FOREWORD

This web course titled METALS BIOTECHNOLOGY contains 9 modules under which various lectures amounting to a total of 45 lectures are distributed. These modules essentially constitute thematic topics in a sequential order beginning with introduction to the subject matter of metals biotechnology progressing thematically into concepts and illustrations of relevance and history of biohydrometallurgy, biotechnology – materials interface, biogenesis of minerals, microorganisms in biohydrometallurgy, fundamental principles and mechanisms governing bioleaching, bioleaching of copper uranium, gold, nickel, zinc and industrial wastes, electrobioleaching, microbially-induced mineral beneficiation, biofouling-biocorrosion and environmental aspects.

45 lectures are distributed in nine modules, namely.

1. Microbiology, mechanisms and methods in metals biotechnology.
2. Biohydrometallurgy of base metal sulfides.
3. Biohydrometallurgy of nuclear and precious metals.
4. Bioprocessing of unconventional resources.
5. Electrochemical aspects of bioleaching.
6. Biomineral beneficiation.
7. Biofouling, biocorrosion and biomaterials.
8. Microbiological aspects of environmental pollution and control.
9. Laboratory and research techniques in metals biotechnology.

The subject matter of metals biotechnology is thus dealt in a very comprehensive fashion. It is hoped that students and researchers in metallurgical engineering, materials engineering, chemical engineering, environmental sciences and biotechnology would find this web course useful.