MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

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| **Module Information**معلومات المادة الدراسية |
| **Module Title** | Laboratory Medical Instrumentation I | **Module Delivery** |
| **Module Type** | Core | **☒ Theory*** **Lecture**

**☒ Lab*** **Tutorial**

☒ **Practical*** **Seminar**
 |
| **Module Code** | MIE21101 |
| **ECTS Credits** | 7 |
| **SWL (hr/sem)** | 175 |
| **Module Level** | UGII | **Semester of Delivery** | 3 |
| **Administering Department** | MIE | **College** | MUC |
| **Module Leader** | Ali Qutaiba | **e-mail** | ali.qutaiba@muc.edu.iq |
| **Module Leader’s Acad. Title** | Assist Lecturer | **Module Leader’s Qualification** | M.Sc. |
| **Module Tutor** | None | **e-mail** |  |
| **Peer Reviewer Name** | Dr.Noor Kadhim Meftin | **e-mail** | noor.kadhim@muc.edu.iq |
| **Scientific Committee Approval Date** | 17/6/2023 | **Version Number** | 1.0 |

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| **Relation with other Modules**العلاقة مع المواد الدراسية الاخرى |
| **Prerequisite module** | None | **Semester** |  |
| **Co-requisites module** | None | **Semester** |  |

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| **Module Aims, Learning Outcomes and Indicative Contents**أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية |
| **Module Aims**أهداف المادة الدراسية | 1. The graduate get scientific and applied skills to diagnose the medical instruments faults.
2. The graduated students will gain the ability of knowledge of different parts of medical instruments.
3. Development and training the engineering technical staff on medical device maintenance.
4. Preparation of the research and studies to improve and develop the action of medical devices.
5. Prepare application engineers in technical and electronic engineering.
6. Put the proposals and alternatives for the medical devices.
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| **Module Learning** | Upon completion of the course, students should be able to:1. Define the Medical instrumentation and recognize what is the laboratory security system and determine the quality control results in the medical laboratory.
2. Classify the medical instrumentation.
3. Describe the hospital design.
4. Design and Describe the operating room.
5. Understand patient safety laws and rules.
6. Define and understand the medical Laboratory Instruments and Tools.
7. Calibration of Medical Laboratory Instruments.
8. Define, explain, and describe Balances and understand the electrical and electronic parts.
9. Explain the types of balances and their medical application.
10. Define, explain, and describe water bath and understand the electrical and electronic parts.
11. Define, explain, and describe wax bath and understand the electrical and electronic parts.
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| **Outcomes** |
| مخرجات التعلم للمادة |
| الدراسية |
|  | Indicative content includes the following: |
| **Indicative Contents**المحتويات الارشادية | Medical instrumentation classification , analysis lists, work security rules, and best laboratory use guidelines [12 hr].Calibration of instruments criteria, types, components, advantages and disadvantage, physical and medical applications.[13hr]Medical instrumentation faults and maintenance , analysis lists, work securityrules, and best laboratory use guidelines [13hr]. |

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|  | Patient safety and hospital design rules [14h].Classification of different types medical laboratories like medical, biological histological and chemical[13]. |

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| **Learning and Teaching Strategies**استراتيجيات التعلم والتعليم |
| **Strategies** | The main strategy that will be adopted in delivering this module is to encourage students’ participation in the design, while at the same time refining and expanding their medical instrumentations thinking skills. This will be achieved through classes, interactive tutorials, and by considering types of simple experiments involving some sampling activities that are interesting to the students. |

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| **Student Workload (SWL)**الحمل الدراسي للطالب |
| **Structured SWL (h/sem)**الحمل الدراسي المنتظم للطالب خلال الفصل | 94 | **Structured SWL (h/w)**الحمل الدراسي المنتظم للطالب أسبوعيا | 6 |
| **Unstructured SWL (h/sem)**الحمل الدراسي غير المنتظم للطالب خلال الفصل | 81 | **Unstructured SWL (h/w)**الحمل الدراسي غير المنتظم للطالب أسبوعيا | 7 |
| **Total SWL (h/sem)**الحمل الدراسي الكلي للطالب خلال الفصل | 175 |

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| **Module Evaluation**تقييم المادة الدراسية |
|  | **Time/Nu****mber** | **Weight (Marks)** | **Week Due** | **Relevant Learning****Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| **Projects / Lab.** | 1 | 10% (10) | Continuous | All |

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|  | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative****assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| **Final Exam** | 4hr | 50% (50) | 16 | All |
| **Total assessment** | 100% (100 Marks) |  |  |

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| **Delivery Plan (Weekly Syllabus)**المنهاج الاسبوعي النظري |
|  | **Material Covered** |
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| **Week 2** | Introduction to medical instruments. |
| **Week 3** | Classification of medical instrumentation. |
| **Week 4** | Design of hospitals. |
| **Week 5** | Design of operating room. |
| **Week 6** | Patient Safety. |
| **Week 7** | Mid term |
| **Week 8** | Medical Laboratory Instruments and Tools-1 |
| **Week 9** | Medical Laboratory Instruments and Tools- 2 |
| **Week 10** | Classification of different medical laboratories |
| **Week 11** | Calibration of Medical Laboratory Instruments. |
| **Week 12** | Introduction to Balance. |
| **Week 13** | Balance and their types. |
| **Week 14** | Wax bath. |
| **Week 15** | Water bath. |
| **Week 16** | The preparatory week before the final exam. |

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| **Delivery Plan (Weekly Lab. Syllabus)**المنهاج الاسبوعي للمختبر |
|  | **Material Covered** |
| **Week 1** | Introduction to medical instruments. |
| **Week 2** | Classification of medical instrumentation. |
| **Week 3** | Medical Laboratory Instruments and Tools. |
| **Week 4** | Patient Safety. |
| **Week 5** | Calibration of Medical Laboratory Instruments. |
| **Week 6** | Classification of different medical lab. |
| **Week 7** | Introduction to Balance. |
| **Week 8** | Balance and their types. |
| **Week 9** | Wax bath. |
| **Week 10** | Water bath. |
| **Week 11** | Exam. |

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| **Learning and Teaching Resources**مصادر التعلم والتدريس |
|  | **Text** | **Available in the****Library?** |
| **Required Texts** | Biomedical device technology ,by ANTHONYY. K. CHAN, MSc, MEng, PEng, CCE |  |
| **Recommended Texts** | Ananthi ,2005,”A text book of medicalinstruments |  |
| **Websites** |  |

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| **Grading Scheme**مخطط الدرجات |
| **Group** | **Grade** | التقدير | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | امتياز | 90 - 100 | Outstanding Performance |
| **B -** Very Good | جيد جدا | 80 - 89 | Above average with some errors |
| **C -** Good | جيد | 70 - 79 | Sound work with notable errors |
| **D -** Satisfactory | متوسط | 60 - 69 | Fair but with major shortcomings |
| **E -** Sufficient | مقبول | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX –** Fail | راسب (قيد المعالجة) | (45-49) | More work required but credit awarded |
| **F –** Fail | راسب | (0-44) | Considerable amount of work required |
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| **Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be theautomatic rounding outlined above. |