Republic of Iraq

Ministry of Higher Education & Scientific Research

Supervision and Scientific Evaluation Directorate

Quality Assurance and Academic Accreditation

International Accreditation Dept.

# Academic Program Specification Form for the Academic Year 2022-2023

University: Al-Kitab University

College:

Number of Departments in the College:

Date of Form Completion:

Dean's Name

Date: / / 2022

Dean's Assistant for Scientific Affairs

Date: / / 2022

The College Quality Assurance and University Performance Manager

Date: / / 2022

Quality Assurance and University Performance Manager

Ahmed Abdul Salam Sheet

Date: 5/4/2022

Signature

# TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

## PROGRAMME SPECIFICATION

The Department of Engineering of Medical Device Technologies is the interconnected part of electrical, electronic, mechanical and control engineering, which makes it a link between these departments, which serves as the engineering of Migatronics. This specialization is characterized as a qualification for engineers who graduate from working in the fields mentioned above.

| | |
|---|---|
| 1. Teaching Institution | Al-Kitab University |
| 2. University Department/Centre | Department of Biomedical Instrumentation Engineering Technology |
| 3. Program Title | medical Instrumentation Engineering Technology |
| 4. Title of Final Award | Bachelor of Engineering Medical Device Technologies |
| 5. Modes of Attendance offered | Yearly |
| 6. Accreditation | ABET |
| 7. Other external influences | ABET |
| 8. Date of production/revision of this specification | 1-3-2022 |
| 9. Aims of the Program | |
| 1- Preparing engineers in the electrical and electronic field in medical technology engineering, which bears the responsibility of studying the country's need for development and progress in the labor market in state institutions and the medical industry sector, and preparing a healthy, educated generation that adopts science and is armed with it to bring about radical changes that serve the goals of the country. | |
| 2 – Graduation of students with the ability to know the parts of different medical devices and the evolution of the technology that gets | |
| 3 – Training and development of engineering and technical personnel on the operation and maintenance of medical devices | |
| 4 – Preparation of research and studies to improve and develop the work of medical devices | |
| 5 – Provide students with scientific skill to diagnose the faults resulting in medical devices | |
| 6- Introduce the suggestions for the alternatives of the medical instrumentations | |

## 10. Learning Outcomes, Teaching, Learning and Assessment Methods

Knowledge and Understanding
A1. Develop plans and programs of work, especially in the maintenance of medical devices
A2. Supervising the implementation of the site
A3. Preparing researches and studies to improve the development of medical devices
A4. Participation in committees related to the activity of medical devices
A5. Participate in the analysis of tenders for medical devices and choose the alternative

Subject-specific skills
B1. Training engineers and technicians on the operation and maintenance of medical devices
B2. Installation and operation of medical devices (supervision and implementation)
B3. Consultation in the field of medical devices

### Teaching and Learning Methods

Lectures – Scientific laboratories – Data show – Workshops – Seminars – Scientific exhibitions

### Assessment methods

Daily Evaluation – Quarterly Evaluation – Practical Evaluation – Final Evaluation - Presentation – Daily Attendance – Weekly Reports

Thinking Skills
C1. Offers scientific projects in the design of circuits and medical devices
C2. Design an electronic board
C3. Develop plans and future ideas to suit the needs in the field of medical devices

### Teaching and Learning Methods

Lectures – Scientific laboratories – Data show – Workshops – Seminars – Scientific exhibitions

### Assessment methods

Daily Evaluation – Quarterly Evaluation – Practical Evaluation – Final Evaluation - Presentation – Daily Attendance – Weekly Reports

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. The graduate provides scientific and applied skills that enable him to diagnose the resulting malfunctions in medical devices
D2. The ability of graduates to make electronic boards in medical devices
D3.The ability of the graduate to train technical personnel in the field of medical devices
D4. Design of alternative electronic circuits

### Teaching and Learning Methods

Lectures – Scientific laboratories – Data show – Workshops – Seminars – Scientific exhibitions

### Assessment Methods

Daily Evaluation – Quarterly Evaluation – Practical Evaluation – Final Evaluation - Presentation – Daily Attendance – Weekly Reports

