

Syllabus for Certificate Course in Clinical Laboratory Technology (Self financed) for  
the session 2016-2017 & onwards

THEORY

Unit I: Microbiology

- 1) Classification of Bacteria
- 2) Cultivation, isolation and identification of bacteria
- 3) Classification and Preparation of culture Media.
- 4) Sterilization & Disinfection( physical & chemical methods)
- 5) Morphology & Pathogenicity of Medically important bacteria, Preservation of stock cultures.

Unit II: Staining Techniques:

- 1) Principle, preparation of stains and reagents for: I)Simple staining, II)Differential staining(Gram's and Acid Fast staining), iii)Negative staining,iv)spore staining,v)Capsular staining,vi)Flagellar staining.

Unit III: Immunology

- 1) Antigen
- 2) Antibodies
- 3) Antigen –antibody Reactions
- 4) Hypersensitivity

Unit IV: Elementary Clinical Biochemistry and human physiology

- 1) Elementary knowledge of handling, maintenance & care of analytical instruments: Weighing Balance, Centrifuge, pH meter, Colorimeter,Spectrophotometer,Thermal Cyler,Electrophoresis.
- 2) Definition, Classification & examples of Proteins, Lipids & Carbohydrates
- 3) Structure, location& distribution of different parts of human body: Gastro intestinal tract, Salivary glands, Stomach, Intestine, Liver, Pancreas, Gall bladder, Spleen, Thymus, Kidneys, Lung.

## Unit V: Introduction to Hematology & Clinical Pathology

- 1) Blood composition & function, Normal count of blood cells & their functions, Blood grouping of ABO & Rh typing
- 2) Introduction to hematology
- 3) Collection of blood, stool, urine, cerebrospinal fluid, pus, sputum.
- 4) Sickle cell preparation
- 5) Osmotic fragility test.

### PRACTICALS:

- I) General Microbiology: Gram staining, Acid fast staining, Cultivation of UTI isolates, Culture & Sensitivity test( Kirby- Bauer test), Biochemical tests( IMViC & Carbohydrate fermentation)
- II) Immunology: Blood grouping, Widal, Rapid Plasma Regagin, VDRL & Kahn, Pregnancy, ELISA test
- III) Clinical Biochemistry: Estimation of Serum Bilirubin, Blood sugar, Blood urea, Serum creatinin, Uric acid, Cholesterol, Alkaline phosphatase, SGOT, SGPT, Serum Sodium/potassium, Qualitative & quantitative estimation of sugar & protein
- IV) Hemoglobin estimation, RBC count, TLC, DLC, Bleeding time, Clotting time, Routine urine analysis, Sputum, Semen & CSF analysis.
- V) Advanced and Rapid techniques for diagnosis of disease and detection of pathogens.

### Scheme of Examinations for Certificate Course

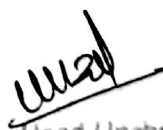
Sr. No	Course	Theory/Practical	Duration in Hrs.	Max. Marks	Min. pass Marks
1	Certificate Course	Theory paper	03	50	40
		Practical	06 hrs each day	50	20
		Project and Training Report	90	50	20
Total				150	80

### Distribution of Marks:

1) Two Major Experiments ( 10 marks each) -----	20
2) Two Minor Experiments ( 5 marks each) -----	10
3) Spottin g -----	05
4) Viva -----	05
5) Practical Record -----	10
<b>Total Marks</b>	<b>50</b>

### Syllabus Committee:

Sr. No	Name	Designation
1	Dr.Mrs. S. S. Khandare	Associate Professor and HOD of Microbiology
2	Prof.S.V.Thavari	Asso.Professor
3	DR.U. A. Malode-Bidwai	Asst.Professor,Coordinator of course

For  
  
Head / Incharge  
Department Of Microbiology  
Bajaj College Of Science, Wardha