

**(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** | | |
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**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 | | |
| * **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)** | | |
| * **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)**   |  |  |  | | --- | --- | --- | | **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 them  3) 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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