| 11. Programme Structure | | | | 12. Awards and Credits |
|---|---|---|---|---|
| **Level/Year** | Course or Module Code | Course or Module Title | Credit rating | |
| **First year** | MITE20171 | Human rights and democracy | 2 | |
| | MITE20172 | Math 1 | 3 | |
| | MITE20173 | Principles of electrical engineering | 5 | |
| | MITE20174 | Medical chemistry | 4 | |
| | MITE20175 | Medical Physics | 4 | |
| | MITE20176 | mechanics | 2 | |
| | MITE20177 | computer apps 1 | 4 | |
| | MITE20178 | engineering drawing | 4 | |
| | MITE20179 | workshop | 4 | |
| | MITE201710 | English | 1 | |
| | MITE201711 | Arabic | **1** | |
| **Second year** | MITE20181 | Math 2 | 3 | |
| | MITE20182 | Anatomy and physiology | 4 | |
| | MITE20183 | Clinical chemistry instrument | 4 | |
| | MITE20184 | Component and electrical circuits | 5 | |
| | MITE20185 | Digital technology | 4 | |
| | MITE20186 | Medical measurements and transducers | 5 | |
| | MITE20187 | Medical instruments 1 | 5 | |
| | MITE20188 | Computer applications | 3 | |
| | MITE20189 | التدريب المنهجي | - | |
| | MITE20190 | English | 1 | |
| **Third year** | MITE20191 | Electronics medical systems | 4 | |
| | MITE20192 | Digital signal processing | 4 | |
| | MITE20193 | Communication medical systems | 4 | |
| | MITE20194 | Medical instruments 2 | 5 | |
| | MITE20195 | Microprocessor and accurate computer | 4 | |
| | MITE20196 | Power electronics | 4 | |
| | MITE20197 | Electricity technology | 4 | |
| | MITE20198 | Computer applications | 3 | |
| | MITE20199 | التدريب المنهجي | - | |
| | MITE20100 | English | 1 | |
| **Forth year** | MITE20201 | Medical instruments 3 | 5 | |
| | MITE20202 | Systems and control | 4 | |
| | MITE20203 | Radiation equipment engineering | 4 | |
| | MITE20204 | Medical laser systems | 4 | |
| | MITE20205 | Advanced digital design | 4 | |
| | MITE20206 | Computer applications | 3 | |
| | MITE20207 | Project management | 2 | |
| | MITE20208 | project | 6 | |
| | MITE20209 | English | 1 | |
| | | | | |

## 13. Personal Development Planning

1- Increasing extra-curricular activities such as scientific trips and visits to hospitals and health centers
2- Encouraging faculty members to obtain the highest scientific and administrative ranks
3- Organizing conferences, scientific symposia, training programs and workshops inside and outside the department
4- Providing sources and modern scientific books for the department's library

## 14. Admission criteria.

(Central Admission)
1- graduate sixth scientific branch
2- Graduates of the early industrial academies
3- Graduates of the first technical institutes

## 15. Key sources of information about the programme

Library / Internet / Websites / Virtual Library

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| | Curriculum Skills Map | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed | | | | | | | | | | | | | | | | |
| | | | | Programme Learning Outcomes | | | | | | | | | | | | | |
| **Year / Level** | CourseCode | CourseTitle | Core (C) Title or Option (O) | Knowledge andunderstanding | | | | | Subject-specific skills | | | Thinking Skills | | | **General and TransferableSkills (or) Other skills relevant to employability and personal development** | | | |
| | | | | **A1** | **A2** | **A3** | **A4** | **A5** | **B1** | **B2** | **B3** | **C1** | **C2** | **C3** | **D1** | **D2** | **D3** | D4 |
| First year | MITE20171 | Human rights and democracy | C | ✓ | ✓ | | | | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ |
| | MITE20172 | Math 1 | C | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ |
| | MITE20173 | Principles of electrical engineering | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20174 | Medical chemistry | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20175 | Medical Physics | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20176 | mechanics | C | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | ✓ | ✓ | |
| | MITE20177 | computer apps 1 | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20178 | engineering drawing | C | | | | | | | | | | | | | | | |
| | MITE20179 | workshop | C | | | | | | | | | | | | | | | |
| | MITE201710 | English | C | | | | | | | | | | | | | | | |
| | MITE201711 | Arabic | C | | | | | | | | | | | | | | | |
| Second year | MITE20181 | Math 2 | C | | | | | | | | | | | | | | | |
| | MITE20182 | Anatomy and physiology | C | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20183 | Clinical chemistry instrument | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20184 | Component and electrical circuits | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20185 | Digital technology | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20186 | Medical measurements and transducers | C | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | ✓ | ✓ | |
| | MITE20187 | Medical instruments 1 | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20188 | Computer applications | C | | ✓ | ✓ | | | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | |
| | MITE20189 | التدريب المنهجي | C | | | | | | | | | | | | | | | |
| | MITE20190 | English | C | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Third year | MITE20191 | Electronics medical systems | **C** | ✓ | ✓ | | | | | ✓ | ✓ | | ✓ | | | ✓ | ✓ | |
| | MITE20192 | Digital signal processing | C | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20193 | Communication medical systems | C | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20194 | Medical instruments 2 | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20195 | Microprocessor and accurate computer | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20196 | Power electronics | C | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | ✓ | ✓ | |
| | MITE20197 | Electricity technology | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20198 | Computer applications | C | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | ✓ | ✓ | |
| | MITE20199 | **التدريب المنهجي** | C | | | | | | | | | | | | | | | |
| | MITE20100 | English | C | | | | | | | | | | | | | | | |
| Forth year | MITE20201 | Medical instruments 3 | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | MITE20202 | Systems and control | C | | | | | | | | | | | | | | | |
| | MITE20203 | Radiation equipment engineering | C | | | | | | | | | | | | | | | |
| | MITE20204 | Medical laser systems | C | | | | | | | | | | | | | | | |
| | MITE20205 | Advanced digital design | C | | | | | | | | | | | | | | | |
| | MITE20206 | Computer applications | C | | | | | | | | | | | | | | | |
| | MITE20207 | Project management | C | | | | | | | | | | | | | | | |
| | MITE20208 | project | C | | | | | | | | | | | | | | | |
| | MITE20209 | English | **C** | | | | | | | | | | | | | | | |

