

“Education for Knowledge, Science and Culture”

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VIVEKANAD COLLEGE, KOLHAPUR (EMPOERWED AUTONOMOUS), KOLHAPUR

Department of Biotechnology

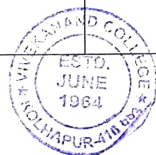
Subject – Biotechnology Optional

Curricular relevance –Course outcomes with relevance to Local, Regional, and Global needs

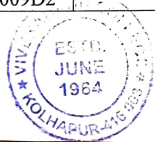
S.N.	Name of Course	Course code	Year of introduced	Cos with relevance to local/ regional needs	Cos with relevance to National needs	Cos with relevance to global needs
1	<b>B.Sc. I</b>					
1	Basics of Biotechnology	DSC-1009A	2018-19	CO3:Study of different biomolecules (carbohydrates, lipids, nucleic acid, and protein and their related disorders and treatments.)	CO1:To aware students between biologists and biotechnologists with the help of Biotechnology in India, the Future prospective of Biotechnology	CO2:To study the scope of Biotechnology in various fields with applications of biomolecules
2	Basics of Cell Biology and Microbiology	DSC-1009B	2018-19	CO4: After completing the course students will be able making students recognize of nutritive requirements, cultivation media, growth conditions for various microorganisms, and their control		
2	<b>B.Sc. II</b>					
1	Enzyme Technology and Molecular Biology	DSC-1009C	2019-20	CO2: Students are gaining knowledge regarding various methods in industries used for enzyme and cell immobilization. After completion of this course students will understand the use of biosensors in daily life	CO2: Students are gaining knowledge regarding various methods in industries used for enzyme and cell immobilization. After completion of this course students will understand the use of biosensors in daily life	CO2: Students are gaining knowledge regarding various methods in industries used for enzyme and cell immobilization. After completion of this course students will understand the use of biosensors in daily life.



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2	Immunology and r-DNA technology	DSC-1009D	2019-20	CO4: After completion of this course students will understand following Concepts; a) Restriction Digestion b) Ligation c) Plasmid Construction d) Gene Transfer Methods e) Recombinant Insulin f) Recombinant Vaccines	CO4: After completion of this course students will understand following Concepts; a) Restriction Digestion b) Ligation c) Plasmid Construction d) Gene Transfer Methods e) Recombinant Insulin f) Recombinant Vaccines	CO3: In r-DNA technology By virtue of this technology, crucial proteins required for health problems and dietary purposes can be produced safely, affordably, and sufficiently. CO4: After completion of this course students will understand the following Concepts; a) Restriction Digestion b) Ligation c) Plasmid Construction d) Gene Transfer Methods e) Recombinant Insulin f) Recombinant Vaccines
3	<b>B.Sc.III</b>					
1	Plant tissue culture and Environmental Biotechnology	DSC-1009E1	2020-21	CO1. Formulate media to produce plantlets on an industrial scale	CO4. Discover different ways of Bioremediation.	CO4. Discover different ways of Bioremediation.
2	Large-scale manufacturing process	DSC-1009E2	2020-21	CO4. Choose the correct method for qualitative & and quantitative analysis of end product.	-	
3	Advances in Biotechnology	DSC-1009F1	2020-21	CO2. Construct a drug molecule.		
4	ATC and Cell metabolism	DSC-1009F2	2020-21		CO 3. Produce transgenic animals for economic importance	CO 3. Produce transgenic animals for economic importance CO 4. Become a good entrepreneur to set up ATC-based industries.
	SEC	SEC Sem V and VI	2020-21	CO:2. Students can understand concepts of business finance. Students can become successful entrepreneurs CO2:Able to understand concepts of ecosystem and able to illustrate bioremediation to abetment	CO:1. students get knowledge about business organizations by completing the course students can incubate their business idea	CO:1. students get knowledge about business organizations by completing the course students can incubate their business idea



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4	<b>B.Sc.I</b>					
1	Paper-I Basics of Biotechnology I	DSC-1009A1	2021-22	CO 4: Qualitative and quantitative analysis of biomolecules	CO 3: Specify types of Diabetes, causes, and remedies.	CO 3: Specify types of Diabetes, causes, and remedies.
	Paper-II Basics of Biotechnology II	DSC-1009A2	2021-22	CO2: Explain the principle of centrifugation. CO 3: Understand the working of Microscope. CO 4: Discuss the instrumentation & working of UV visible spectroscopy		
	Paper-III Microbiology	DSC-1009B1	2021-22	CO 3: Conclude importance of sterilization		
	Paper-IV Cell biology and genetics	DSC-1009B2	2021-22	CO 4: Predict how crossing over helps in species diversity & evolution		
5	<b>B.Sc.II</b>					
1	Paper-V- Enzyme technology	DSC-1009C1	2022-23	CO4: Students are gaining knowledge regarding various methods in industries used for enzyme and cell immobilization	CO4: Students are gaining knowledge regarding various methods in industries used for enzyme and cell immobilization	CO4: Students are gaining knowledge regarding various methods in industries used for enzyme and cell immobilization
2	Paper-VI- Molecular Biology	DSC-1009C2	2022-23	CO4: After completion of this course students will understand following techniques; a) Gel Electrophoresis b) Blotting Techniques c) Polymerase Chain Reaction d) Genetic Engineering		
3	PaperVII- Immunology	DSC-1009 D1	2022-23	CO4: Students can understand serological tests in pathological laboratories	-	
4	Paper VIII- r-DNA technology	DSC-1009D2	2022-23	CO4: after completion of the course, students are eligible	CO4: after completion of the course, students are eligible to	CO4: after completion of the course, students are eligible to understand the




