

“Education for Knowledge, Science and Culture”

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VIVEKANAD COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS), KOLHAPUR

Department of Biotechnology

Subject – Biotechnology Optional

Content with Cross-cutting issues

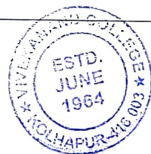
S.N.	Name of Course	Course code	Year of introduced	Professional ethics	Gender	Human Values	Environment and Sustainability	Sustainable Development goals
1	B.Sc. I							
1	Basics of Biotechnology	DSC-1009A	2018-19	Concept of biomolecules and the scope of Biotechnology	-	-	By application of plant tissue culture preservation of endangered species as well as medicinal species	Various applications of biotechnology to study sustainable development
2	Basics of Cell Biology and Microbiology	DSC-1009B	2018-19	-	-	-	Beneficial and harmful activities of microorganisms	-
2	B.Sc. II							
1	Enzyme Technology and Molecular Biology	DSC-1009C	2019-20		-			Study of immobilized enzymes and their applications
2	Immunology and r-DNA technology	DSC-1009D	2019-20		-		Types of immunity as well as study of antigen-antibody reaction important for disease diagnosis	Development of recombinant vaccine and somatotropin hormone, interferon-like substances



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3	B.Sc.III							
1	Plant tissue culture and Environmental Biotechnology	DSC-1009E 1	2020-21				the concept of toxicity. -different types of Bioremediation for avoiding soil pollution	
2	Large-scale manufacturing process	DSC-1009E 2	2020-21		-			Industrial production of pharmaceutically as well as products which are required in day-to-day life Citric acid, L- asparaginase, Cheese production. Single Cell Protein
3	Advances in Biotechnology	DSC-1009F 1	2020-21		-		-	Use of different protein and Nucleic acid database by using tools of bioinformatics
4	ATC and Cell metabolism	DSC-1009F 2	2020-21	transgenic animals for economic importance Animal vaccine production	-		Elaborate virus reproduction cycles to develop strategies for antiviral therapies	
	SEC Molecular diagnostics	SEC Sem V and VI	2020-21		-			



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4	B.Sc.I							
1	Paper-I Basics of Biotechnology I	DSC-1009A1	2021-22	Concept of biomolecules and the scope of Biotechnology Role of vitamins in daily life	-		By application of plant tissue culture preservation of endangered species as well as medicinal species	Various applications of biotechnology to study sustainable development
	Paper-II Basics of Biotechnology II	DSC-1009A2	2021-22					Basic techniques cell disruption centrifugation colorimetry and spectroscopy microscopy
	Paper-III Microbiology	DSC-1009B1	2021-22	-	-		Beneficial and harmful activities of microorganisms	
	Paper-IV Cell biology and genetics	DSC-1009B2	2021-22	-			crossing over helps in species diversity & evolution	
5	B.Sc.II							
1	Paper-V- Enzyme technology	DSC-1009C1	2022-23	-	-	-	-	Study of immobilized enzymes Biosensors and their applications
2	Paper-VI- Molecular Biology	DSC-1009C2	2022-23	-	-	-	-	-
3	Paper-VII- Immunology	DSC-1009D1	2022-23	-	-	-	Types of immunity as well as study of antigen-antibody	-



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4	Paper VIII- r-DNA technology	DSC-1009D 2	2022-23	Crucial proteins required for health problems and dietary purposes can be produced safely, sufficiently	-	-	-	Development of recombinant vaccine and somatotropin hormone, interferon-like substances
5	SEC- Introduction to molecular diagnostic	SEC Sem IV	2022-23		-	-	-	Diagnostic microbiology
6	B.Sc. III							
1	Plant Biotechnology	DSC-1009E 1	2023-24		-			Understanding of techniques to cultivate plant tissues <i>in vitro</i>
2	Animal Tissue Culture	DSCF 2	2023-24	-		Need of animal tissue culture to produce the vaccine		
3	Large Scale Manufacturing I	DSC-1009E 3	2023-24		-			
4	Large Scale Manufacturing II	DSC-1009E 4	2023-24	about Intellect Property Rights and patenting			-	Intellect Property Rights and patenting
5	Advances in Biotechnology Biochemical techniques	DSC-1009F 1	2023-24	-				

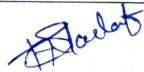


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6	Gene Technology and Bioinformatics	DSC-1009F2	2023-24	-				work in molecular diagnostic and Bioinformatics laboratory.
7	Cell Metabolism and Virology	DSC-1009F3	2023-24	-	-			
8	Environmental Biotechnology	DSC1009F4	2023-24	to grow healthy crops without chemical pesticides			Implementation of green revolution i.e. to attain reduce, reuse & recycle	
9	Entrepreneurship development	SEC Sem V	2023-24					
10	Ecology	SEC Sem VI	2023-24	-	-		different industrial indicators of pollution	
7	B.Sc,I NEP	Sem I	2023-24					
1	Fundamentals of Biotechnology Paper I	Major	2023-24	-	-	Specify types of Diabetes & and symptoms and remedies.		Specify types of Diabetes & and symptoms and remedies.
2	Fundamentals of Biotechnology Paper II	Major	2023-24	-	-			
3	Microbiology	Major	2023-24	-	-			



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4	Cell Biology and genetics	Major	2023-24	-	-			
5	Basics of Biotechnology -I	Minor	2023-24	-	-		Types of Diabetes causes, and remedies	
6	Basics of Biotechnology -II	Minor	2023-24	-	-			
7	Basics of Microbiology	Minor	2023-24		-		The harmful and beneficial activities of bacteria.	
8	Basics of Cell biology	Minor	2023-24	-	-		-	
9	Scope of Biotechnology -I	OEC	2023-24	-			Environmental Impact on Biotechnology	
10	Scope of Biotechnology -II	OEC	2023-24	-	principles of health biotechnology		Plant tissue culture and its applications	
11	Immunology	OEC	2023-24	-	-		-	
12	Techniques in rDNA technology	OEC	2023-24	-	-			Scope of r-DNA technology in well being of human society
13	Basic Instrumentation in Biotechnology	SEC	2023-24	Basic techniques are like centrifugation, microscopy, spectroscopy are included to understand the basic concepts of Biotechnology	-	-	-	-




HEAD
DEPARTMENT OF BIOTECHNOLOGY (OPTIONAL)
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