Program Specification

Program Name: Bachelor of Biomedical Equipment Technology
Qualification Level : Bachelor – SAQF – Level 7
Department: Medical Equipment Technology
College: College of Applied Medical Sciences
Institution: Majmaah University

Content

A. Program Identification and General Information

1. Program Main Location:

Majmaah University Main Campus

2. Branches Offering the Program:

Nil

3. Reasons for Establishing the Program:
(Economic, social, cultural, and technological reasons, and national needs and development, etc.)

The College of Applied Medical Sciences (CAMS), being one of thirteen colleges at Majmaah University (MU) was established in 2009 to meet the need in the Kingdom of Saudi Arabia for skilled health care professionals. Since its establishment, it has been playing a significant role in providing both the private and the public health sectors with highly competent professional graduates who are equipped with the most recent knowledge and skills in their respective health care fields. CAMS currently operates five various undergraduate programs running under five academic departments. The Biomedical Equipment Technology Program, BMET, was established five years ago. BMET was established in order to cover the need to specialists in biomedical technology that is needed in all health institutions and companies. The establishment of this biomedical program came at a critical time while health care systems have been witnessing increase in the utilization of sophisticated equipment, both in diagnosis and therapy of diseases. Many disorders of body functions can be detected by direct or indirect testing of the body and the application of such complex technology needs the skills of highly-qualified personnel. The College of Applied Medical Sciences (CAMS), being one of thirteen colleges at Majmaah University (MU) was established in 2009 to meet the need in the Kingdom of Saudi Arabia for skilled health care professionals. Since its establishment, it has been playing a significant role in providing both the private and the public health sectors with highly competent professional graduates who are equipped with the most recent knowledge and skills in their respective health care fields. CAMS currently operates five various undergraduate programs running under five academic departments. The Biomedical Equipment Technology Program, BMET, was established five years ago. BMET was established in order to cover the need to specialists in biomedical technology that is needed in all health institutions and companies. The establishment of this biomedical program came at a critical time while health care systems have been witnessing increase in the utilization of sophisticated equipment, both in diagnosis and therapy of diseases. Many disorders of body functions can be detected by direct or indirect testing of the body and the application of such complex technology needs the skills of highly-qualified personnel.

4. Total Credit Hours for Completing the Program: (…….)

140 Credit hours

5. Learning Hours: (…….)
The length of time that a learner takes to complete learning activities that lead to achievement of program learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times)

According to the credit system used to measure the length of studies at Majmaah University;
One (1) theory credit Hours = 1 Hour
One (1) lab/practical credit Hours = 2 Hours
workload in hours for the entire study program,

The total workload for the entire programs was calculated as 8482 Hours, which included the contact hours, Internship Training and self-study hours. The internship workload was calculated based on 52 weeks of training from 08:00 to 05:00 pm 5 days a week.

6. Professional Occupations/Jobs:

Biomedical Equipment Technology Specialist

7. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professional Occupations/Jobs (For each track)
1.		
2.		
3.		
4.		

8. Intermediate Exit Points/Awarded Degree (if any):

Intermediate exit points/awarded degree	Credit hours
1.	
2.	
3.	

B. Mission, Goals, and Learning Outcomes

1. Program Mission:

To qualify distinctive and innovative competencies scientifically, skillfully and behaviorally in the field of medical equipment technology and providing community services through an advanced academic environment.

2. Program Goals:

- To achieve successful careers in biomedical equipment technology.
- To become successful technical advisors, managers, and techno-entrepreneurs.
- To pursue life-long learning and become successful educators for healthcare community through

3. Relationship between Program Mission and Goals and the Mission and Goals of the Institution/College.

The program mission clearly outlines the three functions through which we serve the community which are the education and production of future healthcare professionals, the direct and indirect healthcare services, and the research that will eventually improve health care.

The vision, mission, and values are all directly related to our community needs and the role that we serve in the community in terms of medical education, research and healthcare. The undergraduate program's mission clearly identifies the changing nature of healthcare needs of the Saudi community. These complies with Majmaah university Mission and goals. With a rapidly growing population and diversity of nationalities and ethnic backgrounds medical practice is challenging. With increasing awareness and modernization, issues of health prevention and education are becoming increasingly important.

Through innovative education, world class research, and high quality healthcare we can achieve the vision of MU by contributing in building the knowledge based economy that our country greatly needs. In response to the program mission to prepare the students for the future challenges and needs for the Saudi community lot of stress is given on learning skills, professionalism, and health informatics.

The University mission and strategic plan provide the framework upon which the institutional effectiveness process operates. The institutional effectiveness process permeates all entities including colleges, academic departments and programs, administrative and student support units, as well as centers and institutes. Each unit is required to articulate its support of the mission and strategic plan through a concise statement of purpose.

Consistency between University & College Missions
College: College of Applied Medical Sciences and Bachelor of Biomedical Equipment Technology Program

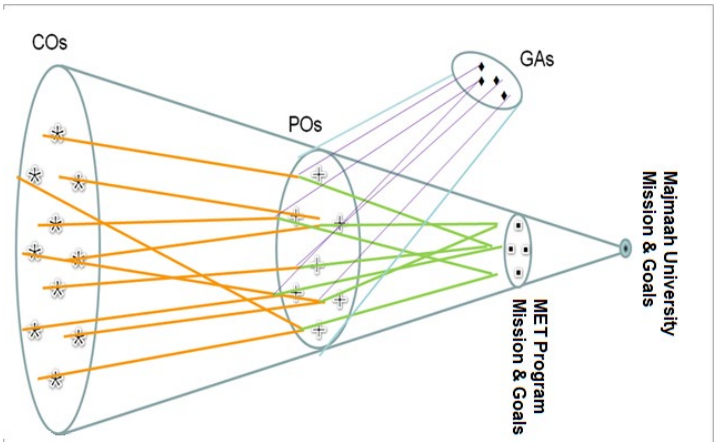
COLLEGE MISSION	UNIVERSITY MISSION KEYWORDS					PROGRAM MISSION
	KEYWORDS	Competitive Education	Qualitative Knowledge	Social Responsibility	Sustainable Development	KEYWORDS
	Competitive	■				Scientifically, Skillfully and Behaviorally
	Supporting the Scientific Research				■	Distinctive Competencies
	Competencies	■				Innovative Competencies
	Community Responsibility			■		Community Services
	Quality Educational Environment		■		■	Advanced Academic Environment

Consistency between College & Program Missions
College: College of Applied Medical Sciences and Bachelor of Biomedical Equipment Technology Program

College Mission Keywords / Program Mission Keywords		College Mission: Preparation of competitive applied medical competencies through quality educational environment supporting the scientific research and community responsibility.				
		Competitive	Quality Educational Environment	Competencies	Supporting the Scientific Research	Community Responsibility.
Program Mission	Innovative Competencies			■	■	
	Distinctive Competencies Scientifically, Skillfully and Behaviorally	■	■	■		
	Community Services					■
	Advanced Academic Environment	■	■		■	

The current mission of Program:
To graduate distinctive and innovative competencies scientifically, skillfully and behaviorally in the field of medical equipment technology, and providing community services through an advanced academic environment.