S.N.	Name of Course	Course code	Year of introduced	to understand working of recombinant technology-based industries <b>Cos with relevance to local/ regional needs</b>	understand working of recombinant technology-based industries <b>Cos with relevance to National needs</b>	working of recombinant technology-based industries <b>Cos with relevance to global needs</b>
5	SEC- Introduction to molecular diagnostic	SEC Sem IV	2022-23	CO3: Know the procedure for high-end Instrumentation CO4: Students will analyze the applications of molecular methods in clinical research	CO3: Know the procedure for high-end Instrumentation CO4: Students will analyze the applications of molecular methods in clinical research	CO3: Know the procedure for high-end Instrumentation CO4: Students will analyze the applications of molecular methods in clinical research
6	<b>B.Sc. III</b>					
1	Plant Biotechnology	DSC-1009E1	2023-24	4.CO. Construct to design the commercial plant tissue culture laboratory		
2	Animal Tissue Culture	DSCE2	2023-24	8.CO. Construct to design the commercial Animal tissue culture Laboratory		
3	Large Scale Manufacturing I	DSC-1009E3	2023-24	4.CO: To students gain knowledge regarding Upstream and Downstream processing at fermentation industries		
4	Large Scale Manufacturing II	DSC-1009E4	2023-24	7.CO. To learn about Intellect Property Rights and patenting	7.CO. To learn about Intellect Property Rights and patenting	7.CO. To learn about Intellect Property Rights and patenting
5	Advances in Biotechnology Biochemical techniques	DSC-1009F1	2023-24	4. CO: After completing the course students are eligible to apply knowledge of		

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				electrophoresis in protein research		
6	Gene Technology and Bioinformatics	DSC-1009F2	2023-24	7.CO: To learn about applying Biotechnology in silico i.e. via Bioinformatics		
7	Cell Metabolism and Virology	DSC-1009F3	2023-24	2.CO: To learn about various metabolic pathways		
8	Environmental Biotechnology	DSC1009F4	2023-24	7.CO: To acquire knowledge to grow healthy crops without chemical pesticides. 5.CO: Implementation of green revolution i.e. to attain reduce, reuse & recycle	7.CO: To acquire knowledge to grow healthy crops without chemical pesticides. 5.CO: Implementation of green revolution i.e. to attain reduce, reuse & recycle	7.CO: To acquire knowledge to grow healthy crops without chemical pesticides. 5.CO: Implementation of green revolution i.e. to attain reduce, reuse & recycle
9	Entrepreneurship development	SEC Sem V	2023-24	CO:3. Students can understand concepts of business finance CO: 4. students are able to become successful entrepreneurs		
10	Ecology	SEC Sem VI	2023-24	CO4: Able to illustrate bioremediation to abatement of pollution	-	-
7	<b>B.Sc,I NEP</b>	<b>Sem I</b>	2023-24			
1	Fundamentals of Biotechnology Paper I	Major	2023-24	CO2: Understand biotechnology Scope and importance and types of	CO 3: Specify types of Diabetes & and symptoms and remedies.	CO 3: Specify types of Diabetes & and symptoms and remedies.



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				Biotechnology		
2	Fundamentals of Biotechnology Paper II	Major	2023-24	CO1: Isolate & and purify particular protein.	-	
3	Microbiology	Major	2023-24	CO 1: Elucidate the harmful activities of bacteria.	-	
4	Cell Biology and genetics	Major	2023-24	CO 1: List various cell organelles with functions.	-	
5	Basics of Biotechnology -I	Minor	2023-24	CO3: Specify types of Diabetes, causes, and remedies	CO2: State scope of Biotechnology at national and international level	CO2: State scope of Biotechnology at national and international level
6	Basics of Biotechnology -II	Minor	2023-24	CO1: Isolate and purify particular protein	-	
7	Basics of Microbiology	Minor	2023-24	CO 2: Design media to culture-specific bacterial strains.	-	
8	Basics of Cell biology	Minor	2023-24	CO 1: List various cell organelles with functions.	-	
9	Scope of Biotechnology -I	OEC	2023-24	CO3: Understand the Biotechnology and environmental impact CO4: Understand food Biotechnology	CO3: Understand the Biotechnology and environmental impact CO4: Understand food Biotechnology	
10	Scope of Biotechnology -II	OEC	2023-24	CO1: Understand the principles of health biotechnology	CO1: Understand the principles of health biotechnology	
11	Immunology	OEC	2023-24	CO1: Understand the role of immunity in an individual	-	-
12	Techniques in rDNA technology	OEC	2023-24	CO4: Understand the DNA sequencing techniques	-	
13	Basic Instrumentation in Biotechnology	SEC	2023-24	CO1: Isolate & purify particular protein by using various techniques	-	



  
 HEAD  
 DEPARTMENT OF BIOTECHNOLOGY (OPTIONAL)  
 VIVEKANAND COLLEGE, KOLHAPUR  
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