the college level either by the committee or the dean of the college, the student may escalate the matter to the **Standing Committee for Student Rights** at the university.
7. **Response and Communication:** Complaints will be reviewed and responded to promptly. To ensure effective communication, the complainant should provide accurate personal and contact information, including their name, division, academic level, and preferred method of contact (e.g., phone number or email). A response time or meeting date may also be arranged to facilitate direct communication between the committee and the complainant.

For more information, refer to [PSAU student Rights Duties Complaints Grievances](#) guide.

## BMT Study Plan

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or
Level 1	ARAB 101	Language Skills	Required	-	2	Institution
	BIO 106	General Biology	Required	-	4	
	ENGL 132	Reading	Required	-	3	
	ENGL 133	Writing	Required	-	3	
	CT 140	Computer Skills	Required	-	3	
	MC 1400	Communication Skills	Required	-	2	
Level 2	IC 101	Introduction of Islamic Culture	Elective	-	2	Institution
	STAT 106	Biostatistics	Required	-	2	
	PHYS 106	General Physics	Required	-	4	
	CHEM 106	Organic Chemistry for Health Sciences	Required	-	2	
	ENGL 131	Listening/Speaking	Required	-	3	
	ENGL 134	English for Health Sciences	Required	-	3	
Level 3	ARAB 103	Arabic Editing	Required	-	2	Institution
	BMTS 2110	Human Anatomy & Physiology	Required	CHEM 106, BIO 106	2	Biomedical Technology Program
	BMTS 2120	Math for Biomedical Systems 1	Required	STAT 106	3	
	BMTS 2130	Physics of Medical Instruments	Required	PHYS 106	3	
	BMTS 2210	Electrical Circuits and Skills	Required	Co-requisite BMTS 2130	4	
	IC 102	The Islam and Society Building	Elective	-	2	Institution
Level 4	IC 103	The Foundation of the Economic System in Islam	Elective	-	2	Institution
		Elective course	Elective	-	2	College
	BMTS 2220	Math for Biomedical System 2	Required	BMTS 2120	3	Biomedical Technology Program
	BMTS 2230	Biomaterials	Required	-	2	

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or
	BMTS 2310	Biomedical Analog Electronics	Required	BMTS 2210	3	
	BMTS 2320	Computer Programming 1	Required	CT 140	3	
	BMTS 2330	Biomedical Digital Electronic	Required	BMTS 2210	3	
Level 5	ISLM 108	Medical Jurisprudence	Elective	-	2	Institution
	BMTS 2340	Biomedical Analog Signal Processing	Required	BMTS 2220	3	Biomedical Technology Program
	BMTS 3130	Biomedical Electronic Circuit	Required	BMTS 2310	3	
	BMTS 3220	Computer Programming 2	Required	BMTS 2320	3	
	BMTS 3320	Biomechanics	Required	BMTS 2130	2	
	BMIS 4130	Safety in HealthCare Systems	Required	-	3	
Level 6	BMTS 3110	Biomedical Digital Signal Processing	Required	BMTS 2340	3	Biomedical Technology Program
	BMTS 3120	Microprocessor and Computer Interfacing	Required	BMTS 2320	3	
	BMIS 3210	Optical, Acoustic and & Laboratory Instruments	Required	BMTS 2130	3	
	BMTS 3230	Biomedical Instruments 1	Required	BMTS 2310	3	
	BMTS 3240	Biomedical measurements and Sensors	Required	BMTS 2310	3	
	BMTS 3310	Research Methodology	Required	-	2	
Level 7	BMIS 3330	Medical Imaging Systems	Required	BMTS 2130	4	Biomedical Technology Program
	BMIS 3340	Biomedical Instruments 2	Required	BMTS 3230	3	
	BMTS 4110	Computer Networking in Health Care Systems	Required	BMTS 3220	2	
	BMTS 4210	Graduation Project 1	Required	93 Credit hours	3	

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or
	BMIS 4220	Control Systems for Biomedical Equipment	Required	BMTS 2340	3	
		Elective course	Elective	-	3	
Level 8	BMTS 4120	Medical Image Processing	Required	BMTS 3110	3	Biomedical Technology Program
	BMIS 4230	Embedded Electronic Systems in Medical Technology	Required	-	3	
	BMTS 4310	Graduation Project 2	Required	BMTS 4210	3	
	BMIS 4320	Clinical Practice in Biomedical Instruments Management & Maintenance	Required	BMTS 3230	3	
		Elective course	Elective	-	3	

