SRI Y.N COLLEGE(A), NARSAPUR

DEPARTMENT OF MICROBIOLOGY

PROGRAMME OUTCOMES: (PO's)

- Graduates will acquire adequate knowledge and leadership skills for a successful career
- Graduates will be able to analyze and solve biology based problems.
- Graduates will cooperate with each other to solve problems with creative thinking.
- Graduates will acquire practical skills- plan & execute experimental techniques independently to analyse & interpret data.
- Graduates will effectively be able to manage resources & time.
- Graduates will be able to learn independently and develop critical thinking.
- Graduates will accomplish ability to communicate effectively and able to understand ethical responsibility.
- Graduates will get adequate knowledge to use information & communication technology.
- Graduates will carry on learning and adapting to a world of constantly evolving technology.

PROGRAMME SPECIFIC OUTCOMES: (PSO's)

B.Sc-CBM :(Chemistry, Biotechnology and Microbiology)

- Understand The program Biotechnology, Microbiology and Chemistry has been introduced to prepare the students for a career which finds application and provides solution to some of the major contemporary problems on the globe i.e., providing food for growing population, designing advanced medical treatment options for increasing and evolving diseases, to find solution to deteriorating environment caused due to over exploitation / misuse of natural resources etc.

- In this program the study of Microbiology offers a thorough knowledge on application of this field of science to the changing world to address some of the issues like – ensuring our food safety, treating and preventing evolving diseases, developing green technologies or tracking the role of microbes in climate change.

- In this program the knowledge about the subject chemistry comes in to play when structures of macromolecules and their interactive relations to the environment are to be understood.

COURSE OUTCOMES:(CO's)

Course Code	Course Name	Nature of the Course - Local/ National/ Regional / Global / developmental needs (write the correct option)	Course Outcomes (list of course outcomes using bullets)
10	BSc-CBM (Microbiology)	Global	**SEM-I:Introduction to Microbiology and Microbial Diversity** ➢ Students will gain knowledge on basics and importance of Microbiology. ➢ Demonstrate appropriate laboratory skills and techniques related to isolation, staining, identification and control of microorganisms. ➢ Students understand the evolution of the discipline of microbiology and the contributions made by prominent scientists in this field
10	BSc-CBM (Microbiology)	National	**SEM-II: Microbial Physiology and Biochemistry** ➢ Develop knowledge on Microbial genetics and molecular biology ➢ This Course provides Understanding of biomolecular synthesis and its control ➢ Develop a fairly good knowledge about the three well known mechanisms by which genetic material is transferred among the microorganisms

			namely transformation, transduction and conjugation.
10	BSc-CBM (Microbiology)	National	**SEM-III: Molecular Biology and Microbial Genetics** ➢ Knowledge on Microbial nutrition, bacterial growth, metabolism and Respiration. ➢ The student will get first-hand experience on separation methods ➢ Mutagensis, Mutation and Mutants and their significance in Microbial evolution
10	BSc-CBM (Microbiology)	Global	**SEM-IV: Immunology and Medical Microbiology** ➢ Develop knowledge on disease transmission and control ➢ Demonstrate on collection and handling of laboratory specimens ➢ Develop information making personal health decision in regard to infectious diseases. ➢ Student can safeguard himself & society and can work on diagnostic approaches to look For safe and prompt detection Of causative agents and further to identify novel therapies.
10	BSc-CBM (Microbiology)	Local	**SEM-V: Environmental & Agricultural Microbiology** ➢ Learn to determine the potability of drinking water. ➢ Learn concepts of screening and strain improvement, media, Fermentation, assays with examples of industrially important processes. ➢ To Apply and study the genitically modified microbes for increasing

			crop output.
10	BSc-CBM (Microbiology)	National	**SEM-VI:Food & industrial Microbiology** ➢ To understand the principles of microbial physiology and genetic engineering in improvement of industrial process. ➢ Apply the knowledge about the food preservation , food fermentation, food safety, quality control and validation . ➢ Students acquire a detailed knowledge on production process of various industrially important products.
10	BSc-CBM (Microbiology)	National	**SEM-VII:ELECTIVE PAPER:MICROBIAL BIOTECHNOLOGY** ➢ Students can develop an understanding on manipulating genes of microbes to obtain valuable products from their metabolism. ➢ Peers can apply the genetic engineering techniques to make therapeutic and industrially important products ➢ By learning the concepts of microbial biotechnology they can apply them for reducing environmental pollution and also for the well being of uman kind.
10	BSc-CBM (Microbiology)	Global	**SEM-VII:C1-MICROBIAL DIAGNOSIS IN HEALTH CLINICS** ➢ Students acquire knowledge of antimicrobial agents , their chemical nature and basis of resistance of microbes

			➢ Students develop understanding of different types of disinfectants /antiseptics and their specific uses
10	BSc-CBM (Microbiology)	National	**SEM-VII:C2-MICROBIAL QUALITY CONTROL IN FOOD AND PHARMACEUTICAL INDUSTRIES** ➢ Acquire knowledge and evaluation of their bactericidal and bacteriostatic actions, basic knowledge of cell cultures. ➢ They develop practical skills for testing pharmaceutical products for sterility testing in different methods. ➢ Learn and understand the sources and types of microbial contaminants, assessment of microbial contamination and spoilage.
10	BSc-CBM (Microbiology)	Local	**SEM-VII:C3-BIOFERTILIZERS AND BIOPESTICIDES** ➢ Students gain fairly good understanding of microbes in the soil. ➢ They develop a fairly good understanding of the use of microbes in sustainable agriculture namely role in biogeochemical recycling, nitrogen fixing, organic matter degrades, use as biofertilizers, as bio pesticides, production of biofuels. ➢ Students can acquire skills for growing microorganisms in the laboratory for the production of different enzymes by microorganisms under controlled conditions.