

Value Added Courses
Medical Biochemistry, TMMC & RC, TMU

Certificate Course in: Clinical Chemistry Laboratory Utilisation and Interpretation (

30 Hrs

About the course:

Background/Intent: The candidate undergoing this course will be gaining knowledge of the context in which various laboratory tests are requested to answer a particular question in real clinical practice. This would help the applicants to fill in the gap in knowledge which may influence the decision in results interpretation in the management of patient.

Outcomes:

At the end of successful completion of this course the learner will be:

- Able to understand about the details of various aspects of analysing biomedical data generated in laboratory
- Improvisation and strengthening of the skill to diagnose a disease
- To better interpret the origin and effects of an abnormal profile
- To be proficient in a systematic communication between the clinician and the laboratory personnel.

Course Outline:

- Course Coordinator: Dr Sangeeta Kapoor
- **Resource faculty:** 1. Dr. Sangeeta Kapoor (Professor & HOD)
2. Dr. Tariq Mahmood (Professor & DMS)
3. Dr. Anil Kumar (Professor)
4. Dr. Sushil Yadav (Assistant Professor)
5. Dr. Jyoti Trivedi (Assistant Professor)
- **Mode of Conduct:** Multifaculty (Online)
- Pre-test questionnaire (MCQ based)
- Applicants: UG/Interns/PG's of any health science stream)
- Course Outline: 8 weeks – 9 modules
- Final Assignment (minimum 50% necessary for certification)

(SYLLABUS)

MODULE A: OVERVIEW OF CLINICAL CHEMISTRY LABORATORY

Lecture 1- Introduction to Clinical Chemistry Laboratory: Importance, Scope, Relevance and Current scenario (30 mins)

Lecture 2- Acquaintance with Clinical Chemistry Laboratory Instruments, Equipments, Reagents, Controls and Calibrators (45 mins)

Lecture 3- Preparation of patients for sample collection: precautionary measures, acceptance and rejection of samples for analysis (45 mins)

MODULE B- LABORATORY ERRORS IN CLINICAL CHEMISTRY LABORATORY

Lecture 4- Categorisation and Identification of Laboratory errors: preanalytical, analytical and post analytical (45 mins)

Lecture 5- Steps to minimise laboratory errors viz; Preanalytical, analytical and post analytical (45 mins)

Lecture 6- Concepts of Total Quality Management (TQM) in a Clinical Chemistry Laboratory: Internal Quality Control (IQC)& External Quality Control(EQC)etc. (60 mins)

MODULE C: AUTOMATION IN CLINICAL CHEMISTRY LABORATORY

Lecture 7- Types of Automation with examples (45 mins)

Lecture 8- Components, Usage, Advantages & Disadvantages of Automation (30 mins)

MODULE D: VARIOUS TESTS PROFILE IN CLINICAL CHEMISTRY LABORATORY

Lecture 9- Routine tests analysis in Clinical Chemistry Laboratory (45 mins)

Lecture 10- Liver function tests- Interpretation in various types of liver diseases with Clinical Case discussion (45 mins)

Lecture 11- Renal function tests- Interpretation in various types of renal diseases with Clinical Case discussion (45 mins)

MODULE E: SPECIALISED TESTS IN CLINICAL CHEMISTRY LABORATORY

Lecture 12- Thyroid function tests- Interpretation in various types of thyroid diseases with Clinical Case discussion (45 mins)

Lecture 13- Adrenal function tests- Interpretation in various types of adrenal diseases with Clinical Case discussion (45 mins)

Lecture 14- Tumour markers analysis (45 mins)

MODULE F:ARTERIAL BLOOD GAS (ABG) ANALYSIS

Lecture 15- Introduction of ABG analysis (45 mins)

Lecture 16- Interpretation of ABG results (45 mins)

MODULE G: INTERFERENCES ENCOUNTERED IN CLINICAL CHEMISTRY LABORATORY TESTS

Lecture 16- Various interfering substances in biochemical results and interpretation of test results thereof (45 mins)

Lecture 17- Interference of the drugs in biochemical results and interpretation of test results (30 mins)

MODULE H: POST ANALYTICAL PHASE MANAGEMENT

Lecture 18- Proper reporting of biochemical results- format & literature designing (45 mins)

Lecture 19- Clinical Laboratory Informatics: Computing fundamentals, Laboratory reporting systems like LIS, HMS etc. and Information System Security (45mins)

MODULE I: INTEGRATION OF CONCEPTS

Lecture 20- POCT (Point of Care testing) (45 mins)

Lecture 21- Clinical Case Discussions (45 mins)

FINAL ASSIGNMENT

Minimum 50% passing criteria required for certification

Registration fees: Rs 1000 per person

REFERENCES:

- Varley's Practical Clinical Biochemistry Textbook. Sixth Edition
- Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics by Nader Rifai, Andrea Rita Horvath, Carl. T. Wittwer. Eighth edition
- Clinical Biochemistry: Metabolic and clinical aspects by William J Marshall, Marta Lapsley, Andrew P. Day and Ruth M. Ayling. Third Edition
- Clinical Chemistry Principles, Techniques and Correlations by Micheal L. Bishop, Edward P. Fody, Carleen Van Sichen, James March Mistler and Michelle Moy. Ninth edition.