## Elective Courses

### BMT elective courses

The student chooses two courses from the following courses:

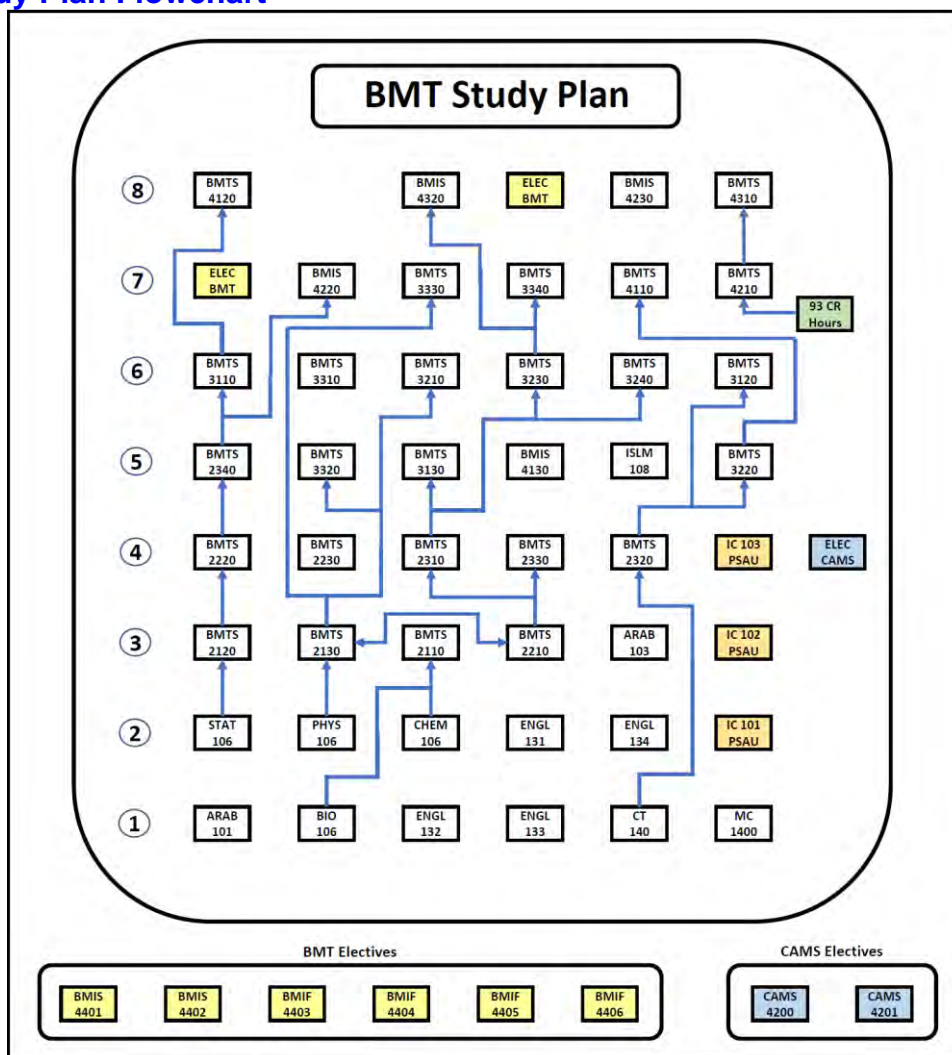
Code	course title	Pre-Requisite courses	credit hours
BMIS 4401	Selected Topics in Biomedical Technology	-	3
BMIS 4402	Nanotechnology	-	3
BMIF 4403	Introduction to Telemedicine	-	3
BMIF 4404	Biomedical Information Systems	-	3
BMIF 4405	Artificial Intelligence	-	3
BMIF 4406	Modeling and simulation in Biomedical	-	3

### CAMS elective courses

The student chooses one course from the following courses:

Code	course title	Pre-Requisite courses	credit hours
CAMS 4200	Emergency Care	-	2
CAMS 4201	Medical ethics	-	2