The University mission and strategic plan provide the framework upon which the institutional effectiveness process operates. The institutional effectiveness process permeates all entities including colleges, academic departments and programs, administrative and student support units, as well as centers and institutes. Each unit is required to articulate its support of the mission and strategic plan through a concise statement of purpose.



4. Graduate Attributes (GAs):

1) **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization for the solution of complex engineering problems.

2) **Problem Analysis:** Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural science and engineering sciences.

3) **Design and development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specific needs with appropriate considerations for public health safety and cultural, societal and environmental considerations.

4) **Conduct investigations of complex problems:** Use research based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.

5) **Modern tool usage:** create, select and apply appropriate techniques, resources and modern engineering and IT tools including predictions and modeling to complex engineering activities with an understanding of the limitations.

6) **The Engineer and society:** Apply reasoning, informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practices.

7) **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental context and demonstrate the knowledge of and need for sustainable development.

8) **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9) **Individual and team work:** Function effectively as an individual and as a member or leader in diverse teams and in multi disciplinary settings.

10) **Communication:** Communicate effectively on complex engineering activities with the engineering community and with the society at large such as, being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.

11) **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12) **Life – long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life – long learning in the broadest context of technological change.

5.Program learning Outcomes*

Knowledge :	
K1	a knowledge of the impact of engineering technology solutions in societal and global context
K2	an ability to select and apply knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;
Skills	
S1	an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives;
S2	an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;
S3	an ability to identify, analyze, and solve broadly-defined engineering technology problems;
S4	an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;
Competence	
C1	an ability to function effectively as a member or leader on a technical team;
C2	an understanding of the need for and an ability to engage in self-directed continuing professional development;
C3	an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;
C4	a commitment to quality, timeliness, and continuous improvement.
C5	an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;

* Add a table for each track and exit Point (if any)

C. Curriculum

1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	**00**	**00**	**0%**
	Elective	**06**	**12**	**8.57%**
College Requirements	Required	**01**	**02**	**1.43%**
	Elective	**02**	**04**	**2.86%**
Program Requirements	Required	**33**	**81**	**57.86%**

	Elective	**03**	**06**	**4.28%**
Capstone Course/Project	Required	**01**	**06**	**4.28%**
	Elective	**00**	**00**	**0%**
Field Experience/ Internship	Required	**Two Semesters**	**N/A**	**N/A**
Others (Preparatory)	Required	**09**	**29**	**20.71%**
	Elective	**00**	**00**	**0%**
Total		**55**	**140**	**100%**

* Add a table for each track (if any)

MU Elective Course

SALM 101	Introduction to Islamic Culture	2	Student should study any 3 out of 4
SALM 102	Islam and Society Development	2	
SALM 103	Islamic Economic System	2	
SALM 104	Fundamentals of Islamic Politics	2	
ARAB 101	Arabic Language Skills	2	The student should study any 1 out of 2
ARAB 103	Arabic Editing	2	
ENG 101	English Language	2	The student should study any 2 out of 7
SOCI 101	Contemporary Societal Issues	2	
HAF 101	Fundamentals of Health and Physical Fitness	2	
ENT 101	Entrepreneurship	2	
LHR 101	Legislations and Human Rights	2	
FCH 101	Family and Childhood	2	
VOW 101	Voluntary Work	2	

CAMS Elective Course

CAMS 232	Medical Terminology	2	The student should study any 2 out of 3
CAMS 233	Biostatistics	2	
CAMS 234	Quality of Health Care	2	

MET Elective Course

MET 485	Reverse engineering in medical equipment	2	The student should study 1 / 2
MET 486	Medical Equipment Design	2	
MET 595	Molecular Sensors & Nano-Scale Devices	2	The student should study 2 / 4
MET 596	Introduction to Telemedicine	2	
MET 597	Artificial Intelligence	2	
MET 598	Pattern Recognition	2	

2. Program Study Plan

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
Level 1	PENG 111	English (1) for Preparatory Year	Required		8	Deanship of Preparatory year
	PMTH 112	Introduction to Mathematics (1)	Required		2	
	PCOM 113	Computer Skills	Required		2	
	PSSC 114	Learning and Communication Skills	Required		2	
	PENG 121	English (2) for Preparatory Year	Required		6	
	PENG 122	English for Medical Specialties	Required		2	

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
Level 2	PCHM 124	Introduction to Chemistry	Required		2	Deanship of Preparatory year
	PPHS 125	Physics for Health Purposes	Required		2	
	PBIO 126	Biology Science	Required		3	
Level 3	MET 237	Basics of Physiology	Required		2	Department
	MET 232	Fundamentals of Anatomy	Required		2	
	MET 233	Basic Mathematics	Required		2	
	MET 234	Bio-Physics	Required		3	
	MET 235	Bio-Mechanics	Required		2	
	CAMS 231	Emergency Care	Required		2	College
	CAMS***	CAMS Elective Course	Elective		2	
	MU***	MU Elective Course	Elective		2	University
Level 4	MET 241	Applied Mathematics 1	Required	MET 233	2	Department
	MET 242	Physics for Medical Equipment	Required	MET 234	3	
	MET 243	Electrical Circuits	Required	MET 233	3	
	MET 244	Electrical Skills	Required	MET 233	2	
	MET 245	Computer & Systems	Required	MET 233	2	
	MET 246	Bio-Materials	Required	MET 235	2	
	CAMS***	CAMS Elective Course	Elective		2	College
Level 5	MET 351	Applied Mathematics 2	Required	MET 241	2	Department
	MET 352	Basic Analogue Electronics	Required	MET 243	3	
	MET 353	Medical Electrical Measurements	Required	MET 243 MET 244	3	
	MET 354	Basic Digital Electronics	Required	MET 241 MET 243	3	
	MET 355	Biomedical Mechanical Equipment	Required	MET 242	3	
	MET 356	Computer Programming	Required	MET 245	2	
Level 6	MET 361	Medical Analogue Signal Processing	Required	MET 351 MET 352	2	Department
	MET 362	Advanced Medical Analogue Electronics	Required	MET 352	3	
	MET 363	Advanced Medical Digital Electronics	Required	MET 354	3	
	MET 364	Electro Mechanical & Pneumatic Equipment	Required	MET 355	3	
	MET 365	Advanced Medical Mechanical Equipment	Required	MET 355	3	
	MU***	MU Elective Course	Elective		2	University
Level 7	MET 471	Medical Digital Signal Processing	Required	MET 361	3	Department
	MET 472	Medical Electronic Equipment	Required	MET 362 MET 361	3	
	MET 473	Medical Imaging Systems	Required	MET 355	3	
	MET 474	Medical Equipment Management & Maintenance	Required	MET 365 MET 364	2	
	MU***	MU Elective Course	Elective		2	University
	MU***	MU Elective Course	Elective		2	
Level 8	MET 481	Computer Applications for Biomedical Systems	Required	MET 356	3	Department
	MET 482	Advanced Medical Imaging Systems	Required	MET 475	3	

