

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 expected to 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	Baghdad University- Al-Khwarizmi College of Engineering
2. University Department/Centre	Biomedical Engineering
3. Course title/code	BioSensors 1
4. Programme(s) to which it contributes	BSc in Biomedical Engineering
5. Modes of Attendance offered	Full time attendance
6. Semester/Year	2 semesters per year
7. Number of hours tuition (total)	30 hours in each semester
8. Date of production/revision of this specification	
9. Aims of the Course	
By the end of this course, The students will be able to: 1- know the theory and background of biomedical sensors such as electrodes,, thermal sensors , chemical sensors and others biomedical sensors 2- Know the applications and operations of Biosensors such as EEG, EMG, PPG and ECG) sensors.	

3- Learn about the specific analysis devices such as spectroscopy, spectrophotometry and gas analyzer.

4- Learn about the specific sensors for anesthesia and the sensors in the operational rooms.

10· Learning Outcomes, Teaching ,Learning and Assessment Methods

A- Knowledge and Understanding

- A1.
- A2.
- A3.

B. Subject-specific skills

- B1.
- B2.
- B4.

Teaching and Learning Methods

- Lectures where the students write information presented to them via slide show, overhead or written by the lecturer;
- Lectures where the students have some printed notes/handouts and may annotate, or expand these during a spoken lecture;
- Question and answer sessions during lectures or staff Office Hours;
- Laboratory sessions.

Assessment methods

- Written examinations (Summative assessment);
- Oral presentations of individual and group work;
- Homework;
- Practical skills will be assessed through laboratory experiments, write-ups, coursework reports, project reports and presentations;
- Presentation skills through group presentations and poster presentations to improve their soft skills such as problem solving, team work, time management and presentation skills.

C. Thinking Skills

- C1.
- C2.
- C3.
- C4.

Teaching and Learning Methods

External lectures from industry or clinicians;

- Feedback given to students during tutorials;
- Question and answer sessions during lectures or staff Office Hours;
- Completion of web-based exercises or computer based laboratory sessions;

Assessment methods

Individual written project report(s) of both individual and group projects;

- Practical skills will be assessed through laboratory experiments, write-ups, coursework reports, project reports and presentations;
- Presentation skills through group presentations and poster presentations.

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

- D1.
- D2.
- D3.

Teaching and Learning Methods

- Lectures where the students have some printed notes/handouts and may annotate, or expand these during a spoken lecture;
- Lecture material placed on web-pages or other e-learning environment;
- External lectures from industry or clinicians;
- Question and answer sessions during lectures or staff Office Hours;

Assessment Methods

- Practical skills will be assessed through laboratory experiments, write-ups, coursework reports, project reports and presentations;
- Presentation skills through group presentations and poster presentations.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
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Week	Date	Topics Covered	Lab. Experiment Assignments	Notes
1		Introduction to Biomedical engineering		
2		Biomedical Sensors and System		
3		Classification of the Sensors & Transducers		Quiz 1
4		Temperature Sensors		
5		Displacement Transducers		
6		Displacement Sensors		
7		Blood flow transducer		
8		Cantilever Biosensor and Airflow Transducers		Quiz 2
9		Seminar activity and group presentations		Seminar
10		Electrochemical Biosensors I (Electrolytic and Electrochemical Cells)		
11		Electrochemical Biosensors II		Quiz 3
12		Gas biosensors I (O ₂ , PO ₂ , SPO ₂)		
13		Seminar		Seminar
14		Gas biosensors II (CO ₂ , PH)		
15		Exam mid term		

13. Admissions	
Pre-requisites	BioSensors
Minimum number of students	10
Maximum number of students	40

12. Infrastructure	
<p>Required reading:</p> <ul style="list-style-type: none"> · CORE TEXTS · COURSE MATERIALS · OTHER 	<ol style="list-style-type: none"> 1- Introduction to Biosensors: From Electric Circuits to Immunosensors, Jeong-Yeol Yoon, Springer. 2- Introduction to Biomedical Engineering, John Enderle, Ph.D., Joseph Bronzino, Susan M. Blanchard. Chapter 9 BIOMEDICAL SENSORS, Yitzhak Mendelson, PhD.
<p>Community-based facilities include for example (guest, Lectures , internship , field studies)</p>	