## BMT Study Plan Flowchart



## BMT Course Descriptions

### LEVEL 3

<b>Code &amp; No :</b> BMTS 2110
<b>Course :</b> Human Anatomy and Physiology
<b>Credits :</b> 2 (2+0)
<b>Pre-requisite :</b> BIOL 106 - CHEM106
The course covers the fundamental and principal concepts of human anatomy and physiology. Topics include an introduction to the structure and function of tissues and organ systems. Moreover, the course provides an overview of all body systems – the nervous, skeletal,

muscular, circulatory, respiratory, digestive, urinary, endocrine, and reproductive systems – and the mechanisms of maintaining body homeostasis.

**Code & No : BMTS 2120**

**Course : Mathematics for Biomedical Systems I**

**Credits : 3 (3+0+0)**

**Pre-requisite : STAT 106**

This course presents the introductory concepts of polynomials and its operation, concepts and applications of functions are present. Learning about differentiation, integral and their notions and applications. Students will gain knowledge of Exponential and logarithm, followed by linear and vector algebra (Matrix), ended by an important part of trigonometry and its applications.

**Code & No : BMTS 2130**

**Course : Physics of Medical Instruments**

**Credits : 3 (2+1+0)**

**Pre-requisite : PHYS 106**

The objective of this course is to provide an understanding of the basics of physics, its relationship with biomedical phenomena, and applications of physics principles into biological systems. It includes units and dimensions of different physiological parameters, mechanic of particles, optics, sound and ultrasound. It contains also fluids static and dynamic, gas laws, optics. It contains also isotopes, nature and properties of ionizing radiation, dose calculation, and electromagnetic radiation in medical instruments.

**Code & No : BMTS 2210**

**Course : Electrical Circuits & Skills**

**Credits : 4 (3+1+0)**

**Pre-requisite : BMTS 2130 /MC**

This course focus on principles of electricity including resistive circuits, circuit theorems, nodal and mesh analysis, maximum power transfer theorem, source free inductive and capacitive circuits. It also focuses on natural and forced response of RL and RC circuits, RLC circuits. It includes the basic hand tools, common electrical instruments used in design and production of electrical circuits. Student will learn circuit construction techniques starting by block and schematic diagrams till the production of the circuit. Student will also acquire basic skills in

maintenance of electronic circuits, using advanced test equipment, and component testing and continuity checks, in order to find and fix faulty components in the biomedical instrument.

#### LEVEL 4

<b>Code &amp; No : BMTS 2220</b>
<b>Course : Mathematics for Biomedical Systems II</b>
<b>Credits : 3 (3+0+0)</b>
<b>Pre-requisite : BMTS 2120</b>
This course presents the introductory concepts of complex number and its operation, application of differentiation and integral will be covered. Students will gain knowledge of linear differential equations and the methods of its solution including operator method, in addition of functions and its applications.

<b>Code &amp; No : BMTS 2230</b>
<b>Course : Biomaterials</b>
<b>Credits : 2 (2+0+0)</b>
<b>Pre-requisite :</b>
This course introduces students to various aspects of biomaterials. Students learn about the properties, classes, biological testing, and applications of biomaterials. Students also study surface modification, adsorbed proteins, tissues, extracellular matrix, cell–biomaterial interactions, inflammation, wound healing, foreign-body response, blood coagulation and blood–materials interactions, biofilms, biocompatibility, and degradation. In addition, students are introduced to sterilization, regulatory compliance, ethical issues, and clinical trials.

<b>Code &amp; No : BMTS 2310</b>
<b>Course : Biomedical Analog Electronics</b>
<b>Credits : 3 (2+1+0)</b>
<b>Pre-requisite : BMTS 2210</b>
This course introduces students to the basics of electronics, semiconductor diodes, diode applications, bipolar junction transistors (BJT), DC biasing BJT, field-effect transistors (FET), FET and MOSET biasing, and BJT and FET transistor amplifiers. Students learn about the use of transistors as amplifiers in electronic circuits and their applications in biomedical

instruments. In addition, students become familiar with biocompatible, implantable transistors, polymer transistors, BioFETs, and ChemFETs.

