

## DEPARTMENT OF MICROBIOLOGY

### FACULTY OF SCIENCE

### VALUE ADDED COURSE (VAC)

## 19SMICX 215 – ADVANCED TECHNIQUES IN CLINICAL MICROBIOLOGY

### Learning Objectives (LOs)

To learn the basic and advanced techniques in clinical Laboratory.

### Unit – 1: Laboratory Safety

Organization of laboratory and safety precautions in laboratory – Personal hygiene and care – General health care – Vaccination Schedule for technicians – Laboratory care and cautions – Do's and Dont's – lab accidents – Cuts and wounds – Fire Accidents (Chemical Gas, Flammable Chemicals, Electrical , Spirit Lamp, Gas) – Chemical burns.

### Unit – 2: Sample Analysis

Sample collection, processing, preservation and transportation of various clinical pathology samples. Pathological Analysis of clinical specimens.

### Unit – 3: Microscopic Analysis

Microscopic analysis of clinical specimens – Urine, Stool, Sputum, Pus, Blood, CSF and other body fluids.

### Unit – 4: Culture Methods

Culture methods – Culturing and isolation of pathogens from clinical specimens. Culture media – General purpose media – special media – selective media – differential media – transport media.

### Unit – 5: Advanced Techniques & Automation

ELISA – PCR- Fluorescence Microscopy – Automated culture systems – automated Blood culture – Automated Urine culture – Automated Antibiotic Sensitivity testing.

### Text Books:

1. Ananthanarayanan.R. and Paniker C.K.J Text Book of Microbiology, 9<sup>th</sup> Edition Orient Longman, (2013).
2. P. Chakraborty, A Text Book of Microbiology 3<sup>rd</sup> Edn, New Central book Agency (P) Ltd, Kolkata, India 2005.
3. Praful Godkar, Darsan, 2014. Text book of Medical Laboratory Technology Vol I & II, Bhalani Publishing House.
4. James cappuccino, Natalie Sherman.(2004) Microbiology: A Laboratory manual. 7th Edition.

### Supplementary Books

5. Ochei.J and A. Kolhatkar, 2000. Medical laboratory science: Theory and Practice, McGraw Hill Education.

6. Sood Ramnik. 2009. Medical Laboratory Technology: Methods and Interpretations. Jaypee Brothers, Medical Publishers Pvt. Limited.
7. Glick, B.J., Pasternak, J.J., Patten, C.L. 1994. Molecular Biotechnology: Principles and Applications of Recombinant DNA, 4th edition, ASM Press.
8. David Greenwood, Richard Slack and John Peutherer. (2000). Medical Microbiology. 15<sup>th</sup> edition, Church Hill Living stone Publication.

**Course Outcomes (COs)**

At the end of this course, students will be able to,

<b>CO1:</b>	Understand laboratory safety methods.
<b>CO2:</b>	Understand pathological analysis of clinical specimens.
<b>CO3:</b>	Gain knowledge about automated techniques in Clinical Laboratory Technology.