

Branch Name:	B.Sc. Biotechnology
Program Code:	SC101
Course Name:	Biotechnology Practical
Course Code:	2SC1010505
Pre-requisite Course:	

Course Objectives:

1. The course is designed to acquire basic knowledge of Blood cell.
2. This will enable the student to understand basics of agglutination reactions.
3. This course is designed to enable students in understanding the basics and applications of precipitation reactions.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
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Subject Contents:

List of Experiments:

1. Problem solving of mendelian principles on the basis of monohybrid, dihybrid crosses, codominance and incomplete dominance.
2. Preparation and Identification of different cell types in peripheral blood :
 - a. Total count of WBC
 - b. Total count of RBC
 - c. Differential Count of WBC.
3. Estimation of Blood Glucose by Glucose Oxidase method.
4. Estimation of Blood Urea by DAM method.
5. Determination of human blood groups: ABO and Rh system.
6. Determination of Clotting, Bleeding, Prothombin time of Blood.
7. Agglutination and Precipitation.
 - Blood grouping
 - Widal test (Slide Test)
 - VDRL Test
 - SRID test
 - Ouchterlony Double Diffusion test
 - HIV detection rapid test
 - Pregnancy detection rapid test.
8. Estimation Haemoglobin by Sahli's Method.
9. Isolation of antibiotic resistant mutant(s) bacterium by direct selection (Gradient Plate Technique)
10. Isolation of antibiotic resistant mutant(s) bacterium by indirect selection (Replica Plate Technique)

Text Books: Experimental Microbiology by Rakesh Patel Volume-1, 2

Reference Books:

1. Barbara J. Bain (2014) Blood Cells: A Practical Guide, 5th Edition, Wiley-Blackwell

List of Open Source Software/learning website:

https://www.youtube.com/watch?v=xdlvPk_2r-w

<https://www.youtube.com/watch?v=kpwTHDKQ-k4>

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Discuss the structure of blood cell and classification of it.	2 Understanding
CLO2	List the applications of agglutination.	1 Remembering
CLO3	Acquire fundamentals and translate the knowledge that will enable them for serology based work.	2 Understanding,
CLO4	Learn basic techniques to identify and interpret different precipitation reaction.	3 Applying, 2 Understanding
CLO5	Learn about antibiotics, evaluate resistant associated with them, identify and compare the increase and decrease of growth with the help of replica and gradient plate technique.	5,3, 4 Evaluate, Applying, Analyze
CLO6	Discuss the mechanisms involved in allelic expression.	6 Creating

Mapping of CLOs with POs & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO1	M	H	M	H	L	M	H	L	M	H	L	H	L	H	
CLO2	M	H		H	M	H	M	H	M		M	L		L	H
CLO3	L	L	L			M	H	M	H	L	M	H	M		H
CLO4	M	H	M	M	L			L	H		H	L	M	M	
CLO5	M	M	M	L	M	H	M			H	M	M	M		H
CLO6	M	L	H		M	L	L	M	M	L	H	M		L	M

H: High, M: Medium, L: Low