**Code & No : BMTS 2320**

**Course : Computer Programming 1**

**Credits : 3 (2+1+0)**

**Pre-requisite : CT 140**

This course presents the essential knowledge in programming with "C" language. It gives to student the basic idea behind computer programming and its applications. Student will deal with the environment of C language by coding, compile then run the results using the basic notions of (Input Output of variables, types of data, iterative and conditional statements, tables, functions and structures for database)

**Code & No : Biomedical Digital Electronic**

**Course : BMTS 2330**

**Credits : 3 (2+1+0)**

**Pre-requisite : BMTS 2210**

This course focuses on the basics of digital electronics which starts by introduction to the digital and analog systems, digital circuits, parallel and serial transmission. It also deals with logic gates and Boolean algebra, design of combinational logic circuits, memory, analog to digital conversion and vice versa, some application to biomedical devices will also be covered

## LEVEL 5

**Code & No : BMTS 2340**

**Course : Biomedical Analog Signal Processing**

**Credits : 3 (3+0+0)**

**Pre-requisite : BMTS 2220**

This course aims to provide fundamental knowledge of analog signal and systems. The student should classify the signal and system in time domain, and represent the periodic signal in time-frequency domain using Fourier series. Then to analyze the LTI system and aperiodic signal in frequency domain using Fourier transform with the extraction the frequency response (magnitude and phase). In addition, to solve the N-order linear

differential equation using Laplace Transform and calculating the output signal of LTI system using this transform. Then to identify basic types of frequency-selective filters (i.e., low pass, high pass, band stop, and band pass)

**Code & No : BMTS 3130**

**Course : Biomedical Electronic Circuit**

**Credits : 3 (2+1+0)**

**Pre-requisite : BMTS 2310**

This course focuses on integrated circuits and their application in biomedical instrumentation. It starts with introduction to integrated circuits, and then it deals with operational amplifier, such as summing amplifier, inverter, non-inverting amplifier, comparator, Oscillator, instrumentation amplifier and analog filters and its application in biomedical devices such as ECG, EEG or EMG circuits.

**Code & No : BMTS 3220**

**Course : Computer Programming 2**

**Credits : 3 (2+1+0)**

**Pre-requisite : BMTS 2320**

This course is designed for students who have limited experience in programming and to equip these students with knowledge on how computation can be applied to problem-solving and to boost their confidence in writing basic programs that can achieve useful objectives. In addition, it introduces programming skills and focuses on the core concepts of object-oriented programming and design using a high-level language.

**Code & No : BMTS 3320**

**Course : Biomechanics**

**Credits : 2 (2+0+0)**

**Pre-requisite : BMTS 2130**

This course provides students with knowledge of the fundamental principles of biomechanics, integrating concepts from both biology and mechanical engineering to analyze human movement and the mechanics of living systems. Students will gain foundational knowledge of the anatomical basis of human motion, the mechanical properties of biological tissues, and the dynamics of biomechanical systems. Through a

detailed examination of human movement and function, this course provides a robust foundation in both the theoretical and applied facets of the field.

**Code & No : BMIS 4130**

**Course : Safety in Healthcare systems**

**Credits : 3 (3+0+0)**

**Pre-requisite : -**

Throughout this course students understand patient safety, hospital safety, types of hazards in hospital and their control, Safety principles and standards, Safety program and insurance.

## LEVEL 6

**Code & No : BMTS 3110**

**Course : Biomedical Digital Signal Processing**

**Credits : 3 (2+1+0)**

**Pre-requisite : BMTS 2340**

Throughout this course student learn some digital signal processing techniques, including sampling and quantization, operation on digital signal, interpolation, decimation, shift, discrete convolution, correlation, discrete Fourier series and transform, Z-transform, application of Z-transform on biomedical signals, and finally digital filters design with some application.

