Academic Program Specification Form For The Academic Year (2021-2022)

University: Al Rasheed University College

College : Al Rasheed University College

Department: Medical Instrumentations Techniques Engineering

Date Of Form Completion: 5-4-2022

Head of Department Name

Assist.Prof.Dr. Rasha Thabit

Date :   /   / 2022

Signature

Dean's Assistant For Scientific Affairs

Date :   /   / 2022
Signature

Quality Assurance And University Performance Manager

Date :   /   / 2022

Signature

Dean's Name

Date :   /   / 2022

Signature

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This academic program description provides a requisite summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, proving whether he has made maximum use of the available opportunities.

1. Teaching Institution	Al Rasheed University College
2. University Department/Centre	*Medical Instrumentations Techniques Engineering Department*
3. Program Title	*Medical Instrumentations Techniques Engineering*
4. Title of Final Award	Bachelor of Medical Instrumentations Techniques Engineering
5. Modes of Attendance offered	Weekly (Theory and Practical)
6. Accreditation	The program from the Medical Instrumentations Techniques Engineering Department in the Middle Technical University
7. Other external influences	Ministry of Higher Education and Scientific Research Middle Technical University
8. Date of production/revision of this specification	5-4-2022

9. Aims of the Program

1. The department aims to graduate engineers with the ability and knowledge necessary to work in the fields of use and maintenance of medical devices.
2. Preparing technical and engineers in the field of medical devices engineering to get acquainted with the most important scientific and technological developments and to seek to benefit from them in community service and to develop students' teamwork skills.

3. The graduate should be able to use engineering principles to solve problems and obstacles facing his work, in addition to understanding the engineering design philosophy of medical devices.
4. Knowledge of the basic principles of engineering and biomedical sciences necessary to understand advanced topics in medical device engineering and the ability to use techniques, skills, and tools useful for designing medical engineering projects, experimental studies, and engineering practice.

10. Learning Outcomes, Teaching, Learning and Assessment Methods

1- Installation and operation of electronic and electromechanical medical devices of all kinds (standard, diagnostic, and therapeutic).
2- Schedule and program periodic maintenance work.
3- Contributing and supervising the maintenance, maintenance and conduct of various medical standards.
4- Design, development and trying to find alternatives for some medical devices and parts related to the devices

B. Subject-specific skills
1- Analyze, discuss and use the results in the design and evaluation process
2- The ability to make engineering technical reports on the results of scientific examinations and tests, and the ability to derive the results and their effects.
3- Monitoring the instructions and quality related to the measurements of medical devices and working in consulting offices in his field of specialization.
4- Managing the file of medical devices and their technical specifications and estimating their needs according to the population location of the health facility. He has full knowledge of the occupational safety system, quality and other international standards.

Teaching and Learning Methods

1- Theoretical lectures
2- Tutorials
3- Practical experiments in laboratories
4- Scientific seminars by students
5- Graduation projects
6- Field visits

Assessment methods

1- Written exams - homework
2- Quick Exams - Quiz
3- Writing scientific reports -
4- Testing the students during the scientific seminars.
5- Committees to discuss graduation projects.
6- Writing field visit reports.

C. Thinking Skills
A - The ability to solve engineering and administrative problems by effective engineering methods
B - Developing the spirit of cooperation and teamwork between engineers and doctors to serve the public interest
C - Develop the student's ability and ability to deal with modern technologies related to the course vocabulary
D - Develop the student's ability to take engineering and administrative decisions.

D. General and Transferable Skills (other skills relevant to employability and personal development)

1- Enabling students to pass job interviews.
2- Enable students to pass professional exams organized by local/regional/international bodies.
3- Enabling students for continuous self-development after graduation
4- Enabling students to pass the summer training exams.

