Bhavan's Vivekananda College

of Science, Humanities and Commerce
(Sainikpuri, Secunderbad, Telangana – 500094)
Autonomous College – Affiliated to Osmania University
Accredited with 'A' Grade by NAAC

(BSc: Microbiology, Nutrition & Dietetics, Chemistry)

Program Outcomes:

PO1 Knowledge: Understand the basic concepts, fundamental principles and scientific theories and processes related to the fields of Chemistry, Biochemistry, Biotechnology, Genetics and Microbiology with their relevance in day-to-day life.

PO2 Skills and analysis: Apply the scientific skills in terms of designing experiments, execution of protocols and data analysis in scientific research, industry, and entrepreneurship.

P03 Creativity and Critical thinking: Think creatively and apply the core concept of Biology and Chemistry to a chosen scientific discipline and generate and interpret scientific data using quantitative, qualitative and analytical methodologies and techniques.

P04 Science and Society: Implement the acquired knowledge to assess societal, health, safety, legal and cultural issues, and the consequent responsibilities relevant to the professional scientific practice.

P05 Communication: Communicate effectively on problems, issues, and solutions with community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

P06 Ethics & Environment: Apply ethical principles and commit to professional ethics and responsibilities and norms in research and the functional areas, understand the issues of environmental context and sustainable development.

P07 Individual and Teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

P08 Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context of socio, economic and technological changes.

Program Specific Outcomes

PS0 1: Capacity building to apply knowledge of biological concepts in various thrust areas of Molecular biology, Computational biology, Medical, Environmental, Agricultural, Food and Dairy microbiology considering the demand of academia, research, and industry.

PSO 2: Correlate the knowledge of Biochemistry to various metabolic processes, Physiology, Endocrinology, Nutrition, Immunology, Health & disease and suggest solutions to biological problems through research and development.

PSO 3: Utilise the concepts of Organic, Inorganic, General and Physical Chemistry to evaluate and develop analytical skills required for drug designing and green lab practices to safe guard the environment.

Course Outcomes:

Name of the Course	**INTRODUCTORY MICROBIOLOGY**
Course Code	**MB 131 Paper I**
CO1	Summarize various discoveries and contributions in the history of Microbiology
CO2	Apply microscopy and staining techniques
CO3	Experiment different procedures of sterilization
CO4	Compare various types of viruses and viral replication strategies.

Name of the Course	**GENERAL MICROBIOLOGY**
Course Code	**MB 231 Paper II**
CO1	Distinguish bacteria based on taxonomy.
CO2	Compare general characters of different microorganisms.
CO3	Prepare pure cultures of microorganisms.
CO4	Analyze biomolecules by qualitative analysis and biochemical techniques

Name of the Course	**MICROBIAL PHYSIOLOGY**
Course Code	**MB 331 Paper III**
CO1	List growth media ingredients based on nutritional requirement of microbes.
CO2	Apply enzyme assay methods to determine the enzyme activity.
CO3	Sketch and summarize metabolic pathways in microbes.
CO4	Analyse fermentative abilities of various microbes.

Name of the Course	**MOLECULAR BIOLOGY**
Course Code	**MB 431 Paper IV**
CO1	Solve problems related to DNA basing on Chargaff's rule and Determine the concentration of DNA and RNA.
CO2	Prepare a mind map of types of Mutagens and their mechanism of action.
CO3	Extract DNA from bacteria and estimate the molecular weight of isolated DNA.
CO4	Prepare a pictorial representation of various steps involved in Recombinant DNA. technology and present applications of Recombinant DNA technology in various fields.

Name of the Course	**Agricultural and Environmental Microbiology**
Course Code	**MB 531 Paper V**
CO1	Summarize the role of plant growth promoting rhizobacteria.

CO2	Compare different plant diseases and measures to prevent them.
CO3	List the environment friendly methods in agriculture using microorganisms.
CO4	Review on methods of solid and liquid waste disposal using microorganisms.