**Code & No : BMTS 3120**

**Course : Microprocessor and Computer Interfacing**

**Credits : 3 (2+1+0)**

**Pre-requisite : BMTS 2320**

This course focuses on advanced digital electronic circuits, including the architecture of microprocessors and interfacing. Architecture of a specific 16-bit processor. Introduction to assembly language programming, processor interface with memory and input/output interfacing techniques. Applications of microprocessors in biomedical instruments

**Code & No : BMIS 3210**

<b>Course</b>	<b>: Optical, Acoustic and Laboratory Instruments</b>
<b>Credits</b>	<b>: 3 (2+1+0)</b>
<b>Pre-requisite</b>	<b>: BMTS 2130</b>
<p>This course focuses on studying optical instruments, starting by understanding the optical principles, operation of some laboratories and medical instruments. It covers light microscopy, emission and absorption spectrometry, flame spectrophotometer, flame photometers, endoscope instruments, laser instruments. It also provides an understanding of the working principle of automated units, maintenance, and calibration. Laboratory information and automation, Chromatology, Electrophoresis, Hematology, Automated chemical analyzers and Acoustic devices.</p>	

<b>Code &amp; No</b>	<b>: BMTS 3230</b>
<b>Course</b>	<b>: Biomedical Instruments 1</b>
<b>Credits</b>	<b>: 3 (2+1+0)</b>
<b>Pre-requisite</b>	<b>: BMTS 2310</b>
<p>In this course, the students will learn about and study a wide variety of biomedical instruments, including the Medical Ventilator, Anesthesia Machine, Spirometer, Heart-Lung Machine, Infant Incubator, Aspirator, Infusion Pump, Dialysis Machine, etc.,</p>	

<b>Code &amp; No</b>	<b>: BMTS 3240</b>
<b>Course</b>	<b>: Biomedical Measurements and Sensors</b>
<b>Credits</b>	<b>: 3 (2+1+0)</b>
<b>Pre-requisite</b>	<b>: BMTS 2310</b>
<p>The course focuses on the basics of transducers and sensors used in biomedical measurements. The student will study the classification of transducers and sensors based on a stimulus (Mechanical, Acoustic, Electrical, Magnetic, Optical, Thermal, and Radiological) and its applications in invasive and non-invasive biomedical measurement devices.</p>	

<b>Code &amp; No</b>	<b>: BMTS 3310</b>
<b>Course</b>	<b>: Research Methodology</b>
<b>Credits</b>	<b>: 2 (2+0+0)</b>
<b>Pre-requisite</b>	<b>: -</b>

This course provides a comprehensive introduction to scientific research and methodology. It explores various research types, methods, and designs, learning how to define research problems, questions, hypotheses, and objectives. The course covers essential skills like literature searching, critical review, and identification of research gaps, alongside best practices for citation, plagiarism prevention, and using reference management software. It also delves into research planning, statistical analysis, and research ethics, culminating in the ability to write effective research proposals and reports. This course equips students with the foundational knowledge and practical skills needed to conduct scientific inquiry effectively.

## LEVEL 7

<b>Code &amp; No : BMIS 3330</b>
<b>Course : Medical Imaging Systems</b>
<b>Credits : 4 (3+1+0)</b>
<b>Pre-requisite : BMTS 2130</b>
During this course the student will understand the principle of imaging modalities and technologies of different imaging instruments. This course focuses on different imaging modalities including X-ray, Computed tomography, Ultrasound, Magnetic Resonance Imaging (MRI) and Nuclear medicine imaging systems.

<b>Code &amp; No : BMIS 3340</b>
<b>Course : Biomedical Instruments 2</b>
<b>Credits : 3 (2+1+0)</b>
<b>Pre-requisite : BMIS 3230</b>
The course focuses on studying several biomedical instruments such as: Defibrillator, pacemaker, electrosurgical unit, cardiac outputs and bioimpedance, Bio-amplifier, and vital signs monitor.

<b>Code &amp; No : BMTS 4110</b>
<b>Course : Computer Networking in Health Care Systems</b>
<b>Credits : 2 (2+0+0)</b>
<b>Pre-requisite : BMTS 3220</b>

The course focuses on network applications concerned with medical data acquisition, storage and processing. medical/health informatics, differences between systems and application software, the uses of telecommunications and networking. The course also focuses on medical image compression by studying common image compression algorithms. It gives also a detailed study of medical image format (DICOM) and its storage using PACS, and the fundamentals of data communications and network layers using the encapsulation and addressing mechanism through the OSI and TCP/IP model.

