

SYLLABUS :-

Introduction to environmental biotechnology, definitions and facts. Overview of microbial transformations. Environmental monitoring: bioreporter, biomarker and biosensor technology. Metagenomics/environmental genomics. Bioprospecting. Biomicroelectronics and Nanobiotechnology. Bioremediation of inorganic (metal, radionuclide, nitrate, phosphate) and organic pollutants. In situ and ex situ remediation strategies. Biotechnology of sewage treatment. Clean technologies: biofertilizers, biopesticides, microbial polymer production and bio plastic technology. Biotechnology of fossil fuels: desulfurization of coal, oil shales, microbial enhanced oil recovery (MEOR). Biofuels: biogas, biohydrogen, bioethanol production. Biotechnology of mineral processing. Ethical issues in environmental biotechnology.