

COURSE OUTCOME B.Sc. Biotechnology GBT-100 Biotechnology in Everyday life	
At the end of this Course, student will have developed the ability to:	
CO -1	Understand the basic principles and techniques used in biotechnology research and development with the help of demonstrations and case studies.
CO -2	Evaluate the impact of biotechnology on human health, agriculture, industry, and the environment.
CO -3	Understand the principles and methods of genetic engineering in plants, animals and microorganisms.
CO -4	Recognise the implications of biotechnology in biological weapons development.

COURSE OUTCOME B.Sc. Biotechnology GBT-111 Biotechnology: Insights and Progression	
At the end of this Course, student will have developed the ability to:	
CO -1	Define the term 'Biotechnology' and appreciate its scope.
CO -2	Discuss the national and global significance of biotechnology and the key events in the development of biotechnology.
CO -3	Understand the multidisciplinary nature of biotechnology and the associated role that has been played by "enabling technologies" in the development of biotechnology.
CO -4	Evaluate the issues, prospects and impact of biotechnology on the ecosystem.

COURSE OUTCOME B.Sc. Biotechnology GBT-131 Nutrition and Dietetics	
At the end of this Course, student will have developed the ability to:	
CO -1	Understand the principles of food essential for good health and its importance in preventive health care.
CO -2	Describe the current scope of nutrition and the importance of a healthy diet in today's world.
CO -3	Understand the concept of RDA and its importance in meal planning.
CO -4	Plan a meal with ideal dietary requirements for various stages of life.
CO -5	Discuss the current trends in nutraceuticals and probiotics.

<p style="text-align: center;">COURSE OUTCOME B.Sc. Biotechnology GBT- 132 Lifestyle Diseases and Management</p> <p>At the end of this Course, student will have developed the ability to:</p>	
CO -1	Appreciate the importance of a healthy lifestyle and nutrition.
CO -2	Rationalise nutritional habits with lifestyle management.
CO -3	Describe how personal decisions and behaviours affect health and impact the most common lifestyle diseases.
CO -4	Identify basic principles of nutrition and ways to obtain/maintain a healthy body composition.

<p style="text-align: center;">COURSE OUTCOME B.Sc. Biotechnology GBT- 141 Laboratory Essentials</p> <p>At the end of this Course, student will have developed the ability to:</p>	
CO -1	Practice basic procedures and protocols, safely and accurately in a lab setting.
CO -2	Understand the rationale behind laboratory procedures.
CO -3	Handle and maintain laboratory equipment and apparatus correctly.
CO -4	Appreciate the need of maintaining a timely, comprehensive, detailed laboratory notebook depicting experimental results in a clear and concise manner to repeat experiments, troubleshoot procedures, and analyze data.
CO -5	Perform basic lab calculations to prepare solutions and samples for experiments.

<p style="text-align: center;">COURSE OUTCOME B.Sc. Biotechnology GBT-142 Bakery and Fermented Beverage Technology.</p> <p>At the end of this Course, student will have developed the ability to:</p>	
CO -1	Identify and differentiate the small and large equipment used in baking.
CO -2	Identify and indicate the use of the different types of ingredients used in baking.
CO -3	Prepare yeast fermented products, flavoured breads, bread loaf and French bread, basic sponges and iced cakes, basic pastries and its derivatives.
CO -4	Prepare various fermented beverages.

<p style="text-align: center;">COURSE OUTCOME B.Sc. Biotechnology GBT -161 (Exit Course) Eco-Friendly Bioproducts</p> <p>At the end of this Course, student will have developed the ability to:</p>	
CO -1	Discuss the various types of biofertilizers and their importance in agriculture.
CO -2	Understand the mechanism of action of different types of biopesticides
CO -3	Evaluate the suitability, effectiveness, advantages and limitations of different types of biofuels and eco-friendly bioproducts for specific applications
CO -4	Prepare and evaluate different types of biofertilizers, biopesticides, biofuels and eco-friendly bioproducts in the laboratory.
CO -5	Understand the environmental impact of different types of biofuels and eco-friendly bioproducts.

<p style="text-align: center;">COURSE OUTCOME B.Sc. Biotechnology GBT-200 Cell Biology</p> <p>At the end of this Course, student will have developed the ability to:</p>	
CO -1	Describe the fundamental principles of cellular biology.
CO -2	Understand in-depth cell structure and how it relates to cell functions.
CO -3	Comprehend how cells grow and divide and how important cell processes are regulated.
CO -4	Acquire practical skills in Cell biology.