**Code & No : BMTS 4210**

**Course : Graduation Project I**

**Credits : 3 (3+0+0)**

**Pre-requisite : Completion of 93 Credit hours**

This capstone course empowers students to synthesize their accumulated knowledge, skills, and values in biomedical technology by meticulously conceptualizing, planning, and initiating a substantial research project. The course rigorously develops critical thinking, research proficiency, project management, and problem-solving skills, culminating in a robust research proposal. Working closely with a faculty supervisor, students will delve into literature search and review to identify a compelling research gap, subsequently defining their project's aim, hypothesis, objectives, scope, and significance. A core focus will be placed on crafting a detailed methodology, including materials, equipment, and software. Students will also master research planning and timeline development. The course culminates in the submission of a written research proposal and oral presentations to faculty reviewers. Throughout this process, consistent logbook documentation and regular meetings will ensure continuous guidance and feedback, fostering the independent research and communication skills essential for advanced work in biomedical technology.

**Code & No : BMIS 4220**

**Course : Control System for Biomedical Equipment**

**Credits : 3 (2+1+0)**

**Pre-requisite : BMTS 2340**

This course introduces modeling, analysis, and design of feedback control systems. It focuses on mathematical concepts in continuous-time linear control systems, including Laplace Transform, transfer functions and controller design, and provides students with hands-on experience in design and frequency analysis of feedback control systems. This course covers also how to analyze the performance of feedback control systems and to design controllers PI, PD and PID to meet the required system specifications. In addition, it covers application in biomedical devices

## LEVEL 8

<b>Code &amp; No : BMTS 4120</b>
<b>Course : Medical Image Processing</b>
<b>Credits : 3 (2+1+0)</b>
<b>Pre-requisite : BMTS 3110</b>
This course focuses on the basics topics of medical image analysis and visualization include: statistics on the image, the notion of pixel, value representation in gray-level images, color images, and operation on pixels for image enhancement. It covers also convolution application for different types of filter on images for noise reduction, enhancement using operation on histograms, linear and nonlinear filters, image enhancement by histogram equalization; filter based on Fourier space and image restoration.

<b>Code &amp; No : BMIS 4230</b>
<b>Course : Embedded Systems in Medical Technology</b>
<b>Credits : 3 (2+1+0)</b>
<b>Pre-requisite :-</b>
This course covers the basic concepts of embedded systems and the applications of embedded systems in medical technology. Students will gain a deeper understanding of the basic hardware, software, and interfacing concepts regarding an embedded microprocessor/microcontroller. Students will explore the design and use of general and single-purpose processors, registers and memory, communication protocols, timers and interrupts, and hardware/software interfacing methods. Students will also learn embedded programming concepts necessary for developing small and large-scale embedded systems in healthcare applications.

<b>Code &amp; No : BMTS 4310</b>
<b>Course : Graduation Project 2</b>
<b>Credits : 3 (3+0+0)</b>
<b>Pre-requisite : BMTS 4210</b>
This culminating capstone course builds directly upon the foundational research planning established in Graduation Project 1. Students will apply and integrate their comprehensive knowledge, skills, and values in biomedical technology to successfully execute and complete a substantial research project. The course intensely focuses on refining critical

thinking, research methodologies, project management techniques, and problem-solving skills, with a strong emphasis on rigorous data collection, thorough analysis, and effective communication of findings. Under the close guidance of a faculty supervisor, students will implement their approved project plan, meticulously adhering to the defined timeline and ensuring all work meets the highest academic standards. Regular supervision, detailed logbook documentation, and ongoing feedback loops will track progress and facilitate continuous refinement. The course culminates in the development and submission of a comprehensive written project report, detailing the full methodology, results, and insightful discussions. Furthermore, students will present their project outcomes, insights, and contributions through both oral presentations and poster presentation, to be assessed by expert faculty reviewers. This course solidifies students' ability to independently conduct and effectively communicate advanced research in biomedical technology.

**Code & No : BMIS 4320**

**Course : Clinical Practice in Biomedical Instruments Management & Maintenance**

**Credits : 3 (2+1+0)**

**Pre-requisite : BMTS 3230**

The aim of the course is to develop a student to assist in the installation, repair and maintenance of basic medical equipment and devices. This course focuses on the acquisition of the skills necessary to perform management, inspection, installation, preventative maintenance and troubleshooting of Basic Clinical Equipment and their related medical device/ electronic systems, including appropriate documentation for all service activities.

