



**Module (Course Syllabus) Catalogue**

**2022-2023**

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| **College/ Institute** | **Erbil Medical Technical Institute** | |
| **Department** | **MLT Department** | |
| **Module Name** | **Medical Lab. Instrument** | |
| **Module Code** | **MEL203** | |
| **Degree** | **Technical Diploma Bachler High Diploma Master PhD** | |
| **Semester** | **2nd** | |
| **Qualification** | **Master degree** | |
| **Scientific Title** | **Assist lect.** | |
| **ECTS (Credits)** | **6** | |
| **Module type** | **Prerequisite Core Assist.** | |
| **Weekly hours** | **4** |  |
| **Weekly hours (Theory)** | **( 2 )hr Class** | **( 3 )Total hrs Workload** |
| **Weekly hours (Practical)** | **( 2 )hr Class** | **( 1 )Total hrs Workload** |
| **Number of Weeks** | **16** | |
| **Lecturer (Theory)** | **Media Fadhil Jalil** | |
| **E-Mail & Mobile NO.** | **Media.jalil@epu.edu.iq** | |
| **Lecturer (Practical)** |  | |
| **E-Mail & Mobile NO.** |  | |
| **Websites** | **https://academicstaff.epu.edu.iq/faculty/media.jalil** | |

**https://academicstaff.epu.edu.iq/faculty/muharam.mohammed**

**Course Book**

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| **Course Description** | The student will demonstrate proper handling of laboratory chemicals; operate common analytical instruments; describe the theory and applications of various analytical instruments including types of electrophoresis, spectrophotometer, chromatography, and centrifugation; and practice laboratory safety. | | | | | | |
| **Course objectives** | identify in two or three paragraphs the important objectives of the course and show those points that students should learn at the end of the course. | | | | | | |
| **Student's obligation** | * **Student's obligation** * **This course will introduce the student to the general role of health care provider as well as the specific role of the Medical Laboratory Technician. Basic aspects of medical terminology, laboratory safety, quality control, microscopy, pipe ting techniques, laboratory mathematics .as the followings**   1-The student attention in all theoretical and practical lectures in academic year.  2-Completion of all tests.  3-Attendance in exams.  4-Write or prepare reports. | | | | | | |
| **Required Learning Materials** | lecture halls with data show equipment for lecture presentations, white board, overhead projector, posters | | | | | | |
| **Evaluation** | ‌ **Task** | | | **Weight (Marks)** | | **Due Week** | **Relevant Learning Outcome** |
| Paper Review | | | 1 | | 1 |  |
| Assignments | Homework | | 0.5 | | 4 |  |
| Class Activity | | 2 | | 2 |  |
| Report | | 1 | | 1 |  |
| Seminar | | 1 | | 1 |  |
| Essay | | 0 | | 0 |  |
| Project | | 0 | | 0 |  |
| Quiz | | | 1 | | 4 |  |
| Lab. | | | 2 | | 12 |  |
| Midterm Exam | | | 1 | | 2 |  |
| Final Exam | | | 1 | | 3 |  |
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| **Specific learning outcome:** | * Ability to develop general knowledge * Knowledge and understanding of the subject area and understanding of the profession * Ability to identify, differentiate, pose and resolve problem * Demonstrate the ability to think critically and solve problems in a laboratory setting * Ability to apply knowledge in practice * Ability to search for process and analyse information from a variety of sources | | | | | | |
| **Course References‌:** | * **Course Reading List and References‌:**  General or text book of Lab. Instrument (Author), [Donald M. West](https://www.amazon.com/s/ref=dp_byline_sr_book_2?ie=UTF8&field-author=Donald+M.+West&text=Donald+M.+West&sort=relevancerank&search-alias=books) (Author),Modern Analytical Chemistry 1st Edition by [David T Harvey](https://www.amazon.com/s/ref=dp_byline_sr_book_1?ie=UTF8&field-author=David+T+Harvey&text=David+T+Harvey&sort=relevancerank&search-alias=books) | | | | | | |
| **Course topics (Theory)** | | | **Week** | | **Learning Outcome** | | |
| Microscope (Parts of Microscope, Use of Microscope & care of microscope). | | | 9-2-2020 | | Describe the identify each part | | |
| Phase contrast & Dark field microscope | | | 16-2-2020 | | Explain the types of Microscope | | |
| Centrifuge | | | 23-2-2020 | | Define and explain each part with type of instrument | | |
| Balances  Oven | | | 1-3-2020 | | Two devices in detail | | |
| Incubator | | | 8-3-2020 | | Known types of of incubator and parts | | |
| Autoclave | | | 15-3-2020 | | Learning to how can using the oven and the part | | |
| CBC | | | 22-3-2020 | | Count blood cell ,principle and measurement | | |
| Ph. meter | | | 5-4-2020 | | Describe the acidity and alkaline solutions | | |
| Water bath | | | 12-4-2020 | | Describe princible of device | | |
| Spectrophotometer | | | 19-4-2020 | | Measurement the wavelength of substance | | |
| VIDUS+MiniVIDUS | | | 26-4-2020 | | Application this device in viral field | | |
| Electrophoresis  Elisa | | | 3-5-2020 | | Parts and operation of devices | | |
| **Practical Topics (If there is any)** | | | **Week** | | **Learning Outcome** | | |
| Microscope (Parts of Microscope, Use of Microscope & care of microscope). | | | 9-2-2020 | | Describe the operation of device and identify each part | | |
| Phase contrast & Dark field microscope | | | 16-2-2020 | | Explain the types of Microscope in details | | |
| Centrifuge | | | 23-2-2020 | | Operation of device and explain each part with type of instrument | | |
| Balances  Oven | | | 1-3-2020 | | Two devices in detail | | |
| Incubator | | | 8-3-2020 | | Explain the operation device and the effect of temperature then types of of incubator and parts | | |
| Autoclave | | | 15-3-2020 | | Learning to how can using the autoclave and the part | | |
| CBC | | | 22-3-2020 | | Operation the Count blood cell devices ,principle and measurement | | |
| Ph. meter | | | 5-4/2020 | | Describe the acidity and alkaline solutions  Describe princible of device in practical | | |
| Water bath | | | 12-4-2020 | | Describe princible of device | | |
| Spectrophotometer | | | 19-4-2020 | | Measurement the wavelength of substance and applied in many solution to the see the different between them | | |
| VIDUS+MiniVIDUS | | | 26-4-2020 | | Application this device in viral field | | |
| **Electrophoresis**  **Elisa** | | | 3-5-2020 | | Parts and operation of devices | | |
| **Q1) Fill the blanks with suitable words: (28M)**  **1- The centrifuge works using the -------------------**  **2- Distillation is a process of -------- the component or substances from a liquid (Mixture) by selective ---------- and ------------ .**  **3-The working principle of ----------- is to heat a mixture at a specific temperature.**  **4-In a laboratory centrifuge that uses sample tubes, the radial acceleration causes --------------particles to settle to the bottom of the tube, while ------------ substances rise to the top.**  **Q2) Answer the followings: (24M)**  **A- Types of pH meter:**  **B- Write the different between the light microscope and electron microscope**  **C- Enumerate the classification of centrifuges:** | | | | | | | |
| * **Extra notes:** | | | | | | | |
| * **External Evaluator**   **The outcome of course book evaluation is commonly more explicit and follows the principles and rules in general.**  **Muharam yaseen mohammed** | | | | | | | |