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
	MET 483	Optical & Laboratory Medical Equipment	Required	MET 242 MET 472	3	
	MET 484	Advanced Medical Electronic Equipment	Required	MET 472	3	
	MET ***	MET Elective Course	Elective		2	
	MU***	MU Elective Course	Elective		2	University
Level 9	MET 591	Project	Required	MET 473 MET 484	2	
	MET 592	Digital Image Processing	Required	MET 482 MET 471	2	
	MET 593	Control of Biomedical Systems	Required	MET 363	3	Department
	MET 594	Safety in Hospital	Required	MET 482	2	
	MET ***	MET Elective Course	Elective		2	
	MET ***	MET Elective Course	Elective		2	
	MU***	MU Elective Course	Elective		2	University

* Include additional levels if needed
** Add a table for each track (if any)

3. Course Specifications

Insert hyperlink for all course specifications using NCAAA template

4. Program learning Outcomes Mapping Matrix

Align the program learning outcomes with program courses, according to the following desired levels of performance (**I = Introduced P = Practiced M = Mastered)**

Course code & No.	Program Learning Outcomes										
	Knowledge		Skills				Competence				
	K.1	K.2	S.1	S.2	S.3	S.4	C.1	C.2	C.3	C.4	C.5
PENG 111								I		I	I
PMTH 112		I		I							I
PCOM 113		I			I						I
PSSC 114									I	I	I
PENG 121								I		I	I
PENG 122								I		I	I
PCHM 124		I			I			I			
PPHS 125		I			I				I		
PBIO 126		I			I			I			
CAMS 231						I			I	I	I
MET 237		I					I		I		I
MET 232		I					I		I		I
MET 233		I		I	I						I
MET 234		I		I		I			I		
MET 235		I		I				I			
MET 241		I		I	I						I

Course code & No.	Program Learning Outcomes										
	Knowledge		Skills				Competence				
	K.1	K.2	S.1	S.2	S.3	S.4	C.1	C.2	C.3	C.4	C.5
MET 242	I	I			I	I					
MET 243		I		I		I	I				
MET 244			I	I		I	I				I
MET 245		I		I			I				
MET 246	I	I		I						I	
MET 351		P		I	P						P
MET 352		P	I	I		I	I				
MET 353		P		I	P	I					
MET 354		P	I	I		I	I				
MET 355	I	P			P	I	I				
MET 356		P		I							P
MET 361		P		I				P			
MET 362		P	P	P		P					P
MET 363		P	P	P		P					P
MET 364	I	P			P	P		P			
MET 365	I			P			P	P			P
MET 471		M	P	P			P				P
MET 472	P			P	P	P	P				
MET 473				P		P	P		P	P	
MET 474	P			P		P	P		P		P
MET 481	P	M				P			M		M
MET 482	P			M		M	P			P	
MET 483				M		P	P		M		M
MET 484	P	M			M	M			P		
MET ***	M		M		M	M	M	P		P	M
MET 591	M	M	M	M		M	M	M	M	M	M
MET 592		M	M	M			M				M
MET 593	M		M	M		M	M				
MET 594	M							M	M	M	M
MET ***	M		M	M	M			M		M	
MET ***	M		M	M	M			M		M	I

* Add a table for each track (if any)

5. Teaching and learning strategies to achieve program learning outcomes

Describe policies, teaching and learning strategies, learning experience, and learning activities, including curricular and extra-curricular activities, to achieve the program learning outcomes.

The classroom is a dynamic environment, bringing together students from different backgrounds with various abilities and personalities. Being an effective teacher therefore requires the implementation of creative and innovative teaching strategies in order to meet students' individual needs. The strategies aim to promote critical and reflective thinking, research and evaluation skills that will help students to take positive action to protect, enhance and advocate for their own and other's health, wellbeing and safety.

Technology in the classroom

Incorporating technology into our teaching is a great way to actively engage our students, especially as digital media surrounds young people in the 21st century.

Interactive whiteboards or audio-visual devices can be used to display images and videos, which helps students visualize new academic concepts. Learning can become more interactive when technology is used as students can physically engage during lessons as well as instantly research their ideas, which develops autonomy.

Students use personal and social capability to work collaboratively with others in learning activities, to appreciate their own strengths and abilities and those of their peers and develop a range of interpersonal skills such as communication, negotiation, teamwork, leadership and an appreciation of diverse perspectives.

Giving "Good" Student Feedback
Good feedback ensures that students are able to move forward efficiently on future work. The best feedback is specific, actionable, timely and respectful: find out how to incorporate these characteristics into your teaching practice.

Mid-semester Feedback
Gathering mid-semester feedback allows instructors to gain insight into how students are navigating the learning environment. The feedback can be used to understand what approaches are working within the class, and any alterations that could be made to continually improve the learning environment.

Group Work
The design of group work activities and projects can help students develop many attributes, including problem-solving abilities, planning and organization, and communication skills; yet, group work can present many challenges for both the students and the instructor. There are considerations to keep in mind as you include group work into your course and assessments.

