

DEPARTMENT OF MICROBIOLOGY
SRI Y N COLLEGE (AUTONOMOUS): NARSAPUR

Course outcomes

S.NO	COURSE CODE	SEMESTER	COURSE OUTCOMES
1.	MBT – 101 MBP-101	I SEMESTER	ITheory- INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY IPracticals- INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY
2.	MBT -201 MBP-201	II-SEMESTER	II – Theory- MICROBIAL BIOCHEMISTRY & METABOLISM II Practicals- MICROBIAL BIOCHEMISTRY & METABOLISM
3.	MBT-301 MBP-301	III-SEMESTER	III Theory-MICROBIAL GENETICS & MOLECULAR BIOLOGY III Practicals – MICROBIAL GENETICS & MOLECULAR BIOLOGY
4.	MBT-401 MBP -401	IV-SEMESTER	IV Theory- IMMUNOLOGY & MEDICAL MICROBIOLOGY IVPracticals- IMMUNOLOGY & MEDICAL MICROBIOLOGY
5.	MBT-501 MBP-501	V-SEMESTER	V Theory- ENVIRONMENTAL & AGRICULTURAL MICROBIOLOGY V Practicals- ENVIRONMENTAL & AGRICULTURAL MICROBIOLOGY
6.	MBT-601	VI-SEMESTER	VI Theory- FOOD & INDUSTRIAL MICROBIOLOGY VI Practicals- FOOD & INDUSTRIAL MICROBIOLOGY

7.	MBP-601 <i>MBT-701</i> MBP-701	VII-SEMESTER	VII Theory- MICROBIALBIOTECHNOLOGY VII Practicals- MICROBIAL BIOTECHNOOLOGY
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PROGRAM OUTCOMES :(Pos)

Program outcomes, upon graduation should have a thorough knowledge and understanding of the core concepts in the discipline of microbiology.

- ❖ Describe how microorganisms are used as model systems to study basic biology, genetics, metabolism and ecology.
- ❖ Identify ways microorganisms play an integral role in disease, and microbial & immunological methodologies are used in disease treatment and prevention.
- ❖ Explain why microorganisms are ubiquitous in nature.
- ❖ For examples vital role of microorganisms in biotechnology, fermentation, medicine, and other industries important to human well being.
- ❖ Demonstrate that microorganisms have an indispensable role in the environment, including elemental cycles, biodegradation etc.
- ❖ Upon graduation, microbiology majors should have mastered a set of fundamental skills, which would be useful to function effectively as professionals and to their continued development and learning within the field of microbiology.

These skills include the following are –

- (A) Nature of science & scientific inquiry
- (B) Laboratory skills
- (C) Data analysis skills
- (D) Critical thinking skills

PROGRAM SOURCE OUTCOMES: (PSOs)

S.NO	COURSE CODE	SEMESTER	COURSE OUTCOMES
1.	MBT-101	Introductory microbiology & microbial diversity	<ul style="list-style-type: none"> ➤ To study importance & applications of microbiology. ➤ To study history and contribution of microbiology. ➤ To study classification of microorganisms. ➤ To study outline of bergey's manual of systematic bacteriology. ➤ To study general characteristics of bacteria, morphology structure & replication mechanism. ➤ To study general characteristics & classification of fungi, algae & protozoa. ➤ To study principles of microscopy. ➤ To study staining & sterilization techniques. ➤ To study isolation & preservation techniques.
2.	MBT -201	MICROBIAL BIOCHEMISTRY & METABOLISM	<ul style="list-style-type: none"> ➤ To study general characteristics amino acids & proteins. ➤ To study structure of nitrogen bases, nucleotides, & nucleic acids. ➤ To study types of fatty acids & lipids ➤ To study principles & applications calorimetry. ➤ To study paper chromatography & spectrophotometry. ➤ To study centrifugation To study general characteristics & classification of carbohydrates. ➤ & gel electrophoresis. ➤ To study properties & classification of enzymes. ➤ To study factors affecting catalytic activity. ➤ To study types of inhibition enzyme activity. ➤ To study microbial nutrition & its types. ➤ Types of microbial growth & its factors. ➤ Methods for measuring microbial growth. ➤ To study aerobic & anaerobic respiration process. ➤ To study fermentation process.
3.	MBT-301	MICROBIAL GENETICS & MOLECULAR BIOLOGY	<ul style="list-style-type: none"> ➤ To study structure & organisation of genetic material. ➤ To study extra chromosomal elements. ➤ Replication of DNA & involved enzymes. ➤ Outlines of DNA damage & repair mechanisms. ➤ To study mutations & mutagens , its types.

			<ul style="list-style-type: none"> ➤ To study genetic recombination in bacteria. ➤ To study concept of genes. ➤ To study genetic codes. ➤ Structure and types of RNA & its functions. ➤ To study structure of ribosome. ➤ Regulation of gene expression in bacteria. ➤ Basic principles of genetic engineering & its applications.
4.	MBT-401	IMMUNOLOGY & MEDICAL MICROBIOLOGY	<ul style="list-style-type: none"> ➤ To study types of immunity & lymphoid organs. ➤ To study cells of immune system. ➤ To study identification & functions of B & T Lymphocytes. ➤ To study types of antigens & antibodies . ➤ Polyclonal & monoclonal antibodies – production its applications. ➤ To concept study hypersensitivity of autoimmunity. ➤ To study host pathogen interaction and nosocomial infection. ➤ To study general principles of diagnostic microbiology. ➤ To study general methods of laboratory diagnosis. ➤ To study antibacterial, antifungal, antiviral agents. ➤ To study antimicrobial susceptibility. ➤ To study antibiotic resistance in bacteria. ➤ To study natural & recombinant vaccines.
5.	MBT-501	ENVIRONMENTAL & AGRICULTURAL MICROBIOLOGY	<ul style="list-style-type: none"> ➤ To study terrestrial, aquatic & atmosphere habitats. ➤ To study role of microorganisms in nutrient cycling. ➤ Treatment of potable water & its methods. ➤ To study microbial interaction. ➤ To study out lines of solid waste & liquid waste management. ➤ To study of plant growth promoting microorganisms. ➤ Out lines of biological nitrogen fixation. ➤ To study concept of disease in plants.
6.	MBT-601	FOOD INDUSTRIAL MICROBIOLOGY &	<ul style="list-style-type: none"> ➤ To study microbial spoilage of food. ➤ Food intoxication. ➤ Food borne diseases & their detection. ➤ Principles of food preservation. ➤ Fermented dairy & its foods microorganisms.

7.	MBT-701	MICROBIAL BIOTECHNOLOGY	<ul style="list-style-type: none"> ➤ Probiotics and their benefits. ➤ Industrial importance of microorganisms. ➤ Out lines of isolation & screening microorganisms. ➤ Types of fermentation process. ➤ Basic concept of design of fermenter. ➤ To study down streaming process. ➤ To study microbial production of industrial products. ➤ Scope & its applications in microbial biotechnology. ➤ Genetic engineered microbes for industries bacteria & yeast. ➤ Recombinant microbial production processes pharmaceutical industries. ➤ To study of production and its applications microbial polysaccharides, bio plastics biosensors . ➤ to study microbial based transformation steroids and sterols. ➤ To study industrial applications & productions. ➤ Immobilization methods and their applications. ➤ To study commercial production of bio etha and biodiesel. ➤ Biogas production ➤ Microorganisms in bioremediation- degradation of xenobiotics. ➤ Out lines of intellectual property rights. ➤ To study patents, copy rights and trade marks.
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