BSS SYLLABUS

[BTS001] - BSS DIPLOMA IN BIO TECHNOLOGY - [TWO YEARS]
[BTS001-01] - COMMUNICATIVE ENGLISH AND COMPUTER FUNDAMENTALS

COMMUNICATIVE ENGLISH

UNIT - I
Communication – communication Process - verbal communication – Non – Verbal Communication – Pros & Cons of Communication – communicative English Exercises.

UNIT - II
Phonetics – Organs of Speech – Vowels – Spelling Areas – Dipthongs – Consonants – Stress – Word Accent – The Parts of Speech in English.

UNIT - III
Communicative grammar – Classification of Nouns and Their functions – Verbs – Symbols – Pronouns – Auxiliary Verbs – Articles – Use of the indefinite article – Use of the definite article – Tenses – Prepositions – Phrasal verbs and adverb particles – Verbs Patterns and structures.

UNIT - IV
Patterns of Sentences – Direct and indirect speech – Degrees of Comparison – Simple, Complex and compound sentences – Basics of Inter – personal skills – Basics of Body language.

COMPUTER FUNDAMENTALS (MS-OFFICE)

UNIT - V
Windows Introduction – Operating System - Desk Top Icons – My Computer, Recycle Bin, Internet Explorer, Network Neighborhood, My documents. Working with Windows – How to create a Folder, Copying and cutting files, Renaming - Start Icon – Programs, Favorites, Documents, Settings, Find, Run, Shutdown - Application Icons.

UNIT - VI
An Introduction to Word – The word workspace, Starting and quitting Word, Creating and Manipulating various documents, Editing of proofing files, merging documents and macros. -How to use Mouse and Menu – Working with dialog box - Primary Commands in File Menu – The Open commands, The File name commands - The New Commands, The Save, Save As, and Save all commands, The Close command, The page setup, The Print commands, The exit commands.

Edit Menu Commands – The Cut, Copy, and Paste commands, The Undo and Repeat Commands, Find and Replace commands- Format Commands – The view menu, the Insert menu, the tool menu, the table menu, the window menu.

UNIT - VII
Building a Simple Worksheet- Entering Text, Entering Values, Entering Dates and Times, Moving Around, Scolding Selecting Ranges, Using Menu, Using Tool Bar, Using Tool Bar, Using Shortcut Menus, Changing Entries, Copying Entries, Moving Entries, Inserting Deleting Cells - Formatting Basics – Changing Character Style, Changing Alignment, Changing Column width, Changing Row Height, Sheet Rename, Conditional Formatting,Auto Formatting.

Working with Multiple Worksheet – copying entries between workbooks, Moving sheets work books, Deleting sheets, Quitting Excel- Opening Existing Workbooks – Simple calculations, Doing arithmetic, Totaling Column of values, Naming cells and

Ranges.Formatting Text – Displaying dollars and cents, Formatting decimal places,Formatting dates, Copying style and formats, Formulas that Make Decisions – Using IF function, using the nested IF function, Copying formulas.

Checking spelling, Printing Worksheets, Preview Worksheets, Goal seek, scenarios, Macro, Protection- Sorting data, Keeping leading view, Finding records, Adding and deleting records, Filtering records. Plotting charts, Sizing and moving charts, Updating charts, Changing the charts Type, Using auto format. Creating Macros, Recording Macros, Running Macros

UNIT - VII
Basics of Ms Office Tools, Ms Office Access, Ms Office Groove, Ms office one note, Ms Office outlook, Ms Office power point.