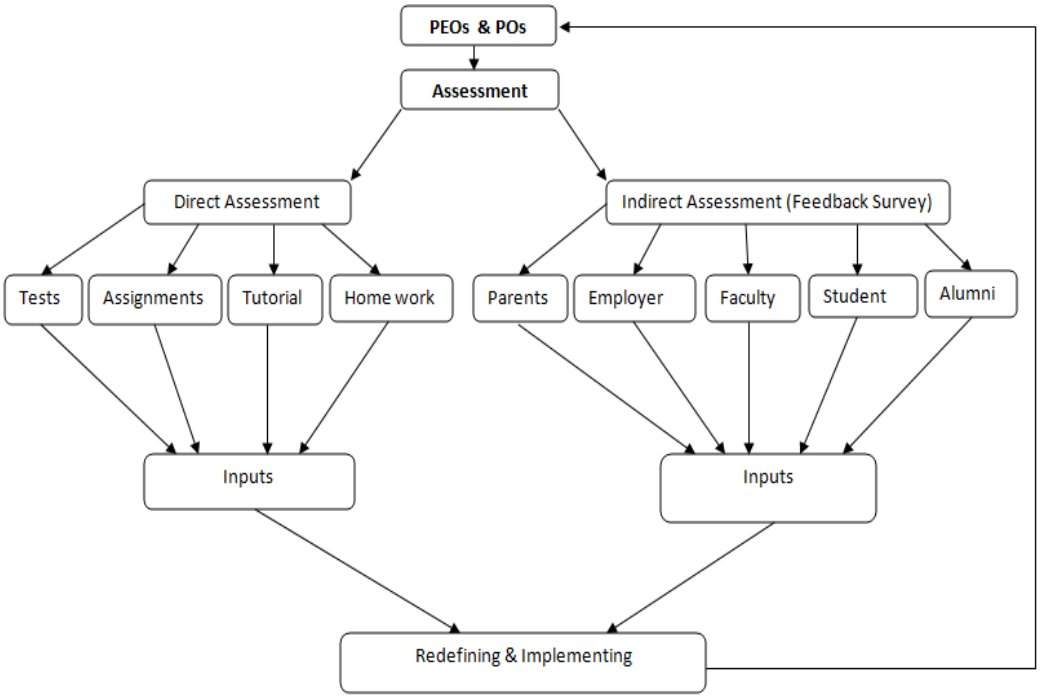
Most of the courses have practicals and the experiments are demonstrated by course instructors and students will try to learn the concepts and methodologies experimentally.

By the end of the graduation project, the student should be able to:

- Identify the project in the biomedical area based on the knowledge acquired during the program of study and relevant to the society.
- Describe the management plan and budget to complete the project within the stipulated period of time.
- Design the project systems.
- Participate as a member of project team in the various activities of the project.
- Recognize the ethical responsibilities related to the project.
- Analyze and solve engineering technology problems related to the selected project.
- Use the datasheets of electronic components for the design of the proposed solution.
- Select the best tools and procedures in context of a project.
- Write project dissertation.
- Experiment different block diagram to select and improve the best solution.
- Engage in self-directed continuing professional development.

6. Assessment Methods for program learning outcomes.

Describe assessment methods (Direct and Indirect) that can be used to measure achievement of program learning outcomes in every domain of learning.



D. Student Admission and Support:

1. Student Admission Requirements

Major General Admission Requirements:

The following requirements have been stipulated for the admission of the new student:

- An applicant for admission must have a Saudi Secondary School Certificate - Science Section (SSSCSS) or its equivalent. The secondary school certificate should not be more than five years old and the Rector of the University may give exemption from this condition.
- Must have an Aptitude Test Certificate (ATC) administered by the National Center for Assessment in Higher Education.
- The minimum qualifying scores in SSSCSS & ATC tests are: A total equivalent percentage of 75% (based on 30% from the SSSCSS + 30% from the ATC + 40% from cumulative basic Science of SSSCSS).
- Must not have been dismissed from another university for disciplinary reasons.
- When applicants exceed availability, priority is given to the students with higher grades.

Distribution of Students among Various Fields of Applied Medical Sciences:

Before starting any program at CAMS, all students study a common preparatory year. After completing the preparatory period with a minimum GPA of **2.75/5**, the students are distributed to various programs of Applied Medical Sciences, so that they can start their designated program requirements in level three. The distribution process to the various programs at CAMS is carried out according to the interest of the students and the capacity of programs. When applicants exceed availability, priority is given to the students with higher grades. The final status of all students is then submitted to the Deanship of Admission and Registration within a pre-specified period each semester.

Registration Procedure:

The student is automatically registered at the beginning of each semester for a number of credit hours according to his academic standing. Students with GPA of 2.0 are eligible to register up to 14 credit hours, while those of 4.5 GPA or above are eligible for up to 20 units as a maximum. Students register online (through the E-Register system. All restrictions are programmed, however if the student needs to override any of these restriction he needs the approval of his advisor and sometimes the department head's approval.

Withdrawal:

The student has the right to withdraw from an academic semester within the withdrawal period announced in the academic calendar for that semester. No withdrawal is allowed during the last five weeks before the final examination. The college vice dean for academic affairs must approve the withdrawal request after reviewing the authenticity of the student's reasons for withdrawal.

2. Guidance and Orientation Programs for New Students

Academic Advising is an essential and central element in the educational system, it is an objective response to the economic, humanitarian and social variables built into the system and philosophy of education, as well as being responsive to the needs of the student to Communicate with university education, which represents a necessary national development to achieve humanity innovation and excellence requirements.

Tasks of the Academic Advising Unit Coordinator There is an academic advising unit in each faculty headed by a member of the faculty staff. Such coordinator has the following tasks:

1. General supervision of the work of academic advisors and follow up the cases referred to him/her.
2. Welcome new students on the first day of study and introduce them to the university regulations.
3. Allocate students in a fair manner between faculty staff taking into consideration all psychological, social and linguistic factors.
4. Receive reports about students' issues in addition to the reports sent by the academic advisors, solve their problems or refer them to Vice Dean for Academic Affairs or to Dean if needed.
5. Organize counselling meetings, seminars and workshops to advance the academic advising efforts.
6. Facilitate the tasks of the academic advisors and prepare students' files and forms.
7. Discuss with the faculty council (the Dean or heads of departments) all new developments related to students and suggest solutions and ways for development.

The student's academic advisor's tasks are assigned as follows:

First: Technical Tasks:

1. Filling in specific forms for each student whom he was assigned to advise academically. These forms include the following:

- Student's information form.
- A semester updated study plan for students. (One can get it from the e-academic services system (Edugate).
- Registration Form.
- An up-to-date copy of the academic portfolio (a transcript). (One can get it from the e-academic services system (Edugate).
- Other administrative documents (such as deleting, adding, and withdrawing forms).

- Emergency reports form for the academic advisor's meetings with students, and it should be given to the academic advising coordinator in the college.
- The end of semester report form for the academic advisor's meetings with students which should be given to the academic advising coordinator in the college at the end of each semester.
- The academic advisor can contact the academic advising coordinator to get these forms.

