

## Open Elective

### MBE-509: Microbial Techniques

40h

#### Unit I

12h

**Isolation techniques of microorganisms:** Isolation of pure cultures; dilution, spread plate, streak plate, pour plate, micromanipulator method, colony morphology and other characteristics of cultures. Maintenance and preservation of pure cultures, culture collection center-national and international. Direct microscopic count, standard plate count, membrane filtration.

#### Unit II

14h

**Microscopy-** Principles and Applications of Bright field and Dark field Microscopy. Fluorescent Microscopy, Phase contrast Microscopy, Confocal Microscopy. Electron Microscope-Principles and Applications of Transmission Electron Microscope, Scanning Electron Microscope, Sample preparation for Electron Microscopy.

#### Unit III

14h

**Centrifugation-** Basic principles of sedimentation, Types of centrifugation and their Applications, Rotors, Ultracentrifugation. Principle and applications of spectrophotometer- UV/visible, fluorescence. Electrophoresis, SDS-PAGE, Isoelectric focusing, 2D gel Electrophoresis, PFGE. Principles and applications of Chromatography.