[BTS001-02] - BIO - TECHNOLOGY - I

UNIT-1
The nature of biotechnology: Introduction - What is biotechnology? - Biotechnology: an interdisciplinary pursuit - Biotechnology: a three-component central core - Product safety - Public perception of biotechnology

UNIT-2
Biotechnology and the developing world - Biomass: a biotechnology substrate?- A biomass strategy - Natural raw materials - Availability of by-products - Raw materials and the future of biotechnology

UNIT-3
Genetics and biotechnology: Introduction - Industrial genetics - Protoplast and cell fusion technologies - Genetic engineering - The polymerase chain reaction and DNA sequencing - Nucleic acid probes - Genomics and proteomics -

UNIT-4
Antisense and RNA interference - Systems biology - Potential laboratory biohazards of genetic engineering - Bioprocess/fermentation technology: Introduction - Principles of microbial growth - The bioreactor

UNIT-5
Scale-up - Media design for fermentation processes - Solid substrate fermentation - Technology of mammalian and plant cell culture - Metabolic engineering - Downstream processing

[BTS001-03] - MOLECULAR BIOLOGY AND BIOINFORMATION

UNIT-1
Introduction - Algorithms and Complexity - What Is an Algorithm? - Biological Algorithms versus Computer Algorithms - The Change Problem - Correct versus Incorrect Algorithms

UNIT-2
Recursive Algorithms - Iterative versus Recursive Algorithms - Fast versus Slow Algorithms - Big-O Notation - Algorithm Design Techniques -Tractable versus Intractable Problems

UNIT-3
Biobox: Richard Karp - Problems - What Is Life Made Of? - What Is the Genetic Material? - What Do Genes Do? - What Molecule Codes for Genes? - What Is the Structure of DNA?

UNIT-4
What Carries Information between DNA and Proteins? - How Are Proteins Made? - How Can We Analyze DNA? - How Do Individuals of a Species Differ? - How Do Different Species Differ? - Why Bioinformatics? -Biobox: Russell Doolittle

UNIT-5
Exhaustive Search - Restriction Mapping - Impractical Restriction Mapping Algorithms - A Practical Restriction Mapping Algorithm - Regulatory Motifs in DNA Sequences - Profiles - The Motif Finding Problem - Search Trees - Finding Motifs - Finding a Median String

[BTS001-04] - BIOLOGICAL INFECTIONS

UNIT-1
The prevention and control of infection -Introduction Hospital-acquired, or nosocomial, infection -Microbiology Cycle of infection-Universal precautions- Additional standard precautions to prevent and control infection

UNIT-2
Hand washing-Asepsis Decontamination -Standard environmental cleaning -Disinfection methods- Sterilization methods - Decontamination when resources are limited- Isolation or transmission-based precautions

UNIT-3
MRSA Infection control in special circumstances-Immunization and the expanded programme of immunization (EPI) - History -The basic principles of immunization- Administration of vaccines- Contraindications to immunization

UNIT-4
Vaccine storage -The creation of the EPI -The six targeted diseases - vaccine information -Further notes on vaccination against tuberculosis- The disease control era of EPI -Progress towards meeting EPI targets-Infections spread by animals and insects, and less common infections found in Europe

UNIT-5
Anthrax -Crimean-Congo -haemorrhagic fever -Hantavirus- Legionnaires disease-Leishmaniasis- Leptospirosis- Louse borne typhus -Lyme disease -Malaria Rabies- Tetanus-Tickborne encephalitis -Toxoplasmosis -West Nile fever

[BTS001-05] - PRACTICAL - I

[BTS001-05]-PRACTICAL - I should be conducted based on PAPER 1

BSS RECORD NOTE must be utilized by the student to complete this Practical.

[BTS001-06] - PRACTICAL - II

[BTS001-06]-PRACTICAL - II should be conducted based on PAPER 2

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[BTS001-07] - PRACTICAL - III

[BTS001-07]-PRACTICAL - III should be conducted based on PAPER 3

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[BTS001-08] - PRACTICAL - IV

[BTS001-08]-PRACTICAL - IV should be conducted based on PAPER 4

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[BTS001-09] - BIO - TECHNOLOGY - II

UNIT-1
Enzyme technology - The nature of enzymes - The application of enzymes -Selection and development of producer strains for enzyme production - The technology of enzyme production - Immobilised enzymes

UNIT-2
Biological fuel generation - Global warming and the significance of fossil fuels- Photosynthesis: the ultimate energy source - Biofuels from biomass - Bioethanol from biomass - Biodiesel - Methane - Hydrogen