2. Courses Registering Process: The academic advisor checks the students file and his major and helps him to fill his own registration form before the date of registration.
3. Choosing the Course: The academic advisor should take a look on the student's action plan through the e-academic services system (Edugate) in order to help the students choose their courses; and he should make sure of the following: a. A student has passed all the required courses and the previous requirements with a grade not less than (D) because he won't be allowed to register in any course till he passes its previous requirement. b. Knowing the minimum and maximum accredited hours which a student is allowed to register according to his current status (student's academic load).
4. Sorting out the graduation requirements: A student need to pass the courses or the accredited hours to get the bachelor degree in his major as follows: ¬ Carrying out the mandatory university requirements successfully. ¬ Carrying out the mandatory college requirements successfully. ¬ Carrying out the mandatory department requirements successfully. ¬ Passing all the required courses with a cumulative grade that shouldn't be less than (2.0).
5. Helping the student to prepare a timetable and a study plan to complete all the graduation requirements within the maximum permitted period of years.
6. Explaining the grades average (both for each semester and cumulative): The student's semester and cumulative performance is measured through calculating the semester and cumulative grades average.
7. Help students to choose their majors according to their inclinations and capabilities in the multi-specializations faculties and departments.
8. Solving problems: The academic supervisor helps students to cope with problems related to their majors through shedding light on the causes of the problem and then suggesting solutions.
9. Refer the student to those who can answer his social, academic or even psychological queries if not acquainted by the academic advisor (Referral to the appropriated and concerned authorities at the university).

Secondly: Administrative tasks:

The academic advisor helps student to take his decisions about the following procedures:

1. (Change a major: Add and delete courses. Withdraw from a course. Withdraw from a term. Withdraw from the University. Notice: It's very important to refer to the registration rules which organize such procedures and its academic consequences, which can be found at the Admission and Registration Deanship website.

2. Student's absence: The absence is formally considered from the first day of study. According to the policy of the university, the student receives the first warning letter in case of being absent about 5% of the total approved teaching hours of the course. He receives the second warning letter in case of being absent 10% of the total approved teaching hours of the course and he might receive a denial in case of being absent for more than 25% of the total approved teaching hours of the course. Notice: the student who has received a denial is considered as failed in the course (With the need to review the list of coercive excuses for university students).

3. Student Counseling Services

(academic, career, psychological and social)

Academic advisor refers the student to those who can answer his social, academic or even psychological queries if not acquainted by the academic advisor (Referral to the appropriated and concerned authorities at the university).
The students were able to add/remove any course according to the instructions provided by the academic advisor. Academic advising instruction are notified to the students by various means of displays includes websites, edugate messages and televisions.

4. Support for Special Need Students
(low achievers, disabled, gifted and talented)

1. There are no general rules governing the compensation for students with disabilities and chronic illnesses. Decisions regarding such cases are taken on the merit of individual case, by the relevant department. (Guide for the students with special needs).
2. The Biomedical Equipment Technology program prepare graduates for an applied profession which demands that all enrolled students are physically and mentally fit for the purpose of safe practice.
3. Biomedical Equipment Technology program does not have any restrictions for applicants with disabilities.
4. In building where MET program is running is a mammoth building with all facilities for disabled students like elevators, ramp in the main entrance of the building, separate vehicle parking space, specially designed toilets for disabled people etc,
5. The program also motivates good performers and talented students through supporting their innovations, participation in seminars, workshops and conferences held outside the campus.
6. Talented students are given open timing in the laboratories to do their thought provoking experiments.
7. Also there is a “Research Lab” in the department which can also be used by talented students to carry out their innovations.

E. Teaching and Administrative Staff

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professors	1					
Associate Professors		1				
Assistant Professors		6				
Lecturers		4				
Teaching Assistants						
Technicians and Laboratory Assistants	1					
Administrative and Supportive Staff						
Others (specify)						

2. Professional Development

2.1 Orientation of New Teaching Staff

Describe briefly the process used for orientation of new, visiting and part-time teaching staff

All College staffs are encouraged to regularly attend training and professional development workshops held either within the University, or at other national and international institutions. Career and personal development programs at the University provide opportunities to build productive and satisfying careers while contributing to the achievement of the University ‘s mission. The University has established a Deanship for Quality and Skills Development that plays a major role not only in organizing the workshops and seminars, but also in identifying the staff needs and setting strategies to meet those needs. MU provides a wide range of opportunities for professional development to all its faculty members. The Deanship of quality & Skills Development hosts a series of skills development workshops and training courses offered by renowned speakers. BMET faculty members actively participate in various workshops and training courses that fit their teaching (teaching and assessment strategies) quality, and research skills. Last year seven BMET faculties attended a total of 25 skills development workshops/training courses.

Towards the end of each academic year, departments are required to submit a request that outlines the additional staffing needs of the department. This request is discussed in College council meeting and then process the request to University Vice-rector for Academic and Educational Affairs if the teaching staff from outside the university.

2.2 Professional Development for Teaching Staff

Describe briefly the plan and arrangements for academic and professional development of teaching staff (e.g., teaching & learning strategies, learning outcomes assessment, professional development, etc.)

All College staff members are encouraged to regularly attend training and professional-development workshops held either within University, by the Deanship of Quality and Skills Development, or at other national and international institutions. The College has a policy to reward outstanding academic, technical and administrative performance. Such rewards include recognition of their merit by announcing on the website the name of the employee of the month‖ in recognition of his/her outstanding performance.

Each year, at the beginning of the first semester, the college arranges orientation and induction program for the new full time faculties. The program agenda divided into two main tracks; the first one focused on the educational issues which includes:

- Preparation of course specification
- Preparation of course report
- Preparation of course portfolio
- Assessment methods of CLOs
- Academic Advising
- Teaching strategies

The second one focused on the administrative issues which includes:

- Correspondence tracking system
- Committee and council system

F. Learning Resources, Facilities, and Equipment

1. Learning Resources.

Mechanism for providing and quality assurance of learning resources (textbooks, references and other resource materials, including electronic and web-based resources, etc.)

Majmaah University has subscription to many of the periodicals related to the medical laboratories' profession. In addition, of subscribing several Electronic Library full-text databases, the students and faculty members also have the access to Saudi digital library (SDL) http://sdl.edu.sa/SDLPortal/EN/Publishers.aspx.

Each course coordinator provides a list of related reference books for his courses at the first pages of the module guide. The whole list for all courses and submits it to the vice dean of academic affairs for approval and then sent to the University central library for purchase. Faculty and teaching staff follow the institutional process for planning and acquisition of any resources needed for library, laboratories, and classrooms, this procedure generally start by submitting their requests in appropriate forms to the department heads, Who forwarded to the Lab and equipment committee for study and recommendation then the final list of equipment has to be approved in the department council. Then the collective lists will be submitted to the vice dean of academic affairs. Upon approval, these lists will take its track through college administration and then to the concerned university administrations.

