

13-Study plan

Article 13-1: Schematic illustration for the course semesters

- Add a schematic outline path and layout of courses of the program.

1) MSc in Biomedical Engineering

First Semester

Course #	Title	L	LB	Credit
BMEN 601	Advanced Physiology & Anatomy for Engineers	3	0	3
BMEN 602	Applied Probability and statistics for Engineers	3	0	3
BMEN 603	Clinical Instrumentation	3	0	3
BMEN 695	Seminar I	1	0	1
Semester Total Credit Units & Contact Hours				10

Second Semester

Course #	Title	L	T/LB	Credit
BMEN 604	Ionizing Radiation Imaging	3	0	3
BMEN 605	Advanced Digital Signal Processing	3	0	3
BMEN 6xx	Elective I	3	0	3
BMEN 694	Research Methodology	1	0	1
Semester Total Credit Units & Contact Hours				10

Third Semester

Course #	Title	L	LB	Credit
BMEN 6xx	Elective II	3	0	3
BMEN 696	Seminar II	1	0	1
BMEN 699 ⁽¹⁾	Thesis	In progress evaluation		
Semester Total Credit Units & Contact Hours				4

Fourth Semester

Course #	Title	L	LB	Credit
BMEN 699 ⁽¹⁾	Thesis	0	12	6
Semester Total Credit Units & Contact Hours				6

⁽¹⁾ The M.Sc. candidates register for the thesis starting from the third semester. They will defend the thesis by the end of the second semester.

2) *MEng in Biomedical Engineering*

First Semester

Course #	Title	L	LB	Credit
BMEN601	Advanced Physiology & Anatomy for Engineers	3	0	3
BMEN 602	Applied Probability and statistics for Engineers	3	0	3
BMEN 603	Clinical Instrumentation	3	0	3
BMEN 695	Seminar I	1	0	1
Semester Total Credit Units & Contact Hours				10

Second Semester

Course #	Title	L	T/LB	Credit
BMEN 604	Ionizing Radiation Imaging	3	0	3
BMEN 611	Management of Medical Equipment in Hospitals	3	0	3
BMEN 612	Digital Health	3	0	3
Semester Total Credit Units & Contact Hours				9

Third Semester

Course #	Title	L	LB	Credit
BMEN 613	Business Fundamentals for Engineers	3	0	3
BMEN 6xx	Elective I	3	0	3
BMEN 696	Seminar II	1	0	1
Semester Total Credit Units & Contact Hours				7

Fourth Semester

Course #	Title	L	LB	Credit
BMEN 614	Regulatory Requirements for medical devices	3	0	3
BMEN 6xx	Elective II	3	0	3
BMEN 698	Research Project	3		3
Semester Total Credit Units & Contact Hours				9

1) Article 13-2: Sub-specialties of the program

- Detail sub-disciplines of the program, if any. NA
- Indicate the reason for existence of sub-specialties and the certificate title to be offered later to the graduate. NA

Article 13-3: Listing & description of proposed program courses

- Fill out the form shown in Table (23).
- The numbering of courses should be according to the numbering approved by the Deanship of Graduate Studies Council.

	Course code	Course title	Credit hours		
			Theoretical	Practical	Credit
Core courses	BMEN 601	Advanced Physiology & Anatomy for Engineers			3
	BMEN 602	Applied Probability and statistics for Engineers			3
	BMEN 603	Clinical Instrumentation			3
	BMEN 604	Ionizing Radiation Imaging			3
	BMEN 605	Advanced Digital Signal Processing			3
	BMEN 611	Management of Medical Equipment in Hospitals			3
	BMEN 612	Digital Health			3
	BMEN 613	Business Fundamentals for Engineers			3
	BMEN 614	Regulatory Requirements for medical devices			3
	BMEN 694	Research Methodology			1
	BMEN 695	Seminar I			1
	BMEN 696	Seminar II			1
	BMEN 698	Research Project			3
	BMEN 699	Thesis			6

	Course code	Course title	Credit hours		
			Theoretical	Practical	Credit
Electives	BMEN 621	Advanced Medical Image Processing & Communication			3
	BMEN 622	Magnetic Resonance Imaging in Medicine			3
	BMEN 623	Medical Ultrasound			3
	BMEN 624	Biophotonics			3
	BMEN 625	Medical Laser			3
	BMEN 626	Biomedical Instrumentation			3
	BMEN 627	Biosensors			3
	BMEN 628	Biomedical Electromagnetics			3
	BMEN 629	Human Mechanics and Gait Analysis			3
	BMEN 630	Physiological Systems			3
	BMEN 631	Implantable Bionics			3
	BMEN 632	Modeling and Simulation of Biological Systems			3
	BMEN 633	Advanced Biomaterials			3
	BMEN 634	Drug Delivery			3
	BMEN 635	Special Topics in Biomedical Engineering			3

Table (23) Identification of learning outcomes for the courses of proposed program

Learning outcomes		Courses																							
Course code and number	BMEN 601	BMEN 602	BMEN 603	BMEN 604	BME N 605	BMEN 611	BMEN 612	BMEN 613	BMEN 614	BMEN 621	BMEN 622	BMEN 623	BMEN 624	BMEN 625	BMEN 626	BMEN 627	BMEN 628	BMEN 629	BMEN 630	BMEN 631	BMEN 632	BMEN 633	BMEN 634	BMEN 635	
Knowledge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Facts, concepts, and procedures related to theories																									
Cognitive skills	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

<i>Applying skills when required (creative thinking, problem solving, applied research)</i>																								
<i>Communication skills for relationships with others and responsibility</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Responsibility for learning</i>																								
<i>Collective participation and leadership</i>																								
<i>Respond responsibly in personal and professional situations</i>																								
<i>Ethical standards of conduct</i>																								
<i>Communication skills, Information Technology and Numerical techniques</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Oral and written communication</i>																								

References and Bibliography

- (١) نموذج استحداث برنامج دراسات عليا، عمادة الدراسات العليا، وكالة الجامعة للدراسات العليا، جامعة الإمام عبد الرحمن بن فيصل.
- 2) Postgraduate Deanship, Imam Abdulrahman Bin Faisal University, Guidelines for Constructing, Developing Proposing, Launching, Building, and Implementing Higher Studies Programs, 1438H-2017, unpublished document.
- 3) Criteria for Accrediting Engineering Programs, 2020 – 2021, Accessed Online at <https://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-engineering-programs-2020-2021/> on Feb. 2, 2021.

Appendixes

- ✓ Appendix (1): Head of Department Email.
- ✓ Appendix (2): Benchmarking with others.
- ✓ Appendix (3): Market survey.
- ✓ Appendix (4): CVs of staff and others.
- ✓ Appendix (5): CVs of program Reviewers.
- ✓ Appendix (6): Course specification files.