Name of the Course	**IMMUNOLOGY**
Course Code	**MB 532/A Paper VI**
CO1	Classify the different types of immunity and correlate the role of vaccines in conferring immunity in an individual.
CO2	Review on functions of cells and organs in immune responses.
CO3	Illustrate the structure of antibody and antigen highlighting their specific properties and functions.
CO4	Differentiate between Hypersensitivity and Autoimmunity and will also be able to practically demonstrate the principles involved in antigen antibody reactions.

Name of the Course	**MEDICAL MICROBIOLOGY**
Course Code	**MB 631 Paper VII**
CO1	Summarize the role and distribution of normal flora and describe the host pathogen interactions.
CO2	Compute on causal organisms and pathogenesis of food borne air, water and sexually transmitted diseases.
CO3	Differentiate various viral borne diseases, causal organisms, modes of transmission and pathogenesis.
CO4	Practically demonstrate the antibiotic sensitivity tests.

Name of the Course	**FOOD AND INDUSTRIAL MICROBIOLOGY**
Course Code	**MB 632/A Paper VIII**
CO1	Classify various microbes involved in the food spoilage and properties of spoiled foods.
CO2	Summarize food borne diseases, food poisoning and their detection.
CO3	Restate the general methods food preservation.
CO4	Illustrate the steps of various microbial fermentation procedures involved in production of yoghurt, bread, cheese, ethyl alcohol, glutamic acid, Beer, penicillin, citric acid, Vitamin B12, Biogas and insulin.

Name of the Course	**FOOD ADULTERATION**
Course Code	**SEC-1: MB 301**
CO1	Differentiate adulterated and unadulterated food products.
CO2	Apply simple methods to detect food adulterants.

Name of the Course	**FUNDAMENTALS OF BIOINFORMATICS**
Course Code	**SEC-2: MB 401**
CO1	Sketch phylogenetic tree using NCBI.
CO2	Perform pairwise alignment and multiple sequence alignment.

Name of the Course	**CLINICAL MICROBIOLOGY**
Course Code	**SEC-3: MB 501**
CO1	Comprehend about various microbial diseases caused to human beings
CO2	Acquaint knowledge on methods of clinical specimen collection, processing and culturing
CO3	Understand various serological and molecular techniques to detect pathogenic infections
CO4	Learn about antibiotic sensitivity

Name of the Course	**MUSHROOM CULTIVATION**
Course Code	**SEC-4: MB 601**
CO1	Summarize mushroom cultivation in methods
CO2	Tabulate the nutritional value of mushrooms
CO3	List the mushroom preservation procedures.

Name of the Course	**MICROBES FOR HUMAN WELFARE**
Course Code	**GE-1: MB 502**
CO1	Basic Knowledge about microbiology and role of microbes in daily life
CO2	Conceptual understanding of role of microbiology in production of industrially important products.
CO3	Acquaint with prevention and control strategies of microbial diseases
CO4	Acquire basic knowledge on Cosmetic microbiology

Name of the Course	**CONTAGIOUS DISEASES AND IMMUNIZATION**
Course Code	**GE-2: MB 602**
CO1	Awareness on bacterial and viral diseases
CO2	Understand about mode of infections
CO3	Acquaint Knowledge on types of immunity
CO4	Knowledge on vaccination schedule

Course Outcomes: ND136

Name of the Course	**INTRODUCTION TO FOODS & NUTRITION**
Course Code	ND136
ND136.CO1	Elaborate various food groups and importance of balanced diet.
ND136.CO2	Formulate the diet based on composition and nutritive value of pulses, legumes and fats**.**
ND136.CO3	Select types of vegetables and fruits for healthy diet and apply the methods of food preservation in food industry.
ND136.CO4	Compare the nutritive values of milk, egg and meat and discuss about food adulterants.

Course Outcomes: ND236

Name of the Course	**NUTRITIONAL BIOCHEMISTRY AND HUMAN PHYSIOLOGY**
Course Code	**ND236**
ND236.CO1	Recommend the right proportion of macromolecules in the food for proper body function.
ND236.CO2	Choose various sources of vitamins and minerals in planning healthy diet menu**.**
ND236.CO3	Compile the organization and functions of circulatory, nervous and endocrine systems.
ND236.CO4	Interpret the type of organs to their functions.