The student has the opportunity to evaluate the adequacy of the textbooks, reference and other resource in several places (group discussion in the class's sessions and in the course evaluation surveys**).** The evaluation of the adequacy of textbooks, reference and other resources is done by faculty and teaching staff at the end of each semester, they write theirs recommendation in the course report form based on the feedback from students (surveys and focus groups), the internal and external evaluation of the course (quality committee + advisory Committee) and also on the new trends emerging in the field of study.

2. Facilities and Equipment

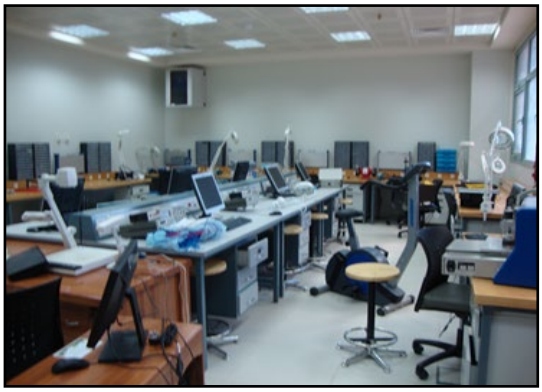
(Library, laboratories, medical facilities, classrooms, etc.).

Medical Equipment Technology Department in the College of Applied Medical Sciences at Majmaah University has eight laboratories for handling the practical part of the courses. They are as follows:

No	Laboratory Name
1	Medical Electronics
2	Bio-Signals Processing
3	Electrical Skills
4	Medical Imaging
5	Medical Devices Workshop
6	Radiology
7	Bio-Physics
8	Advanced Medical Devices







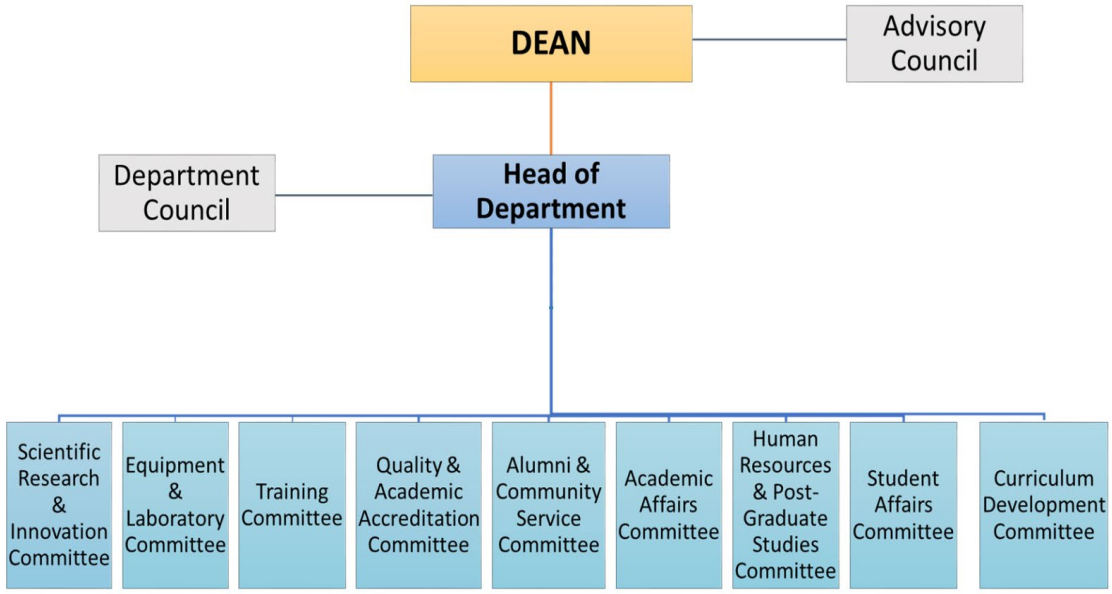

3. Arrangements to Maintain a Healthy and Safe Environment (According to the nature of the program)

G. Program Management and Regulations

1. Program Management

1.1 Program Structure

(including boards, councils, units, committees, etc.)



1.2 Stakeholders Involvement

Describe the representation and involvement of stakeholders in the program planning and development. (students, professional bodies, scientific societies, alumni, employers, etc.)

The program Stakeholders includes the following:

1) **Students:** They are the primary input to our program. It is expected that students become technically qualified, knowledgeable, and productive engineers upon graduation.
2) **Department faculty**: Faculty consists of members of the department teaching staff who are responsible for connecting the program objectives to outcomes during the teaching process.
3) **Alumni:** This group includes students who have earned their degree from our department and are currently working in various industries.
4) **Employers:** This group expects that graduates achieve the program criteria such as being competent, effective team member, have social and environmental awareness and gained good communication skills. The employers range from public to private sectors and from small to large firms and include, among others, research institutes, governmental agencies and industrial companies. The role of each of these stakeholders consists in the establishment and in the continuous assessment of the educational objectives through surveys and periodic meetings.
5) **Parents:** Regular parent teachers meetings are organized in the campus and their valuable suggestions for improvement are noted. Structured questionnaire is distributed to the parents and their feedback is obtained during graduation day function.

- Formal and informal feedbacks from the stake-holders of the programme- students, parents, alumni, industries, advisory committee members etc
- Department Advisory Board (DAB) will meet once in a year, wherein POs will be defined for the programme.
- The initial draft POs were discussed in the faculty and staff meetings and were fine-tuned.
- Dissemination of POs to various stake holders such as Students representatives, Alumni, Employers will be done through various modes of communication.
- After disseminating POs to various stake holders, feedback will be obtained. Based on the suggestions POs will be redefined if necessary.

2. Program Regulations

Provide a list of related program regulations, including their link to online version: admission, study and exams, recruitment, appeals and complaint regulations, etc.)

Deanship of Admission and Registration seeks to communicate with the student while studying at the high school level through visits, meetings, distribution of brochures and manuals in order to introduce students to the faculties of the university. Their vision is to provide academic services to students and complete the admission and registration procedures based on modern techniques and usage of advanced electronic means. Their mission is to provide adequate academic information about the university & scientific faculties and specializations, and to provide academic services to students, completion of Admission & Registration using modern technology means, developing and improving the work performance mechanism, simplify the procedures, clarify the rules & regulations and increase awareness of its applications.

