



Gyanmanjari
Innovative University

Course Syllabus
Gyanmanjari Science College
Semester-I (M.Sc. MLT)

Subject: Practical-MSCT11506

Type of course: Major

Prerequisite: Basic Knowledge of Clinical Laboratory Biochemistry, Immunology and Serology, Clinical Pathology, Medical Diagnostic Microbiology and Laboratory Safety Management.

Rationale: Practical in this area can help students to develop the skills and designed to build advanced laboratory skills, critical diagnostic thinking and research capabilities required for accurate disease diagnosis, patient monitoring and public health services.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
CI	T	P	C	Theory Marks		Practical Marks		CA	
				ESE	MSE	V	P	ALA	
0	0	12	6	00	00	40	80	30	150

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.

Continuous Assessment:

Sr. No	Active Learning Activities	Marks
1	Journal Unit wise Practical will be given by faculty and students will prepare Journal for the Practical and faculty will upload marks on GMIU web Portal.	30
Total		30



Suggested Specification table with Marks

Distribution of Practical Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	10%	30%	40%	20%	-	-

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

List of Practical:

Sr. No	Descriptions	Hrs
1	Isolation and identification of pathogenic bacteria from clinical samples.	3
2	Isolation and identification of fungi from clinical samples by using various fungal isolating media.	3
3	Biochemical tests for identification of pathogenic bacteria.	3
4	Antibiotic sensitivity test by using disc diffusion method.	3
5	Demonstration of blood collection techniques – Venipuncture and capillary collection.	3
6	Blood grouping (ABO and Rh Blood Grouping System) using Antisera	3
7	Agglutination Reaction: WIDAL Test for Enteric fever.	3
8	Serodiagnosis of syphilis: RPR test.	3
9	Estimation of hemoglobin by SAHLI's method.	3
10	Estimation of Total Red Blood Cell (RBC) count using Hemocytometer.	3
11	Estimation of WBC count using Hemocytometer.	3
12	Estimation of differential count of WBC using peripheral blood smear.	3
13	Qualitative Detection of hCG hormone in Urine using a Pregnancy Test Strip.	3



Sr. No	Descriptions	Hrs
14	Qualitative analysis of Hepatitis using Rapid Strip Test.	3
15	Detection of fungal isolates from skin/ nail samples by preparing KOH mount.	3
16	Study of Principles of quality assurance in diagnostic microbiology.	3
17	Quantitative determination of platelet count using Hemocytometer.	3
18	Determination of Bleeding time by filter paper technique and clotting time by capillary technique.	3
19	Estimation of Bilirubin Using colorimetric method from serum sample.	3
20	Estimation of Blood Urea by DAM from serum sample.	3
21	Estimation of Alkaline phosphatase from serum sample.	3
22	Estimation of Calcium from serum sample.	3
23	Estimation of Cholesterol from serum sample.	3
24	Estimation of Uric acid from serum sample.	3
25	Estimation of Chloride from serum sample.	3
26	Antibiotic sensitivity test by MIC.	3
27	Blood Glucose Estimation from Serum (GOD- POD method).	3
28	Demonstration of Quality Control Charts.	3
29	Quantitative Antibody Titer Analysis.	3
30	Demonstration of Antihuman globulin testing techniques.	3
31	Detection of Malaria parasite from blood sample.	3
32	Agglutination test: Direct and Indirect method for Antigen-Antibody detection (Comb's test).	3



Sr. No	Descriptions	Hrs
33	Estimation of Blood Urea from Serum sample (Urease method).	3
34	Estimation of total protein from Serum sample (Biuret test).	3
35	Preparation of reagents and buffers.	3
36	Physical examination of Urine.	3
37	Chemical examination of Urine.	3
38	Microscopic examination of Urine.	3
39	Detection of specific Antigen-Antibody reaction using complement fixation test.	3
40	Measurement of ESR (Erythrocyte Sedimentation Rate) and it's diagnostic relevance in inflammation.	3
	Total	120

Instructional Method:

The course delivery method will depend upon the requirement of content and the needs of students. The teacher, in addition to conventional teaching methods by black board, may also use any tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory

The internal evaluation will be done on the basis of Active Learning Assignment

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in the laboratory.

