Course contents for Concepts in Microbiology

1. **Faculty:** FLSB
2. **Course Code:** LSB504
3. **Course Title:** Concepts in Microbiology
4. **Number of Credits:** 5 (2L, 1T, 2P)
5. **Course objectives:**
   This course aims to provide an understanding of recent developments and concepts in microbiology, for a better appreciation of the importance of microbes. Students will be acquainted with the techniques required for observing, culturing, manipulating and controlling microbes. Laboratory practical sessions will give an experimental exposure to some of the techniques. An understanding of infectious microbial diseases will be gained. Apart from latest edition textbooks, references would be made to recent review and research articles.

6. **Minimum prerequisites for taking this course, if any:** Basic knowledge of biochemistry, molecular biology and genetics is assumed.

7. **Course structure with units, if applicable:**

   a. Development of Microbiology
   b. Observing Microbial Cells
   c. Cell Structures and Transport Mechanisms
   d. Cell Division, Differentiation and Development
   e. Environmental Limitations of Microbial Growth
   f. Microbial Metabolism
   g. Microbial Ecology
   h. Control of Microbes, Antimicrobial Chemotherapy and Antibiotic Resistance

8. **Practical's:**
   a. Simple staining
   b. Negative staining
   c. Gram staining
   d. Acid- fast staining
   e. Growing and Observing Bacterial Biofilms
   f. Metabolite production by E.Coli and its extraction
   g. Cultivation of Microorganisms-Use of Differential and Selective Media
   h. Nitrate Reduction test
   i. Oxidase Test

9. **Suggested Readings:**
   a. Microbiology An Evolving Science (2nd Edition), Slonszeweski, Foster
   b. Brock Biology of Microorganisms (13th Edition), Madigan, Martinko, Stahl, Clark
   c. Prescott's Microbiology (8th Edition), Joanne Willey
   d. Foundations in Microbiology (7th Edition), Kathleen Park Talaro, Arthur
   e. Talaro Microbiology An Introduction (10th Edition),Tortora GJ, Berdell RF, Christine
   f. LC Alcamo's Fundamentals of Microbiology (9th Edition), Pommerville JC

10. Evaluation:

Theory:	Mid-semester Written Examination	: 40% Marks
	End-semester Written Examination	: 40% Marks
	Quiz / Assignment/Presentation (oral / poster)/other	: 20% Marks