The Executive Principles of Majmmah University, approved by the decree of the university council, on its sixth session, held on 1/3/1342 H. Requirements of Admission are,

1. He should have obtained a general high school certificate or its equivalent from within or without the Kingdom of Saudi Arabia.
2. His high school certificate or its equivalent should not be older than five years. The University Council may make some exceptions if convincing reasons are provided.
3. He should be of a good conduct.
4. He should successfully pass any test or interview assigned by the University Council.
5. He should be medically fit.
6. He should provide a permission for study from his reference, if he works in government or private sector
7. He should satisfy any other conditions the University Council determines, announced during application.
8. He should not be dismissed from any other university for disciplinary or academic reasons. If that became clear after his, his acceptance shall be deemed cancelled from the day of his admission.
9. A student dismissed from the university for academic reasons may be enrolled in some programs that do not award a Bachelor Degree, as decided by the University Council, or whoever it delegates. This shall not be allowed for the transitional program.
10. Those who already had obtained a Bachelor Degree or its equivalent shall not be admitted to obtain another Bachelor degree. The University Rector has the right for exceptions.

11. A student registered for another university degree or below, shall not be admitted, either in the selfsame university or another.

The college determines an academic supervisor for every student to help him in matters related to the university system and his educational progress such as choice of specialization, registration of courses and other academic affairs. The student assumes the responsibility of knowing and following up the academic system and the regulating by-laws, including the requirements of graduation.

The student is graded in accordance with the courses he passes successfully within the approved academic program. He becomes eligible for graduation if he completes the requirements of graduation.

The academic program is designed as equivalent to at least eight semesters for the university level. The student may complete the requirements of graduation in less than that period.

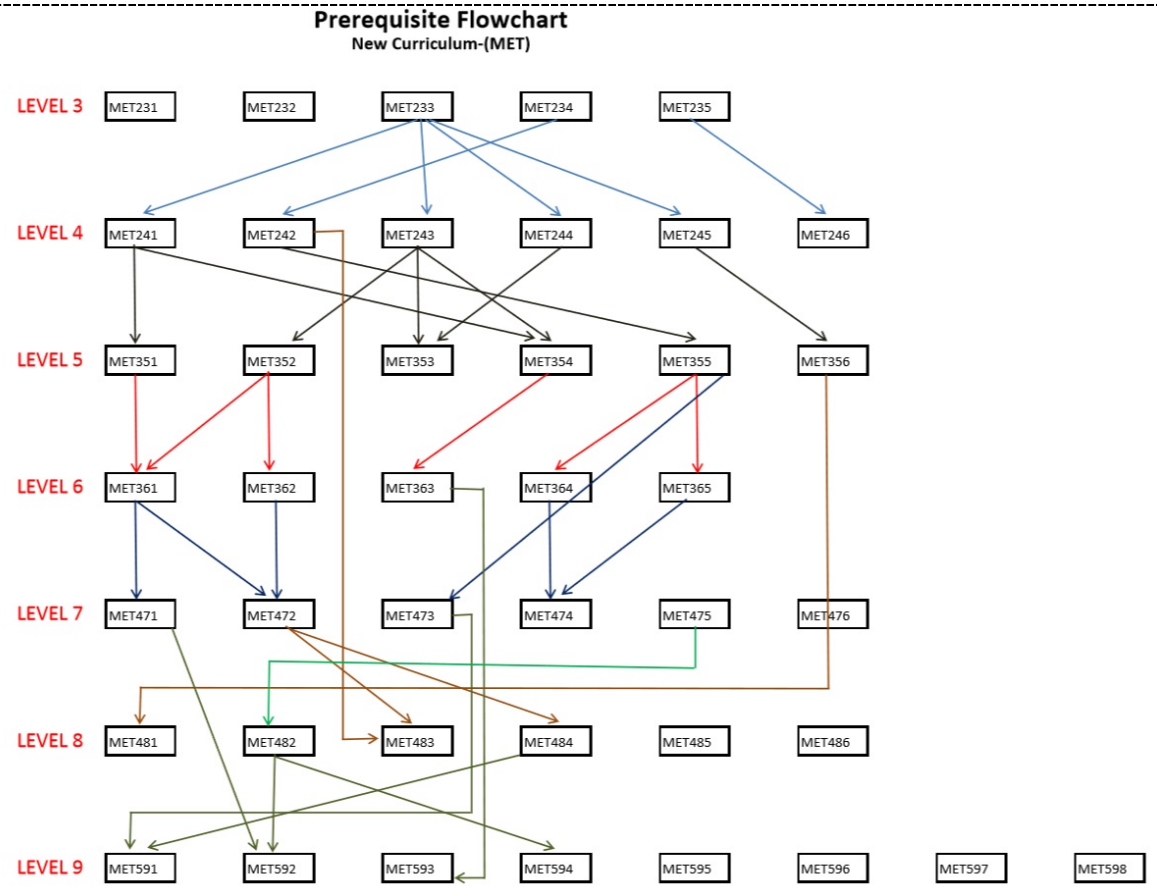
The University system covers both the students at the university stage and the transitional stage.

Graduation Requirements

To get a bachelor's degree in medical Equipment Technology, student must successfully complete certified 140 hours of the following:

No.	Required courses for Medical Devices Technology Program	Certified Hours
1	Majmaah University General subjects	12
2	General Applied Medical Sciences College subjects	26
3	Basic Applied Medical Sciences College subjects	12
4	Medical Devices Technology subjects	90
5	Internship	0
6	Total Certified Hours	**140**

When a student completes the academic subjects (140 hours), he/she must undergo an internship course which lasts for 12 months in a hospital or relevant health department in accordance with an approved training program supervised by both the college and the training department. Upon completion, students will receive a certificate of graduation which make him/her qualified to work.



https://www.mu.edu.sa/en/colleges/college-applied-medical-sciences/medical-equipment-technology

H. Program Quality Assurance

1. Program Quality Assurance System

Provide online link to quality assurance manual

https://www.mu.edu.sa/en/colleges/college-applied-medical-sciences/vice-deanship-documents-ncaaa-forms

2. Program Quality Monitoring Procedures

Academic Accreditation Unit of CAMS is carrying out and following up the procedures of Evaluation and Academic Accreditation related to programs and institutions. It is also specialized in documenting efforts and results in all the activities of the Vice Deanship for Quality and Academic Accreditation. It collects all documents and data, classifies and stores them either in paper or electronic form then hands them out to all the college units and other sides in relation to them.

Unit Tasks

1.Setting appropriate step-by-step plans to the periodic review for adopted quality standards to ensure continuous improvement in the performance of academic departments and administrative units .
2.Implementation and follow-up of the Evaluation and Academic Accreditation program.
3.Providing reference materials and publishing information about quality and accreditation assurance advancements and good ideas applicable in other educational institutions either within Saudi Arabia or in other countries, which would help the college staff in quality development.
4.Preparing a self-study report for the college.
5.Follow-up of the implementation of the external audit program for recommended programs for accreditation.
6.Follow-up of the setup of files for recommended programs for accreditation.
7.Follow-up of the Updates of the Unit site.