## Elective courses

**Code & No : BMIS 4401**

**Course : Selected Topics in Biomedical Technology**

**Credits : 3 (3+0+0)**

**Pre-requisite : -**

This course introduces students to several selected topics in biomedical technology which are not covered in mandatory courses.

**Code & No : BMIS 4402**

<b>Course</b> : <b>Nanotechnology</b>
<b>Credits</b> : <b>3 (3+0+0)</b>
<b>Pre-requisite</b> : -
This course introduces the fundamentals of nano-scale engineering and manufacturing. Current and future applications of nanostructured materials will be reviewed with respect to their impact on commercial products and technologies. Emphasis will be placed in biomedical applications.

<b>Code &amp; No</b> : <b>BMIF 4403</b>
<b>Course</b> : <b>Introduction to Telemedicine</b>
<b>Credits</b> : <b>3 (3+0+0)</b>
<b>Pre-requisite</b> : -
This course teaches several aspects of telemedicine techniques that improve the quality and efficiency of healthcare delivery. Students will learn new concepts on medical data generation, archiving, retrieval, conversion, transmission, interaction, and interpretation in a wireless environment and how to implement them in a healthcare setting. It covers health information systems, teleradiology (PACS), telesurgery, tele-pharmacy, remote monitoring, standards (i.e., DICOM, HL7), security and economic issues, and commercial hardware and software. Students will also learn how to deploy telemedicine interventions, user-interfaces, and decision support systems.

<b>Code &amp; No</b> : <b>BMIF 4404</b>
<b>Course</b> : <b>Biomedical Information Systems</b>
<b>Credits</b> : <b>3 (3+0+0)</b>
<b>Pre-requisite</b> : -
This course covers the fundamental concepts of medical and health informatics, focusing on healthcare systems and their applications. It begins with an introduction to medical records, patient information systems, and Hospital Information Systems (HIS). The course emphasizes the processes of defining, processing, and displaying data within a healthcare setting. It includes the study of medical databases and key industry standards such as DICOM and PACS. Finally, the course discusses the impact of government regulations on the security and transfer of medical information and explores modern applications of computer networks in healthcare.

<b>Code &amp; No</b> : <b>BMIF 4405</b>
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<b>Course</b>	<b>: Artificial Intelligence</b>
<b>Credits</b>	<b>: 3 (3+0+0)</b>
<b>Pre-requisite</b>	<b>: -</b>
<p>This course gives students an introduction to Artificial Intelligence (AI) techniques. The module aims to present the basic representation and reasoning paradigms used in AI in both theory and practice. It includes machine learning, deep learning, Neural networks, Natural language processing, and AI Applications in Medicine &amp; Medical diagnosis.</p>	

<b>Code &amp; No</b>	<b>: BMIF 4406</b>
<b>Course</b>	<b>: Modeling and Simulation in Biomedical</b>
<b>Credits</b>	<b>: 3 (3+0+0)</b>
<b>Pre-requisite</b>	<b>: -</b>
<p>This course covers modeling and simulation principles with applications to biomedical systems. It starts by an overview of modeling simulation history and terminology. It covers modeling systems using differential equations with application to electrical and mechanical systems with emphasis on physiological systems like cardiovascular and respiratory systems.</p>	

### **BMT Learning Resources, Facilities, Equipment**

BMT provides ample learning resources, facilities, and equipment. The teaching and learning process for all courses is streamlined using Blackboard Learning Management System (LMS) with integrated access to the Saudi Digital Library (SDL). Also, the students can avail themselves of the facilities and learning resources from the well-furnished PSAU library.

BMT has well-equipped classrooms and laboratories with all the required equipment. BMT has an adequate number of classrooms to accommodate all courses. All classrooms are equipped with IQTouch interactive displays or smartboards-projectors as well as whiteboards for traditional instruction. BMT laboratories include computer laboratory, biomedical instrumentation lab, analog and digital lab, electrical skills lab, medical imaging system lab, medical maintenance lab, physics and optics lab, and project lab.

Students can benefit from a variety of amenities provided by the college, such as a student services room, a space for assignment work, and areas for prayer. Private cafeterias are also available. Also, the university provides facilities such as a central mosque, a recreational center, and a stadium.

