

**(Module Name) Course Catalogue**

**2022-2023**

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| **College/ Institute** | **Medical Technical Institute** |
| **Department** | **Medical Laboratory Technology** |
| **Module Name** | **Clinical chemistry 2** |
| **Module Code** | **CLH 401** |
| **Semester** | **4** |
| **Credit** | **6** |
| **Module type** | **Core** |
| **Weekly hours** | **4** |  |
| **Weekly hours (Theory)** | **( 2 )hr Class** | **( 3 )hr Workload** |
| **Weekly hours (Practical)** | **( 2 )hr Class** | **( 1 )hr Workload** |
| **Lecturer (Theory)** | **Layla Kareem Ali** |
| **E-Mail**  |
| **Lecturer (Practical)** | **Layla Kareem Ali, Rzgar SaBr Hadi & Lina Fryad Abdulla**  |
| **Email** | **Layla.ali@epu.edu.iq.**  |

**Course Book**

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| * **Course overview:**

This course is an introduction to clinical chemistry where students are urged to understand the concentrations and how to extract them and all the test of clinical chemistry laboratory . |
| * **Course objective:**

Identify the types of clinical chemistry tests and the basis of the testes in the chemistry laboratory, and how you can to linking in the results**.** |
| * **Student's obligation**

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.  |
| * **Forms of teaching**

lecture halls with data show equipment for lecture presentations, white board, overhead projector, posters |
| * **Assessment scheme**

‌ **%10 Mid. Theory exam** **% 15 Mid. practical exam** **% 8 Quiz** **%5 Homework** **%10 Seminar** **%10 Report practical:**  **%2 Activity** **%20 final practical** ***% 20* final theory** **100 Total** |
| * **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
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| * **Course Reading List and References‌:**
1. **Clinical Chemistry and Molecular Diagnostics By Carl A. Burtis, Edward R. Ashwood, David E. Bruns(2016)**
2. **Fundamentals of Clinical Chemistry and Molecular Diagnostics By Carl A. Burtis, David E. Bruns, seventh edition (2018)**
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| * **Course topics (Theory)**
 | **Week** | **Learning Outcome** |
| Body fluid  | 1 | Identify how body taken the fluid |
| Electrolytes  | 2 | Identify the important to electrolytes  |
| Methods of entry and exit of electrolytes in the cells | 3 | Identify the methods to ECF and ICF |
| Electrolytes function  | 4 |  Identify the electrolytes function in the body regularisation |
| Livers function  | 5 | Identify the important to liver and its function  |
| Livers function, Alanine transaminase ( ALT ) or (GPT )  | 6 | Identify the ALT and effects |
| Livers function, Aspartate aminotransferase (AST ) or (GOT ) | 7 | Identify the AST and effects for body's health |
| Livers function, Alkaline phosphatase (ALP)  | 8 | Identify the ALP and effects |
| Livers function, Albumin  | 9 | Identify the Benefits and harms of Albumin  |
| Livers function, Bilirubin  | 10 | Identify the bilirubin  |
| Unconjugated bilirubin (indirect)  | 11 | Identify of the indirect bilirubin and effects  |
| conjugated bilirubin (direct) | 12 | Identify of the direct bilirubin and effects  |
| **Practical Topics (If there is any)** | **Week** | **Learning Outcome** |
| Electrolytes test (Sodium test)  | 1 | Identify to Na+ test  |
| Electrolytes test (Potassium test)  | 2 | Identify to k+ test |
| Electrolytes test (Calcium test)  | 3 | Identify to Ca+ test |
| Electrolytes test (Collide test)  | 4 | Identify to Cl+ test |
| Livers function, Alanine transaminase ( ALT ) or (GPT )  | 5 | Identify to ALT test |
| Livers function, Aspartate aminotransferase (AST ) test or (GOT ) | 6 | Identify to AST test |
| Livers function, Alkaline phosphatase test (ALP)  | 7 | Identify to ALP test |
| Livers function, Albumin test | 8 | Identify to Albumin test |
| Livers function, Bilirubin test  | 9 | Identify to Bilirubin test |
| Unconjugated bilirubin (indirect) test  | 10 | Identify to Indirect Bilirubin test |
|  conjugated bilirubin (direct) | 11 | Identify to direct Bilirubin test |
| Chemical factors in general urine examination (GUE) | 12 | Identify the PH and albumin in the urine  |
| **Examinations (question design):** **Q1/ Fill the blanks of the followings sentences by suitable words. ( Marks)**1. The liver an organ only found in ------------------------ and the liver is working to synthesizes -------------------
2. The normal value of direct bilirubin is-------------------------------------- while normal value of total bilirubin is -------------------------------------.
3. The ICF considered supplies the --------------------------------------- and ---------------------------------------.

**Q2/ Writ the normal range with the units of the following ( Marks)**

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| **Normal range** | **test** | **NO.** |
|  | **Albumin**  | **1-** |
|  | **Sodium**  | **2-** |
|  | **GOT** | **3-** |
|  | **Bilirubin**  | **4-** |
|  | **Potassium**  | **5-** |

**Q3/ Choose the correct answer from the following: ( Marks)**1. Diffusion method is depending to transferring the molecules---------------------.

 1. minimum pressure to high pressure B- low concentration to high concentration

C- high pressure to minimum pressure D- high concentration to low concentration.2) Liver function test taken after eaten for at least -----------------.A- 12 hours B- 2 hours C- 8 hours D- Not one of them3) In the total weight of the 70 kg of body it’s contain to ------------ liter of the fluid. A- 60% B- 42 liter C- 28 liter D- 14 liter 4) We used a urine test because of ---------------A- Easy check B-- Inexpensive C- its needed short time D-all of them.   |  |
| * **External Evaluator**

**The outcome of course book evaluation is commonly more explicit and follows the principles and rules in general.****Sangar Sabah Saber** |
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