

GOVERNMENT POLYTECHNIC DHANGAR
MEDICAL LAB TECHNOLOGY

SEMESTER: 1ST

SUBJECT: BASIC CHEMISTRY

NAME OF FACULTY: BHAWNA RANI

Work Load (Lecture/Practical) per week (in hours): Lecture= 02, Practical=2

Week No	Lectur No.	Theory Syllabus to be Covered	Practical to be conducted
Week 1	Lecture 1	Introduction of the syllabus	Glassware Identification - different types, cleaning and preparation of cleaning solution.
	Lecture 2	Unit 1: Biologically important elements and study of their atomic number	
Week 2	Lecture 3	Study of mass number, atomic mass, equivalent weight & molecular weight of elements	Same as above
	Lecture 4	Importance of Basic chemistry in medical laboratory technology.	
Week 3	Lecture 5	Importance of Water quality and Glasswares in clinical laboratory: Introduction	Standardization, rechecking of volumetric glasswares.
	Lecture 6	Different types of glassware's, use, cleaning, standardization of volumetric glassware	
Week 4	Lecture 7	Maintenance of different types of glassware	Same as above
	Lecture 8	Pipettes - various types and different pipetting techniques.	
Week 5	Lecture 9	Biochemical importance of distilled water and deionised water in clinical analysis.	Determination of pH of different solutions.
	Lecture 10	Solution and colloids, Importance of colloids in biological system	
Week 6	Lecture 11	Surface tension, osmosis and viscosity their importance in biological system.	Same as above
	Lecture 12	Above Topic Continue	
Week 7	Lecture 13	Unit 2: Definition of organic and inorganic compounds. Importance of organic compounds – in Biological system.	Titration of Acid and Base.
	Lecture 14	Basic chemistry of carbohydrates - Their nutritional effect in humans.	
Week 8	Lecture 15	Basic chemistry of proteins - Their nutritional effect in humans.	Same as above
	Lecture 16	Basic chemistry of lipids - Their nutritional effect in humans.	
Week 9	Lecture 17	Unit 3: Physiological importance of Acid & Bases and role of pH in human system.	Performing confirmatory tests for Carbohydrate – Molisch
	Lecture 18	Oxidation and Reduction reactions – Definition.	
Week 10	Lecture 19	Preparation of various standard solutions – definition of primary & secondary standards.	Performing confirmatory tests for Protein- Biuret
	Lecture 20	SI units and their uses.	

Week 11	Lecture 21	Unit 4: Principles of photometry and laws of photometry	Same as above
	Lecture 22	Importance of photometry . Quantification of biomolecules in micro concentration.	
Week 12	Lecture 23	Principles used in determining concentration of molecules with no known weight - preparation of standard graph.	Identification of Parts of Colorimeter & Spectrophotometer.
	Lecture 24	Above Topic Continue	
Week 13	Lecture 25	Blood collection for biochemical analysis, changes occurring in blood after collection, management of its disposal.	Preparation of different types of standards solution.
	Lecture 26	Different types of Hazards- Biological, Chemical	
Week 14	Lecture 27	Different types of Hazards- fire, apparatus	Determination of Absorption maximum of a coloured solution.
	Lecture 28	Safety measures needed in Basic chemistry and clinical biochemistry laboratory	
Week 15	Lecture 29	Assuring Good Laboratory Practices (GLP) in basic chemistry.	File check or to be adjusted for practicals to be conducted during sessional tests
	Lecture 30	Revision or to be adjusted for lectures to be delivered during sessional tests	
Week 16	Lecture 31	Revision or to be adjusted for lectures to be delivered during sessional tests	File check or to be adjusted for practicals to be conducted during sessional tests
	Lecture 32	Revision or to be adjusted for lectures to be delivered during sessional tests	