

Vivekanand College, Kolhapur (Empowered Autonomous Institute)

Department of Biotechnology (Optional)

Departmental Teaching and Evaluation Scheme

Three/Four- Years UG Programme

Department/Subject Specific Core or Major (DSC)

(As per NEP-2020 Guidelines)

Second Year Semester-III & IV

Academic year 2025-26

	Major SEMESTER III
	2DSC0BIT31- Fundamentals of enzyme technology
	CO1: Enzyme Technology deals with the study of the detailed structure and function and applications of enzymes for biological system. CO2: The course will allow understanding the following concepts; IUB classification Steady-state kinetics and regulation CO3: Students are able to understand enzyme kinetics and different determination methods of Km and Vmax CO4: Students are gaining knowledge regarding various methods in industries used for enzyme and cell immobilization and biosensors uses in medical , environmental pollution monitoring.
	2DSC0BIT32- Fundamentals of molecular biology
	CO1: Molecular Biology gives detailed knowledge chemical and molecular processes that occur in and between cells. CO2: Student will able to describe and explain processes and their meaning for the characteristics of living organisms. CO3: Students will gain insight into the most significant molecular and cell-based methods used today to expand our understanding of biology. CO4: After completion of this course students will understand following techniques; a) Gel Electrophoresis b) Blotting Techniques c) Polymerase Chain Reaction d) Genetic Engineering
	Minor
	2MIN03BIT31-BASICS OF ENZYMOLOGY
	CO1: Enzyme Technology deals with the study of the detailed structure & and function of Enzymes. CO2: The course will give the opportunity to understand the following concepts; IUB classification Steady-state kinetics CO3: Students are able to understand the effect of various factor on enzyme activity. CO4: Students are gaining knowledge regarding various methods in industries used for enzyme and cell immobilization.
	2MIN03 BIT32- Basics of molecular biology
	CO1: Molecular Biology gives knowledge about the structure and function of the macromolecules, essential to life. CO2: Students will describe and explain processes and their meaning for the characteristics of living organisms.

	<p>CO3: Students will gain insight into the most significant molecular and cell-based methods used today to expand our understanding of biology.</p> <p>CO4: After completion of this course students will understand following techniques; a) Gel Electrophoresis b) Blotting Techniques c) Polymerase Chain Reaction d) Genetic Engineering</p>
	Major SEMESTER IV
	2DSC03BIT41- Fundamentals of immune technology
	<p>CO1: The immune system governs defence against pathogens and is of importance for development of immunity against various diseases.</p> <p>CO2: The course discusses basic immunology including cellular and molecular processes that represent the human immune system.</p> <p>CO3: This subject offers a detailed study of the following concepts; a) Immunological processes at a cellular and molecular level b) Defence mechanism (Physico-chemical barriers) c) Innate and acquired Immunity Hypersensitivity</p> <p>CO4: Students can understand serological tests in pathological laboratories</p>
	2DSC03BIT42- Fundamentals of genetic engineering
	<p>CO1: In genetic engineering different enzymes are studied</p> <p>CO2: The course discusses different vectors and cDNA and genomic library are studies helps in various gene therapies.</p> <p>CO3: This subject offers a detailed study of different DNA sequencing methods and probe and blotting techniques were studied</p> <p>CO4: Students can understand PCR and Screening of transformed cells and applications of gene cloning as well as safety measures and biological risk for r-DNA work</p>
	Minor
	2MIN03BIT41- Pharmaceutical biotechnology
	<p>CO1: Students are eligible to study impact of biotechnology on pharma industry</p> <p>CO2: The course discusses different genetic manipulation method</p> <p>CO3: This subject offers a detailed study basic principles of biochemical engineering</p> <p>CO4: Students can understand application of fermentation technology in producing compounds of pharmaceutical interests</p>
	2MIN03BIT42- Basics of genetic engineering
	<p>CO1: In genetic engineering different enzymes are studied involved in r-DNA study</p> <p>CO2: The course discusses different vectors applications of these vectors in rDNA technology.</p> <p>CO3: This subject offers a detailed study of different DNA sequencing methods and probe and blotting techniques were studied</p> <p>CO4: Students can understand PCR and Screening of transformed cells and applications of gene cloning as well as safety measures and biological risk for r-DNA work</p>



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HEAD
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