Teaching and Learning Methods

A study is made of the requirements of the labor market and training of students' skills based on the analysis of the requirements of the labor market

Assessment Methods

Conducting competitions with the corresponding departments
summer training
Conducting exams under the supervision of the Tawama College

11. Program Structure

First Year

No.	Subject	Hours per weeks			units	type material
		Theoretical	Practical	Total hours per week		
1	Democracy and Human rights	2	–	2	4	General
2	Mathematics (I)	3	–	3	6	Assistance
3	Engineering Drawing	–	4	4	3	Assistance
4	Fundamental of Electrical Engineering	2	3	5	7	Specialty
5	Medical Chemistry	2	2	4	6	Assistance
6	Medical Physics	2	2	4	6	Assistance
7	Mechanics	2	–	2	4	Assistance
8	Computer Applications	2	2	4	6	Assistance
9	Arabic Language	1	--	1	2	General
10	English	1	–	1	2	Assistance
11	Workshops	–	4	4	3	Specialty
	Total	17	17	34	49	

Second Year

No.	Subject	Hours per weeks			units	type material
		Theoretical	Practical	Total hours per week		
1	Mathematics(II)	3	–	3	6	Assistance
2	Anatomy & Physiology	2	2	4	6	Assistance
3	Clinical chemistry – Instrumentation & Technology	2	2	4	6	Specialty
4	Electronic Devices & circuits	2	3	5	7	Specialty
5	Digital Techniques	2	2	4	6	Specialty
6	Measurements & medical Transducers	2	3	5	7	Specialty
7	Medical Instrumentation (I)	2	3	5	7	Specialty
8	Computer Applications	1	2	3	4	Assistance
9	English	1	–	1	2	Assistance
10	Training	—	—	—	—	Specialty
Total		17	17	34	51	

Third Year

No.	Subject	Hours per weeks			units	type material
		Theoretical	Practical	Total hours per week		
1	Medical electronic system	2	2	4	6	Specialty
2	Signal processing	2	2	4	6	Specialty
3	Medical Communication system	2	2	4	6	Specialty
4	Medical Instrumentation (II)	2	3	5	7	Specialty
5	Microprocessor & Microcomputer	2	2	4	6	Specialty
6	Power Electronics	2	2	4	6	Specialty
7	Electrical Technology	2	2	4	6	Specialty
8	Computer Applications	1	2	3	4	Assistance
9	English	1	–	1	2	Assistance
10	Training	—	—	—	—	Specialty
	Total	16	17	33	49	

Forth Year

No.	Subject	Hours per weeks			units	type material
		Theoretical	Practical	Total hours per week		
1	Medical Instrumentation (III)	2	3	5	7	Specialty
2	Control system	2	2	4	6	Specialty
3	Engineering of Radiation Instruments	2	2	4	6	Specialty
4	Medical Laser system	2	2	4	6	Specialty
5	Advanced logic design	2	2	4	6	Specialty
6	Management	2	–	2	4	General
7	Computer Applications	1	2	3	4	Assistance
8	English	1	–	1	2	Assistance
9	Project	–	6	6	4	Specialty
	Total	14	19	33	45	

12. Credits and Certificate

The student awarded the Bachelor of Medical Instrumentations Techniques Engineering when the number of hours and units are accomplished according to the following table.

Total units and hours for four years

1	Total hours	134 hour
2	Total units	194 unit
3	Total theoretical hours	64 hour
4	Total Practical hours	70 hour
5	ratio of theoretical hours	47.76%
6	ratio of Practical hours	52.24%
7	ratio of Specialty hours	65.67%
8	ratio of Assistance hours	30.6%
9	ratio of General hours	3.73%

13. Personal Development Planning

Develop students' research and investigation capabilities by asking students to hold discussion panels

as well as urging students to look at sources, books and magazines as a source of information from

During the oral questions during the lecture and asking about their answers in the subsequent lecture.