Facilities	Number
Classrooms	4
Laboratories	7
Computer lab	1 dedicated + 1 shared





## Lab Safety

Safety is a matter of high concern for BMT. The maintenance of a safe environment for students, faculty, and staff is one of the major aims of BMT. Laboratories and different department spaces are equipped with safety equipment such as automatic fire extinguishers, fire hoses, smoke detectors, first aid kits, emergency exit doors, safety labels, etc.

The program applies safety in an effective manner for all its facilities and equipment. The program has a strong commitment to complying with occupational and public health and safety regulations, protecting the health and safety of its students and faculty.



### **Lab Rules & Safety Guidelines**

- Do not eat food, drink beverages or chew gum in the lab. Smoking is strictly prohibited in labs.
- Always conduct yourself in a responsible manner in the lab. Don't talk aloud or crack jokes during the lab sessions.
- Do not wander around the room, distract other students, startle other students or interfere with the lab experiments of others.
- Protect yourself from getting electric shock.
- Report any accident (breakage, etc.) or injury (cut, burn etc.) to the instructor immediately, no matter how trivial it seems. **DO NOT PANIC.**
- Observe good housekeeping practices. Replace all the equipment and components in the proper place after usage to keep the lab area tidy.
- Before starting a lab experiment follow the written and verbal instructions for that specific experiment carefully. If you do not understand a part of the procedure, **ASK YOUR INSTRUCTOR BEFORE PROCEEDING WITH THE ACTIVITY.**
- Set up and use the equipment as directed by your **INSTRUCTOR.** If you do not understand how to use a piece of equipment, **ASK THE INSTRUCTOR FOR HELP!**
- Perform only those experiments authorized by your **INSTRUCTOR.**
- Students are not allowed to work in Lab alone or without the presence of instructor.
- Do not open any irrelevant internet sites on lab computer.
- Do not use a flash drive on lab computers.
- Do not upload, delete or alter any software on the lab PC.
- Every Student should know the locations and operating procedures of First AID KITS .
- Know where the fire alarm and the exits are located.
- Laboratories must be locked if no one is in the lab.



### Lab Safety Guidelines: ELECTRICAL HAZARDS

- Always pull on the connector body rather than the cord to unplug a device.
- Before providing service, disconnect all devices from the circuit.
- Never turn off circuit breakers or fuses.
- Make sure that breaker panels and electrical service are always available.
- Avoid rolling chairs over electrical cords or wires, and keep all cables and wires out of areas where people walk.
- It is not advisable to use electrical equipment or connections after liquid has been spilled on them or to touch them with wet hands.
- Every lighting stand needs to be securely fastened.
- Steer clear of extension cords. Extension cords are only meant to be used temporarily.
- Please get in touch with our building's facility manager if more wall outlets are required. A circuit should never be overloaded.
- Any machine that sparks, smokes, or seems flawed in any manner should not be used. Machines that are damaged or flawed should be taken out of service right away.
- Don't pinch or stretch cords. Periodically inspect the cable, cables, and connectors, and replace any that exhibit chipping, cracking, or other damage right away.
- Paying attention to electrical equipment's correct earthing. The three-pronged connector on a grounded tool's three-conductor cord needs to be inserted into a grounded outlet. Never use two-wire adapters to connect incompatible equipment or cut off the ground pins on three-wire products.
- Only qualified persons are allowed to do any electrical repairs.



### First Aid

All laboratories of the program have a first aid kit for use by the students or faculty.



## Emergency Contact Information

Office	Phone
Fire emergencies (Civil defense)	998
CAMS safety & security	6525
Technical issues	2000

## BMT Faculty Members

	Name	Academic Position	Phone	Email
1	Dr. Abdulrahman Alqahtani	Associate Professor	6391	<a href="mailto:ama.alqahtani@psau.edu.sa">ama.alqahtani@psau.edu.sa</a>
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3	Dr. Tareq Alhadidi	Associate Professor	6390	<a href="mailto:t.hadidi@psau.edu.sa">t.hadidi@psau.edu.sa</a>
4	Dr. Sofiene Mansouri	Associate Professor	6392	<a href="mailto:s.mansouri@psau.edu.sa">s.mansouri@psau.edu.sa</a>
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