

ACADEMIC PLAN FOR THE DEPARTMENT OF MICROBIOLOGY
SESSION:2021-22 (ODD SEMESTER)

| SEMESTER | PAPER | UNIT | TEACHER | | No. of class hours allotted per week (as per class routine) | | Total no. of class hours required in the session (Approx.) | | Duration (in month) | Remark (if any) |
|--|---|--|-------------------|--------------------------------------|---|--------------------|--|--------------------|---------------------|-----------------|
| | | | Theory | Practical/Tutorial | Theory | Practical/Tutorial | Theory | Practical/Tutorial | | |
| Ist Semester (UG) (CBCS) | CC-1: INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY | Unit 1: History of Development of Microbiology | Dr. Sampa Debnath | Dr. Saswati Gayen Dr. Surajit Bag | 1 | 4 | 50 | 60 | 4 | |
| | | Unit 3: An overview of Scope of Microbiology | | | 1 | | | | | |
| | | Unit 2: Diversity of Microbial World | Dr. Saswati Gayen | | 2 | | | | | |
| | | Unit 2A: Systems of classification | | | 1 | | | | | |
| | | Unit 2B: General characteristics of different groups | | | 1 | | | | | |
| | | Unit 2B: Fungi | Dr. Surajit Bag | | 1 | | | | | |
| | | Unit 2B: Algae | | | 1 | | | | | |
| | Unit 2B: Protozoa | 1 | | | | | | | | |
| | CC-2: BACTERIOLOGY | Unit 1: Cell organization | Dr. Prasenjit Das | Miss Sahana Ghosh | 2 | 4 | 50 | 60 | 4 | |
| | | Unit 6: Bacterial Systematics | | | 1 | | | | | |
| | | Unit 7: Important archaeal and eubacterial groups | Mr. Pinaki Hazra | | 1 | | | | | |
| | | Unit 2: Bacteriological techniques | | | 1 | | | | | |
| | | Unit 3: Microscopy | Miss Sahana Ghosh | | 1 | | | | | |
| Unit 4: Growth and nutrition | | 1 | | | | | | | | |
| Unit 5: Reproduction in Bacteria | 1 | | | | | | | | | |

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| IIIrd Semester (UG) (CBCS) | CC-5: VIROLOGY | Unit 1: Nature and Properties of Viruses | Dr. Shilajit Barua | Dr. Shilajit Barua | 1 | 4 | 50 | 60 | 4 | SEC-A1 paper does not contain any Practical/Tutorial according to the CBCS syllabus | |
| | | Unit 6: Applications of Virology | Dr. Sudip Samadder | | 2 | | | | | | |
| | | Unit 2: Bacteriophages | | | Dr. Arun Roy | | | | | | 1 |
| | | Unit 4: Viruses and Cancer | | | | | | | | | |
| | | Unit 5: Prevention & control of viral diseases | | | | | | | | | |
| | Unit 3: Viral Transmission, Salient features of viral nucleic acids and Replication | | | | | | | | | | |
| | CC-6: MICROBIAL PHYSIOLOGY AND METABOLISM | Unit 1: Microbial Growth and Effect of Environment on Microbial Growth | Dr. Prasenjit Das | Miss Sahana Ghosh | 2 | 4 | 50 | 60 | 4 | | |
| | | Unit 2: Nutrient uptake and Transport | Dr. Sampa Debnath | | 2 | | | | | | |
| | | Unit 6: Nitrogen Metabolism | | | | | | | | | |
| | | Unit 3: Chemoheterotrophic Metabolism - Aerobic Respiration | | | | | | | | | |
| | | Unit 4: Chemoheterotrophic Metabolism- Anaerobic respiration and fermentation | | | | | | | | | |
| | Unit 5: Chemolithotrophic and Phototrophic Metabolism | | | | | | | | | | |
| | CC-7: MOLECULAR BIOLOGY | Unit 1: Structures of DNA and RNA / Genetic Material | Dr. Gargi Saha Kesh | Dr. Gargi Saha Kesh | 2 | 4 | 50 | 60 | 4 | | |
| | | Unit 3: Transcription in Prokaryotes and Eukaryotes | Mr. Pinaki Hazra | | 1 | | | | | | |
| | | Unit 4: Post-Transcriptional Processing | | | | | | | | | |
| | | Unit 5: Translation (Prokaryotes and Eukaryotes) | | | | | | | | | |
| | | Unit 2: Replication of DNA (Prokaryotes and Eukaryotes) | Dr. Arun Roy | | 1 | | | | | | |
| Unit 6: Regulation of gene Expression in Prokaryotes and Eukaryotes | | | | | | | | | | | |
| SEC-A1: MICROBIAL QUALITY CONTROL IN FOOD AND PHARMACEUTICAL INDUSTRIES | Unit 1: Microbiological Laboratory and Safe Practices | Dr. Saswati Gayen | ----- | ----- | 30 | ----- | 4 | | | | |
| | Unit 3: Pathogenic Microorganisms of Importance in Food & Water | | | | | | | | | | |
| | Unit 4: HACCP for Food Safety and Microbial Standards | | | | | | | | | | |
| | Unit 2: Determining Microbes in Food / Pharmaceutical Samples | Dr. Surajit Bag | | | | | | 1 | | | |

