



# SHIVAJI UNIVERSITY, KOLHAPUR

## Department of Biotechnology

2023 - 2024

### Department of Biotechnology

Establishment Year : 2003

Head of the Department : Dr. JYOTI PRAFULLA JADHAV

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Autonomous : No

### Programmes Offered in the Department

Sr. No	Programme Name	Branch	Duration		Intake	Eligibility Criteria
			Year	Month		
1	M.Sc.-Master of Science	Biotechnology	2	0	30	B.Sc Biotech/Biochem/Chem/Micro/Zool ogy/Botany/Foodscience &Tech/Nanoscience &Biotech/LifeScience

Ph.D Offered : Yes

#### Placement opportunities :

Biotechnology assimilates in itself a number of disciplines. Further, there is a great demand for biotechnical experts in countless industries and sectors. The following are applications where biotechnological techniques are used extensively:

- Industrial Research and Development
- Quality assurance/regulatory affairs
- Manufacturing
- Clinical research
- Government (Lecturer/Scientist)
- Food, animal, and environmental science
- Sales and technical support
- Business management
- Project management

#### Salient Features of the Department:

1. The Department has been engaged in the academic and research activities since last 17 years and has highly experienced faculty members having impressive credentials.
2. Innovative research has been carried out in the various disciplines of Biotechnology having access to the advances infrastructure for the research.
3. Industrial utility of the undertaken research has been demonstrated and collaborative programs with other organizations are actively pursued.
4. Recognition of the departments' achievements in the national and international platforms and various awards has been received by department and teaching staff members .
5. Funding by various funding agencies for different post-doctoral fellows.

## Teaching Staff Information

Sr.No	Faculty Name	Designation
1	Dr. Deepti Namdeo Kurhe	
2	Dr. Sushama Anandrao Patil	
3	Dr. Ulhas B Damale`	
4	Prof. Vishwas Anant Bapat	

## Infrastructure Facilities

Classrooms
Laboratory
Seperate Common Room exclusively for Girls

Common Room
Seminar Halls
Smart Classrooms

## Equipments

Sr.No	Equipments Name	Description / Use
1	2 D Gel Electrophoresis	separation and fractionation of complex protein mixtures from tissues, cells, or other biological samples
2	Autoclave	Used to sterilize media and labwares and also to Decontaminate certain Biological waste
3	Automated TOC analyzer for solid & Liquid sample	To estimate total organic carbon in the sample
4	Balance	weighing of chemicals to avoid the wastage of costly chemicals
5	Bath sonicator	Ultrasonic energy to agitate particles in liquids also to study wide variety of processes, such as mixing, cleaning, degassing, cell disruption, and sample preparation.
6	Clean Room	Used for PTC and ATC lab to avoid the contamination
7	Color spectrophotometer	To evaluate and obtain measurable factors that describe the color
8	Cooling Micro Centrifuge	Separation of biomolecules at low temperature
9	Deep Fridge	Storing biological samples in a large volume and for a longer period of time at very low temp
10	Digital Electronic Balance	Weighting of chemicals at very fine range
11	Digital colorimeter	Used to measure the absorbance of wavelengths of light at a particular frequency (color) by a sample.
12	Dissecting Microscope	To view three-dimensional objects and larger specimens
13	Double Distillation Unit (1,5L TR/HR Borosil)	For distillation of water for fine Experiments for ion free water
14	ELISA Plate Reader	Used for protein and enzyme assay
15	Electroporator	Used for delivery of a large variety of molecules: From ions to drugs, dyes, tracers, antibodies, and oligonucleotides to RNA and DNA
16	Fluoride Ion selective Electrode	Detection of chloride, Potassium, Calcium and variety of other ions in samples
17	Fridge	Storage of chemicals and reagents
18	Gel Documentation	Widely used in molecular biology laboratories for the imaging and documentation of nucleic acid and protein suspended within polyacrylamide or agarose gels
19	Gradient PCR	Used for amplification of new DNA
20	HPLC	Separation and detection of bioactive molecules
21	KVA 24 cooper make generator	It provides electricity to devices and appliances when you are not connected to the power grid
22	Karl Fisher Titrator	To determine the amount of water in the sample

23	Kjeldahl apparatus (Block digestion & scrubbing system)	To digest the bonds that hold poly peptide or other molecules together so that they convert into small molecules
24	Kjeldahl apparatus( Distillation apparatus)	Used to determine organic nitrogen and protein contents in the sample
25	LCQTOFMS	Used for the detection of residual chemical compounds, confirmatory identification of small organic molecules, and confirmation and quantitation of contaminants and adulterants in pharmaceutical and food samples
26	Lab scale fermentor	Used for fermenting microorganisms or biochemical reactions
27	Mili Q Water purification system	Produces high-quality Type 1 ultrapure water for trace elemental analysis
28	Orbital shaker incubator	Used for fermentation studies,enzyme reactions and tissue culture and cell cultures in the labs
29	RT PCR	Amplification of specific DNA targets using polymerase chain reaction. It is primarily used to measure the amount of a specific RNA.
30	Rotary Evaporator	Used for Efficient and gentle removal of solvents from sample by evaporation
31	Shaker	To carry out the reactions and to Incubate the cultures
32	Surface plasmon Resonance	To study binding affinity and kinetics between two molecules
33	Tissue homogeniser with hard glass cup	The lysing or breaking apart of cells in order to release their contents
34	UV -Visible spectrophotometer	The standard method for quantification of DNA/RNA/Protein
35	Well Washer	Used for wash the microwells as a part of the ELISA testing process
36	pH meter	To measure acidity or alkalinity of a solution
37	water chiller	Used to cool the products

**Other information:** The Department of Biotechnology since its inception in 2003 has made visible and remarkable achievements and the department is located in naturally scenic campus of the University and has become a focal point of active research. Foundations and innovations accomplishments by this department have encouraged planning meticulously the road map of progress for this department for the next 25 years. Certain targets such as quality education, synergy between research and its practical application, participation by farmers and entrepreneurs have been pursued vigorously. The staff members have impressive track record in academic and research contributions which have been highly appreciated and recognized. The department has spacious space for M.Sc. class rooms and practical laboratories. Research laboratories for Ph. D. students are well equipped with all modern tools and machines. The trust eras of research are Neurodegenerative diseases (AD and PD), and Plant Biotechnology. Department persuade extracurricular activities that are important for the student's overall development.

**Department Head Signature**