**TEMPLATE FOR COURSE SPECIFICATION**

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

# COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expectedto achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

| | |
|---|---|
| 1. Teaching Institution | Electrical Engineering Technical College |
| 2. University Department/Centre | Medical Instrumentation Techniques Engineering |
| 3. Course title/code | Medical Chemistry |
| 4. Programme(s) to which it contributes | |
| 5. Modes of Attendance offered | Yearly |
| 6. Semester/Year | Year |
| 7. Number of hours tuition (total) | Theory (60 h) and practical (60 h) |
| 8. Date of production/revision of this specification | 1/3/2022 |
| 9. Aims of the Course | |
| 1- Training student how to deal with chemicals. | |
| 2- Training student to perform experiments by classical methods. | |
| 3- Preparing engineer who test instruments by operating system and calibrate byperforming analytical experiments manual and by instruments and statistical treatment of results. | |

## 10· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Knowledge and Understanding

A1 – establishing scientific background in chemical field.
A2 – the possibility to suggest other option of medical and lab instruments.A3 - The student recognizes the types of chemicals.
A4- Understanding the theoretical principles of instruments work.

B. Subject-specific skills
B1 – Gain skills of laboratory work and performing experiments.
B2 – finding of common language between engineer and analyst or operator.
B3 - Students acquire practical skills to learn about chemicals.
B4- prepare engineer who can prepare, maintain, understand working principlesof instruments.

### Assessment methods

- Written quarterly examinations
- Practical Quarterly Examinations
- Weekly Tests (Oral / Written)
- Quick questions
- pre- test and post-test

C. Thinking Skills
C1. The student listens attentively
C2. Students learn about the impact of science and scientists in life
C3. The student should describe the importance of learning the MedicalChemistry
C4. The student is quietly concerned with the grade system.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. Sports activities
D2. Technical activities
D3. Literary activities

### Teaching and Learning Methods

Discussion and dialogue with students

### Assessment methods

Questionnaire, Seminars, Discussion Hubs

| 11. Course Structure | | | | | |
|---|---|---|---|---|---|
| **Week** | Hours | ILOs | Unit/Module or Topic Title | Teaching Method | **Assessment Method** |
| **1st , 2nd** | Practical (8) | The student understands the lesson | Introduction . | Theory and practical | **Direct questions** |
| **3rd** | **Practical (4)** | **The student understands the lesson** | **Lettering .** | **practical** | **Direct questions** |
| **4th , 5th , 6th** | Practical (12) | The student understands the lesson | Geometrical constrictions . | practical | **Direct questions** |
| **8th , 9th , 10th** | **Practical (12)** | **The student understands the lesson** | **Isometric drawing .** | **practical** | **Direct questions** |
| **11th , 12th ,13th** | Practical (12) | The student understands the lesson | Orthogonal projection . | practical | **Direct questions** |
| **14th** | **Practical (4)** | **The student understands the lesson** | **Pictorial projection .** | **practical** | **Direct questions** |
| **15th** | Practical (4) | The student understands the lesson | Sections . | practical | **Quiz** |
| **16th , 17th** | Practical (8) | The student understands the lesson | Explanation & drawing of electric board & electronic symbols . | practical | **Direct questions** |
| **18th , 19th , 20th** | Practical (12) | The student understands the lesson | Drawing of electric & electronic board . | practical | **Direct questions** |
| **21st, 22nd , 23rd** | Practical (12) | The student understands the lesson | Integrated circuit drawings. | practical | **Direct questions** |
| **24th , 25th , 26th** | Practical (12) | The student understands the lesson | Drawing of generator connectors . | practical | **Direct questions** |
| **27th , 28th** | Practical (8) | The student understands the lesson | Reading different electric&electronic maps . | practical | **Direct questions** |
| **29th , 30th** | **Practical (8)** | **The student understands the lesson** | **Industrial drawing .** | **practical** | **Quiz** |

| 12. Infrastructure | |
|---|---|
| Required reading:<br>· CORE TEXTS<br>· COURSE MATERIALS<br>· OTHER | |
| Special requirements (include forexample workshops, periodicals, IT software, websites) | |
| Community-based facilities(include for example, guestLectures , internship , field studies) | |

| 13. Admissions | |
|---|---|
| Pre-requisites | |
| Minimum number of students | 30 |
| Maximum number of students | 250 |