

Department of Environmental Science and Engineering

ISM University

B.Tech IV Semester

(Env. Engg.)

Lecture Plan: ESC 14101 Environmental Microbiology (Section A)

| S. No. | Topic | Hours |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 1 | Classification of microorganisms, General Properties of Prokaryotic and Eukaryotic cells, Distribution of microbes, Applied Fields of Microbes | 3 |
| 2 | Bacterial Cell Structure, spore Morphology, Classification and Reproduction, Culture Media and Culture Characteristics | 4 |
| 3 | Microbial Metabolism, Glycolysis, Gluconeogenesis, Glycogen Synthesis, Protein Synthesis, PPP, TCA Cycle, ETC Metabolic Pathways of Contaminant Degradation, Metabolic Regulation, Signal Transduction | 6 |
| 4 | Stoichiometry and Bacterial Energetics, Mass Balance, Redox Reaction, Electron Donors and Acceptors, Redox Half Reaction, Growth, Energy Balance (ΔG), Growth, Substrate partitioning and Theoretical yield, Electron acceptors, Fermentation, Monod and Halden Kinetics | 6 |
| 5 | N fixation, Degradation of natural substances and Composting | 3 |
| | Total | 22 |

Anshu
2/12/08