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| V th Semester (UG) (CBCS) | CC-11: FOOD AND DAIRY MICRO BIOLOGY | Unit 1: Foods as a substrate for microorganisms | Miss Sahana Ghosh | Dr. Gargi Saha Kesh | 1 | 4 | 50 | 60 | 4 | |
| | | Unit 2: Microbial spoilage of various foods | | | | | | | | |
| | | Unit 3: Principles and methods of food preservation | Dr. Surajit Bag | | 1 | | | | | |
| | | Unit 4: Fermented foods | Dr. Saswati Gayen | | 2 | | | | | |
| | | Unit 5: Food borne diseases (causative agents, foods involved, symptoms and preventive measures) | | | | | | | | |
| | | Unit 6: Food sanitation and control | | | | | | | | |
| | | Unit 7: Cultural and rapid detection methods of food borne pathogens in foods and introduction to predictive microbiology | | | | | | | | |
| | CC-12: INDUSTRIAL MICRO BIOLOGY | Unit 1: Introduction to industrial microbiology | Dr. Shilajit Barua | Dr. Shilajit Barua Dr. Surajit Bag | 2 | 4 | 50 | 60 | 4 | |
| | | Unit 2: Isolation of industrially important microbial strains and fermentation media | | | | | | | | |
| | | Unit 3: Types of fermentation processes, bio-reactors and measurement of fermentation parameters | | | | | | | | |
| | | Unit 4: Down-stream processing | Dr. Surajit Bag | | 2 | | | | | |
| | | Unit 5: Microbial production of industrial products (micro-organisms involved, media, fermentation conditions, downstream processing and uses) | | | | | | | | |
| | | Unit 6: Enzyme immobilization | | | | | | | | |

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| Vth Semester (UG) (CBCS) | DSE-A1: MICROBIAL BIOTECHNOL OGY | Unit 1: Microbial Biotechnology and its Applications | Dr. Sudip Samadder | Dr. Saswati Gayen | 2 | 4 | 50 | 60 | 4 | |
| | | Unit 2: Therapeutic and Industrial Biotechnology | | | | | | | | |
| | | Unit 6: RNAi | | | | | | | | |
| | | Unit 7: Intellectual Property Rights | | | | | | | | |
| | | Unit 3: Applications of Microbes in Biotransformations | Dr. Gargi Saha Kesh | | 2 | | | | | |
| | | Unit 4: Microbial Products and their Recovery | | | | | | | | |
| | | Unit 5 Microbes for Bio-energy and Environment | | | | | | | | |
| | DSE-B1: INHERITANCE BIOLOGY | Unit 1: Introduction to Genetics | Mr. Pinaki Hazra | Dr. Prasenjit Das | 1 | 4 | 50 | 60 | 4 | |
| | | Unit 4: Extra-Chromosomal Inheritance | | | | | | | | |
| | | Unit 6: Recombination | | | | | | | | |
| | | Unit 8: Quantitative genetics | | | | | | | | |
| | | Unit 2: Mendelian Principles | Dr. Prasenjit Das | | 3 | | | | | |
| | | Unit 3: Linkage and Crossing over | | | | | | | | |
| | | Unit 5: Characteristics of Chromosomes | | | | | | | | |
| Unit 7: Human genetics | | | | | | | | | | |