UNIT-3
The way ahead for biofuels - Contrasting views on climate change - Environmental biotechnology: Introduction - Microbial ecology/environmental biotechnology - Waste water and sewage treatment - Landfill technologies-
Composting - Bioremediation

UNIT-4
Detection and monitoring of pollutants - Microbes and the geological environment - Environmental sustainability and clean technology - Plant and forest biotechnology: Introduction - Plant biotechnology - Forest biotechnology

UNIT-5
Animal and insect biotechnology: Introduction - Genetic manipulation and transgenic animals - Genetically engineered hormones and vaccines - Animal organs for human patients - Genetically modified insects - A look to the future -Diagnostics in plant and animal agriculture

[BTS001-10] - GENE MAPPING

UNIT-1
Introduction-The Molecular Basis of Heredity and Variation - DNA: The Genetic Material -Experimental Proof of the Genetic Function of DNA - Genetic Role of DNA in Bacteriophage - DNA Structure: The Double Helix -An Overview of DNA Replication - Genes and Proteins

UNIT-2
Transcription of DNA Makes RNA -Translation of RNA Makes Protein - Mutation - How Genes Determine Traits -Pleiotropy: One Gene Can Affect More Than One Trait -Epistasis: One Trait Can Be Affected by More Than One Gene -Effects of the Environment - Evolution

UNIT-3
The Molecular Continuity of Life - Adaptation and Diversity - The Role of Chance in Evolution -Principles of Genetic Transmission - The Monohybrid Crosses -Traits Present in the Progeny of the Hybrids - Mendel's Genetic Hypothesis and Its Experimental Tests - The Principle of Segregation

UNIT-4
Important Genetic Terminology - Verification of Mendelian Segregation by the Testcross - Segregation of Two or More Genes - The Principle of Independent Assortment -Dihybrid Testcrosses - The Big Experiment -Mendelian Inheritance and Probability

UNIT-5
Independent Events: The Multiplication Rule -Segregation in Human Pedigree- Genetic Analysis -The Complementation Test in Gene Identification - Why Does the Complementation Test Work? - Multiple Alleles - Modified Dihybrid Ratios Caused by Epistasis - Complications in the Concept of Dominance

[BTS001-11] - BIOLOGICAL DISEASES & CONTROL

UNIT-1
The Nature and Investigation of Diseases : Introduction - Characteristic Features of Diseases -Etiology- Pathogenesis -

Manifestations of Diseases - Outcome of a Disease

UNIT-2
Classification of Diseases - Epidemiology of Disease -Investigating Diseases - Types of Pathology Laboratories - Role of Hospital Laboratory Tests - Hospital Laboratory Tests - Evaluation of Laboratory Tests - Reference Ranges

UNIT-3
Quality of Test Results and Clinical Auditing -Pathogens and Virulence : Introduction - Types of Pathogens -Prions -Viruses -Bacteria -Protozoa, Fungi and Helminths-Arthropods and Vertebrates - Virulence Factors

UNIT-4
Defensive Virulence Factors - Offensive Virulence Factors - Course of Infection- Infectious Diseases and Treatments : Introduction - Infections of the Skin -Infections of the Eyes, Ears and Central Nervous System - Infections of the Respiratory System

UNIT-5
Infections of the Gastrointestinal Tract - Infections of the Urogenital System - Sepsis and Systemic Infections - Investigating Infectious Diseases - Preventing Infectious Diseases - Controlling the Spread of Pathogens - Treatment of Infectious Diseases -

[BTS001-12] - PRACTICAL - V

[BTS001-12]-PRACTICAL - V should be conducted based on PAPER 5

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[BTS001-13] - PRACTICAL - VI

[BTS001-13]-PRACTICAL - VI should be conducted based on PAPER 6

BSS RECORD NOTE must be utilized by the student to complete this Practical.

[BTS001-14] - PRACTICAL - VII

[BTS001-14]-PRACTICAL - VII should be conducted based on PAPER 7

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