

TEMPLATE FOR PROGRAMME SPECIFICATION

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| 1. Teaching Institution | Baghdad University- Al-Khwarizmi College of Engineering |
| 2. University Department/Centre | Biomedical Engineering |
| 3. Course title/code | Microwave X-ray & gamma ray 1 |
| 4. Programme(s) to which it contributes | BSc in Biomedical Engineering |
| 5. Modes of Attendance offered | Full time attendance |
| 6. Semester/Year | One Semesters per year |
| 7. Number of hours tuition (total) | 45 hours in the semester |
| 8. Date of production/revision of this specification | |
| 9. Aims of the Course | |
| To provide the necessary foundation and to gain the required knowledge of theory and the most recent technology in lasers, and their applications in medical field. | |

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| 10. Learning Outcomes, Teaching ,Learning and Assessment Methods | |
| A- Knowledge and Understanding A1 A2 A4 | |
| B. Subject-specific skills B1 B2 B3 | |

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.

C. Thinking Skills

C1
C2
C3

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

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 |
|------|-------|------|--------------------------------------------|-----------------|-------------------|
| 1 | | | Flat detector, .Fluoroscop | | |
| 2 | | | quality control of x-ray image | | |
| 3 | | | quality control of x-ray image. | | |
| 4 | | | Parameters affecting brightness, sharpness | | |
| 5 | | | contrast of the x-ray image. | | |
| 6 | | | Exam | | |
| 7 | | | Image characteristics, Image noise. | | |
| 8 | | | Introduction to Nuclear Medicine | | |
| 9 | | | Basic atomic structure | | |
| 10 | | | radioactivity | | |
| 11 | | | Collimator, NaI crystal, PMT | | |
| 12 | | | the Anger Position Network | | |
| 13 | | | PET scan | | |

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| 14 | | | Exam | | |
| 15 | | | Reviw | | |

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

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| 13. Admissions | |
| Pre-requisites | |
| Minimum number of students | 10 |

Maximum number of students

40