PGDMLT-1001: MEDICAL LABORATORY TECHNOLOGY FUNDAMENTALS

Semester: I	
Course (subject) Code	PGDMLT-1001
Subject Title	Medical Laboratory Technology Fundamentals
Course Type	Core Compulsory
Teaching Time	15×4=60 Hours
Subject Outcome	At the end of the course, the students will get knowledge of • Basics of clinical laboratory and its types, Ethics and Law of clinical laboratory, organization and Accreditation of Laboratory • Laboratory safety and waste management • Different types of solutions, its preparation and laboratory calculation • Quality Laboratory process, Quality control and QC chart preparation as well as Westguard multi-rule chart for QC

Course Content:

Unit No.	**Content**	**Teaching Hours**
Unit-1	**Basics In Medical Laboratory Technology**	**15 Hr.**
1.1	Introduction, Functional Components of Clinical Laboratory, Various Types of Clinical Laboratories, Role of Medical Laboratory Technologist	
1.2	Code of Conduct, Ethics, Medico-Legal Aspects of Clinical Practice	
1.3	Commonly Requested Laboratory Tests in India and Other Developing Countries	
1.4	Organization of Clinical Laboratory	
1.5	Accreditation, Certification of Laboratories and Accrediting Agencies: ISO-Standard; NABL/NABH-Aims, Objectives, Scope, Qualification Norms	
Unit-2	**Laboratory Accidents and Safety**	**15 Hr.**
2.1	Laboratory Hazards- Physical, Chemical and Biological, Accidents and Safety Measures in Clinical Laboratory	
2.2	Code of Safe Laboratory Practice	
2.3	First Aid in Laboratory	
2.4	Biosafety Level and Biosafety Programme	
2.5	Biomedical Waste Management	
Unit-3	**Laboratory Solutions and Reagents**	**15 Hr.**
3.1	Introduction, Reagent Grade Water, General Laboratory Wares	
3.2	Expression of Solution Concentration	
3.3	Preparation of Laboratory Solutions	
3.4	Sources of Error in Preparation of Solution	
3.5	Units of Measurements, SI Units	
Unit-4	**Quality Control in Medical Laboratory**	**15 Hr.**
4.1	Quality Laboratory Process Analytical Variables- Central Tendency, Standard Deviation, Co-Efficient of Variation, Accuracy, Precision, Sensitivity and Specificity	
4.2	Sources of Common Errors in Medical Laboratory	
4.3	Quality Control Issue by Laboratory Types	
4.4	Quality Control Charts: Levy-Jenning Chart and Cusum Chart	
4.5	Westguard Multi-rule Charts	

Reference Books:

Sr. No.	Title/Edition	Authors	Publisher
1	Text Book of Medical Laboratory Technology (Volume-1)/3rd	P. B. Godkar D. P. Godkar	Bhalani Publishing House
2	Text Book of Medical Laboratory Technology/1st	Ramnik Sood	JAYPEE Brothers, Medical Publishers(P)LTD
3	Medical Laboratory Technology - (Volume 1)/3rd	Kanai L Mukherjee Anuradha Chakravarthy	McGraw Hill Education (India) Private Limited
4	District Laboratory Practice in Tropical Countries (Volume 1)/2nd	Monica Cheesbrough	Cambridge University Press.
5	Medical Microbiology and Parasitology/4th	B. S. Nagoba Asha Pichare	ELSEVIER
6	Medical Laboratory Science: Theory & Practice	J. Ochei A. Kolhatkar	McGraw Hill Education (India) Private Limited
7	Handbook of Quality Assurance in Laboratory Medicine	S. Tambwekar	BI Publication Private Limited