14. Admission criteria .

1- The department receives graduates of the preparatory school, the scientific branch (biological - applied) and graduates of the secondary school of industry (electronics and control - medical devices).
2- The middle school rate is determined according to the requirements of the Ministry of Higher Education and Scientific Research as a minimum for accepting students in the morning study and less than it in the evening study. This rate is subject to increase or decrease in each academic year and as determined by the Ministry.
3- The number of seats for each of the morning and evening studies is determined by the Ministry of Higher Education and Scientific Research, according to the absorptive capacity of the department from the teaching staff, laboratories and halls.
4- Ensuring that the department is chosen by the student on the basis of his desire, as the electronic system for applying to private colleges provides three options that the student is allowed to accept according to his average approved by the Ministry of Higher Education and Scientific Research.
5- The student must be medically fit and this is confirmed through the medical examination form.

15. Key sources of information about the program

1- Ministry of Higher Education and Scientific Research
2- Central Technical University / College of Engineering of Medical Devices Technologies
3- Methodological books and Arabic and English scientific sources
4- The Internet.
5- The college's official website.

Curriculum Skills Map

please tick in the relevant boxes where individual Program Learning Outcomes are being assessed

Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
First	DeHR100	Democracy and Human Rights	General										✓		✓	✓		✓	
First	Math100	Mathematics (I)	Assistance		✓			✓			✓	✓		✓	✓				✓
First	EnDr110	Engineering Drawing	Assistance	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓				✓
First	FuEE100	Fundamental of Electrical Engineering	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
First	MeCh120	Medical Chemistry	Assistance	✓		✓	✓	✓	✓		✓		✓						
First	MePh130	Medical Physics	Assistance	✓		✓	✓	✓	✓		✓		✓						
First	Mech140	Mechanics	Assistance	✓		✓	✓	✓	✓		✓			✓	✓			✓	
First	CoAp100	Computer Applications	Assistance	✓	✓		✓	✓	✓		✓	✓		✓		✓	✓	✓	✓
First	ArLa160	Arabic Language	General										✓		✓	✓			
First	Engl100	English	Assistance						✓				✓		✓	✓			✓
First	Work170	Workshops	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Second	Math201	Mathematics (II)	Assistance		✓			✓			✓	✓		✓	✓				✓
Second	AnPh210	Anatomy & Physiology	Assistance	✓		✓	✓	✓	✓		✓		✓						
Second	CCIT220	Clinical chemistry – Instrumentation & Technology	Specialty	✓		✓	✓	✓	✓		✓		✓			✓	✓		✓
Second	ElDC200	Electronic Devices & circuits	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Second	DiTe240	Digital Techniques	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Second	MeMT250	Measurements & medical Transducers	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Second	MeIn200	Medical Instrumentation (I)	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Second	CoAp201	Computer Applications	Assistance	✓	✓		✓	✓	✓		✓	✓		✓		✓	✓	✓	✓
Second	EnLa201	English	Assistance						✓			✓		✓	✓				✓
Second	Trai100	Training	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Curriculum Skills Map																			
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				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Third	MeES301	Medical electronic system	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Third	SiPr310	Signal processing	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Third	MeCS320	Medical Communication system	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Third	MeIn301	Medical Instrumentation (II)	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Third	MiMi330	Microprocessor & Microcomputer	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Third	PoEl340	Power Electronics	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Third	ElTe301	Electrical Technology	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Third	CoAp302	Computer Applications	Assistance	✓	✓		✓	✓	✓		✓	✓		✓		✓	✓	✓	✓
Third	Engl302	English	Assistance							✓			✓		✓	✓			✓
Third	Trai201	Training	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Fourth	MeIn402	Medical Instrumentation (III)	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fourth	CoSy410	Control system	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fourth	EnRI420	Engineering of Radiation Instruments	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fourth	MeLS430	Medical Laser system	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fourth	AdLD440	Advanced logic design	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fourth	Mana450	Management	General	✓	✓		✓	✓	✓		✓	✓		✓		✓	✓	✓	✓
Fourth	CoAp403	Computer Applications	Assistance	✓	✓		✓	✓	✓		✓	✓		✓		✓	✓	✓	✓
Fourth	Engl403	English	Assistance							✓		✓		✓	✓	✓			✓
Fourth	Proj460	Project	Specialty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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