3. Arrangements to Monitor Quality of Courses Taught by other Departments.

There is a structured and Quality assurance system is in place in college to Monitor Quality of Courses Taught by other Departments. Vice Dean of Quality Assurance monitors it closely.

4. Arrangements Used to Ensure the Consistency between Main Campus and Branches (including male and female sections)

Not Applicable since BMET is offered only in Main campus.

5. Arrangements to Apply the Institutional Regulations Governing the Educational and Research Partnerships (if any).

As of now there is no Research Partnerships.

6. Assessment Plan for Program Learning Outcomes (PLOs), and Mechanisms of Using its Results in the Development Processes

The students are considered the most important aspect of the whole teaching and learning at the department therefore they play a very active role in the program development, therefore their feedbacks are taken at various level of program during their tenure. Most important among them are;
1. Course Evaluation Survey
2. Program Evaluation Survey &
3. Program Satisfaction Survey.
Based on the mission and objectives of the program the program learning outcomes were developed. All the course was then aligned to these program learning outcomes, for each outcome appropriate performance indicators were decided which became the basis for all teaching and assessment activities.

The assessment measures are designed to evaluate the effectiveness of teaching methods for delivering the intended program outcomes. A range of assessments strategies that matches all aspects of the instructional plans are being used for different modules. The assessment strategies are planned to match the instructional goals and objectives at the beginning of the semester, and implemented throughout the semester. The selection of appropriate assessments also matches courses and program objectives.
All the modules of the physical therapy program have specific learning objectives that are aligned with the program outcomes. Each module has 3-5 specific module outcomes, which are evaluated by appropriate assessment methods. Both direct and indirect assessment

techniques are utilized to ensure that the desired program outcomes are achieved. The process of assessment is carried out by using a combinations of course work such as quizzes, exams, projects, presentations, homework, etc., Where the grades on these exercises are directly tied to the course outcomes.
At the end of each academic year these performance indicators are measured and their overall consistence is evaluated. Based on the result of this process recommendation for improvement is prepared which are made part of next year's improvement plan

7. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
effectiveness of teaching & assessment	students	Surveys	end of academic year
learning resources	students	Surveys	end of academic year

Evaluation Areas/Aspects (e.g., leadership, effectiveness of teaching & assessment, learning resources, partnerships, etc.)
Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others (specify)
Evaluation Methods (e.g., Surveys, interviews, visits, etc.)
Evaluation Time (e.g., beginning of semesters, end of academic year, etc.)

8. Program KPIs*

The period to achieve the target (2020-2021) year.

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
1	KPI- P-01	Percentage of performance indicators of the operational plan objectives of the program that achieved the targeted annual level to the total number of indicators targeted for these objectives in the same year	80%	Survey among Stake holders	Towards end of the Academic year
2	MU-P-01	Average rating of beneficiaries' satisfaction with the community services provided by the program on a five-level scale in an annual survey	Not Conducted	Survey among Stake holders	Towards end of the Academic year
3	KPI-P-02	Average of overall rating of final year students for the quality of learning experience in the program on a five- point scale in an annual survey	4.5	Survey among Stake holders	Towards end of the Academic year
4	KPI-P-03	Average students overall rating for the quality of courses on a five-point scale in an annual survey	4	Survey among Students	Towards end of the semester
5	KPI-P-04	Proportion of undergraduate students who completed the program in minimum time in each cohort	%90	Data	Towards end of the Academic year

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
		Total students – 15, graduated - 13			
.....	**KPI-P-05**	Percentage of first-year undergraduate students who continue at the program the next year to the total number of first-year students in the same year	95%	Data	Towards end of the Academic year
	KPI-P-06	Percentage of students or graduates who were successful in the professional and / or national examinations, or their score average and median (if any)	Not Applicable	Data	Towards end of the Academic year
	KPI-P-07	Percentage of graduates from the program who within a year of graduation were:	a = 50% b = 5% c = 45%	Data	Towards end of the Academic year
	KPI-P-08	Average number of students per class (in each teaching session/activity: lecture, small group, tutorial, laboratory or clinical session)	Lecture : 25 Laboratory :6	Data	Towards end of the Academic year
	KPI-P-09	Average of overall rating of employers for the proficiency of the program graduates on a five-point scale in an annual survey	4	Survey among employers	Towards end of the Academic year
	KPI-P-10	Average of students' satisfaction rate with the various services offered by the program (restaurants, transportation, sports facilities, academic advising, ...) on a five-point scale in an annual survey	4.5%	Survey among students	Towards end of the Academic year
	MU-P-02	The percentage of students who received a warning or more in the program to the total number of students in the program.	0	Data	Towards end of the Academic year
	MU-P-03	The percentage of students who were denied entry to the final examination of the course for exceeding the legally permitted percentage of the total number of students in the program.	0	Data	Towards end of the Academic year
	MU-P-04	The number of student papers that have been published or presented in scientific conferences during the past year	5%	Data	Towards end of the Academic year
	KPI-P-11	Ratio of the total number of full-time and full- time equivalent teaching staff in the program to total number of students	1:8.5	Data	Towards end of the Academic year
	KPI-P-12	Percentage of teaching staff distribution based on: a. Gender (ALL MALE in BMET) b. Branches (No Branch) c. Academic Ranking	a – 100% b- NA c- Prof (13), Asso.Prof (12.5%) Asst. Prof (50%)	Data	Towards end of the Academic year

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
			Lecturers (25%)		
	KPI-P-13	Proportion of teaching staff leaving the program annually for reasons other than age retirement to the total number of teaching staff.	0%	Data	Towards end of the Academic year
	KPI-P-14	Percentage of full-time faculty members who published at least one research during the year to total faculty members in the program.	50%	Data	Towards end of the Academic year
	KPI-P-15	The average number of refereed and/or published research per each faculty member during the year (total number of refereed and/or published research to the total number of full-time or equivalent faculty members during the year)	1.3	Data	Towards end of the Academic year
	16 KPI-P-	The average number of citations in refereed journals from published research per faculty member in the program (total number of citations in refereed journals from published research for full-time or equivalent faculty members to the total research published)	20	Data	Towards end of the Academic year
	MU-P-05	The percentage of full-time faculty members who provided professional development activities inside or outside the university during the year to the total teaching staff in the program.	70%	Data	Towards end of the Academic year
	KPI-P-17	Average of beneficiaries' satisfaction rate with the adequacy and diversity of learning resources (references, journals, databases… etc.) on a five-point scale in an annual survey.	4.0	Survey among students	Towards end of the Academic year

* including KPIs required by NCAAA

I. Specification Approval Data

Council / Committee	**MET COUNCIL**
Reference No.	**MEETING NUMBER 3**
Date	**1442/01/11**