<p style="text-align: center;">COURSE OUTCOME B.Sc. Biotechnology GBT-201 Elementary Microbiology</p> <p>At the end of this Course, student will have developed the ability to:</p>	
CO -1	Understand and apply the basic principles and techniques used in obtaining and preserving pure cultures of microbes.
CO -2	Elaborate on the need and methods of microbial control.
CO -3	Analyze the diversity of microorganisms and interpret their interaction with the environment.
CO -4	Evaluate the role of microorganisms in disease outbreaks and emerging infectious diseases.

COURSE OUTCOME B.Sc. Biotechnology GBT-211 Biomolecules	
At the end of this Course, student will have developed the ability to:	
CO -1	Understand the role of oligosaccharides and lectin interactions in biochemical processes.
CO -2	Analyse the structure and properties of carbohydrates, proteins, lipids, cholesterol, DNA, RNA, glycoproteins, and glycolipids.
CO -3	Acquire knowledge of physicochemical properties and characterization of fats and oils.
CO -4	Evaluate the role of nucleic acids in biological systems.

COURSE OUTCOME B.Sc. Biotechnology GBT - 231 Emergency Response and First Aid	
At the end of this Course, student will have developed the ability to:	
CO -1	Understand the fundamentals and importance of first aid.
CO -2	Evaluate specific medical emergencies & responses.
CO -3	Provide first aid in case of wounds, burns, drowning, poisoning and injuries to muscles and bones.
CO -4	Manage general medical complaints, provide first aid and administer basic life support, including CPR.

COURSE OUTCOME B.Sc. Biotechnology GBT-241 Modern Agricultural Practices and Home Gardening	
At the end of this Course, student will have developed the ability to:	
CO -1	Apply modern farming technologies to optimize crop production and address agricultural challenges.
CO -2	Cultivate and manage a home garden effectively.
CO -3	Understand common challenges in pest management, disease control, and weed management.
CO -4	Apply concepts to increase the shelf life of vegetables and fruits.

COURSE OUTCOME B.Sc. Biotechnology GBT -202 Biochemical Processes and Metabolism	
At the end of this Course, student will have developed the ability to:	
CO -1	Understand the concepts in enzyme and enzyme kinetics.
CO -2	Outline the importance of metabolic pathways.
CO -3	Elaborate on the processes of anabolic and catabolic pathways of carbohydrates, proteins, lipids, and nucleic acids.
CO -4	Perform experiments in qualitative and quantitative analysis of biomolecules, enzyme kinetics, and metabolic products.

COURSE OUTCOME B.Sc. Biotechnology GBT-203 Principles of Ecology and Evolution	
At the end of this Course, student will have developed the ability to:	
CO -1	Understand the foundational concepts of ecology and identify its key components.
CO -2	Explore the different types of species interactions and study ecosystem connections.
CO -3	Analyse ecosystem structure and function and understand the concept of island biogeography.
CO -4	Assess major events in the evolution of life on Earth and understand different underlying evolutionary processes.

COURSE OUTCOME B.Sc. Biotechnology GBT-204 Mammalian Physiology	
At the end of this Course, student will have developed the ability to:	
CO -1	Explain the processes of digestion, respiration, and circulation in mammals.
CO -2	Describe events of muscle contraction and overall muscle physiology in mammals.
CO -3	Analyse the mechanism of working of nerve cells and the nature of endocrine glands and their secretion in mammals.
CO -4	Develop practical skills in mammalian physiology.

COURSE OUTCOME B.Sc. Biotechnology GBT-205 Bio entrepreneurship	
At the end of this Course, student will have developed the ability to:	
CO -1	Develop a business plan related to life science projects.
CO -2	Be familiar with methodologies & regulations to start an enterprise.
CO -3	Develop independent thinking skills required to begin a business.
CO -4	Evaluate the strategies & manage finances for the business.

COURSE OUTCOME B.Sc. Biotechnology GBT-221 Plant Physiology	
At the end of this Course, student will have developed the ability to:	
CO -1	Describe the absorption of water and transport of water through the tracheid.
CO -2	Differentiate various water transport processes.
CO -3	Explain the components and mechanisms of photosynthesis.
CO -4	Analyze the physiological role and mechanism of action of phytohormones.

COURSE OUTCOME B.Sc. Biotechnology GBT-261 (Exit) Laboratory Skills and Techniques in Biotechnology	
At the end of this Course, student will have developed the ability to:	
CO -1	Understand and perform various serological tests.
CO -2	Acquaint themselves with the concepts of food biotechnology and fermentation technology.
CO -3	develop practical skills in serology, food technology, and plant biotechnology
CO -4	Conduct practical work using instruments such as a microscope, LAF, spectrophotometer, and electrophoretic set-up.

