

**Gokhale Education Society's  
H.P.T. Arts and R.Y.K. Science College, Nashik**

**(Centenary Celebration Period- 1924 to 2025)**

**Affiliated to Savitribai Phule Pune University, Pune**

**Department of Microbiology**

**Welcomes**

**NAAC**

**PEER TEAM MEMBERS**

**(29<sup>th</sup> & 30<sup>th</sup> May 2025)**



# Department of Microbiology

*(Established 1981)*

*July 2005 (PG Programme)*

## **B.Sc. (3 Years) and M.Sc. (2 Years) in General Microbiology**



- To build the foundation in the discipline of Microbiology.
- To enhance in-depth subject knowledge, practical and research skills for pursuing a professional career in Microbiology.
- To develop capabilities and competencies to meet the National Microbiological challenges.



# Department of Microbiology

## B.Sc. Microbiology Based on Merit

**M-11 & F-63 During  
Assessment Cycle**

Demand ratio	0.5
Enrolment %	100 (T.Y. 15 Seats)
Passing %	96

## M.Sc. Microbiology Based On Entrance Exam

**M-26 & F-94 During  
Assessment Cycle**

Demand ratio	0.24
Enrolment %	100 (24 Seats)
Passing %	96
Placement %	74

**Ph.D. Awarded =03**

Name of Student	Course	Year	SPPU Top Rank
<b>Amruta Pipalwadkar</b>	B.Sc.	2018	10
<b>Gurfan Siddiqui</b>	B.Sc.	2020	10
<b>Krishnapriya Nair</b>	B.Sc.	2021	09
<b>Devyani Tayade</b>	M.Sc.	2018	06
<b>Vikrant Pandya</b>	M.Sc.	2021	08



**SPPU Rank Holders**



# Department of Microbiology



Sr. No.	Name of Faculty	Qualification	Rank	Experience
1	<b>Dr. Leena P. Pathak</b>	<b>M.Sc.(Micro), M.Sc. (Sub. Comm), Ph.D.</b>	<b>Head &amp; Associate Professor</b>	<b>35</b>
2	<b>Mr. Sameer A. Joshi</b>	<b>M.Sc. (Micro), CSIR-NET</b>	<b>Assistant Professor</b>	<b>20</b>
3	<b>Dr. Swati P. Bhavsar</b>	<b>M.Sc.(Micro), Ph.D</b>	<b>Assistant Professor</b>	<b>21</b>
4	<b>Dr. Jayashree W. Baviskar</b>	<b>M.Sc.(Micro), CSIR-NET, MH-SET, Ph.D</b>	<b>Assistant Professor</b>	<b>17</b>
5	<b>Ms. Jyoti R. Pingal</b>	<b>M.Sc.(Micro), ICAR-NET, MH-SET, GATE, B.Ed</b>	<b>Assistant Professor</b>	<b>11</b>
6	<b>Ms. Kanchan R. Choudhari</b>	<b>M.Sc.(Micro)</b>	<b>Lecturer</b>	<b>05</b>
7	<b>Ms. Tejaswini D. Devkar</b>	<b>M.Sc. (Micro)</b>	<b>Lecturer</b>	<b>03</b>
8	<b>Dr. Manjiri J. Rathod</b>	<b>M.Sc. (Micro), MH-SET, Ph.D.</b>	<b>Assistant Professor</b>	<b>18</b>





# Department of Microbiology

**Support  
Staff**

Sr. No.	Name of Support Staff	Qualification	Rank	Experience
1	Mr. P.C. Kamble	12 <sup>th</sup>	Lab Assistant	35
2	Mr. Somanath Unhale	9 <sup>th</sup>	Lab Attendant	31
3	Mr. Vijay Chauhan	FY B.A.	Lab Attendant	15

**Special Achievement: The Best Department of the college and won the 1st Prize in 1998**

## **Awards & Recognitions:-**

**Dr. Leena Pathak –**

1. Research Excellence Award
2. First Prize in paper Presentation in Three Days International Virtual Conference.

**Dr. Swati Bhavsar-**

1. 'Women Icons of India'
2. 'Scientist Who Embraced Uncertainty'
3. क्रांती ज्योती सावित्रीबाई फुले जयंती सत्कार सोहळा, महाराष्ट्र राज्य पोलिस





# Department of Microbiology

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## Infrastructure

• Labs:

- **3 General Labs**
- **1 Research Lab**

Classrooms:

- **3 Learning Zones (2 with snazzy LCD projectors)**

Tech Haven:

- **1 Computer Hub with Internet Magic (4 Computers)**

Support & Staff Hangouts:

- **1 Prep/Store Hideout**
- **2 Staff Chill Zones**
- **1 HOD Command Center**

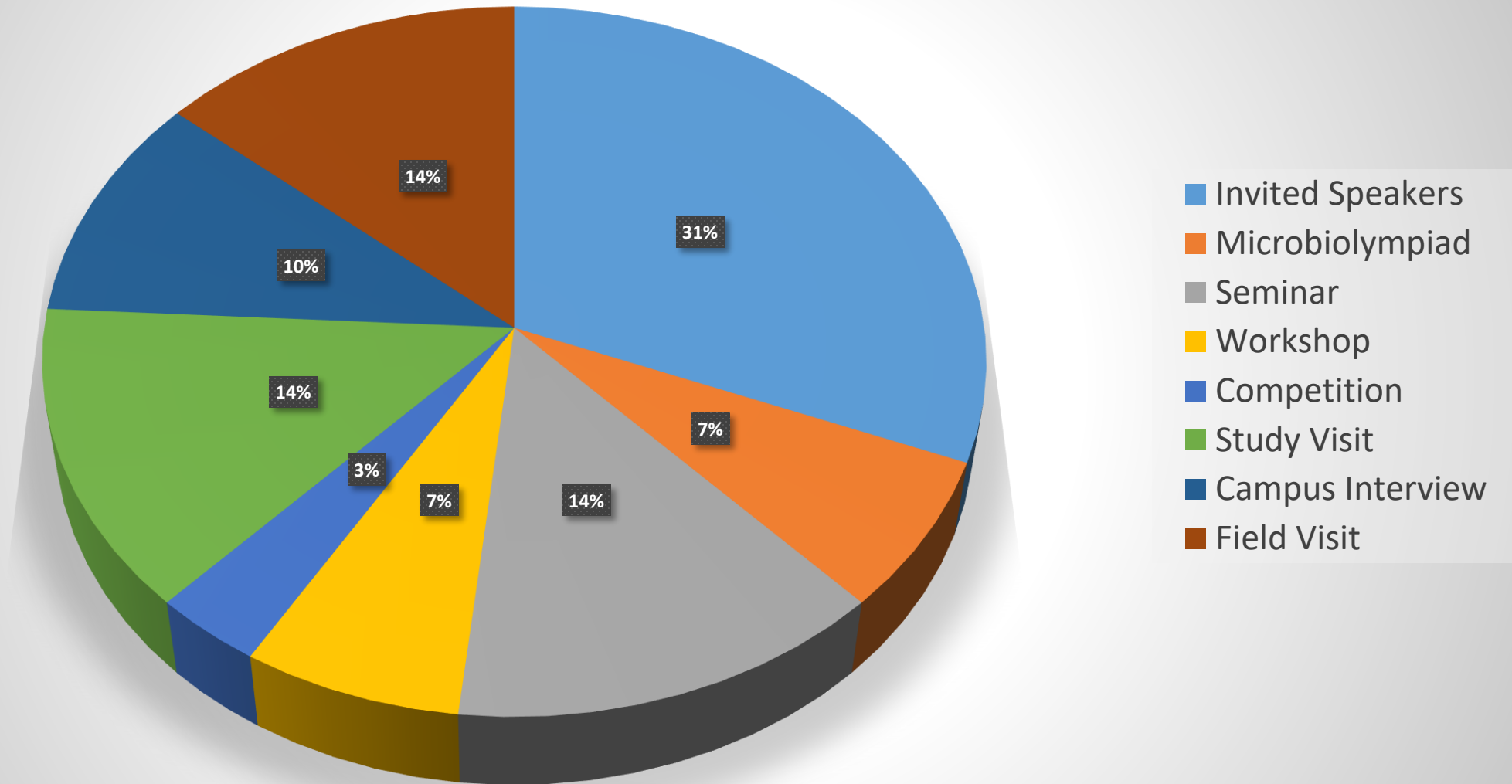
Books Wonderland:

- **Departmental Library with more than 250 Books**
- **Elevator facility for differently abled students**

# Academic calendar planning, Curriculum planning and Teaching-learning and Evaluation

Month	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
January		Molecular biology techniques(B.Sc & M.Sc)			
February	Micro Olympiad competition	Analytical Techniques and Opportunities in Life Science.		10 <sup>th</sup> Webinar Department of Microbiology	Micro Olympiad competition
March					Campus Interview Sankul Agro Ind.
April				13 <sup>th</sup> MNC study visit	
May					
June	First term Begins M.Sc. I entrance	Admission procedure begins for F.Y. B.Sc. 25 <sup>th</sup> M.Sc. I entrance	First term Begins M.Sc. I entrance	First term Begins M.Sc. I entrance	First term Begins M.Sc. I entrance
July					
August					1 <sup>st</sup> Aug M.S.C II Curriculum stars, 26 <sup>th</sup> Aug M.Sc. I entrance
September				6 <sup>th</sup> M.S.c II Lectures Begins. 13 <sup>th</sup> M.S.c I Lectures Begins.	13 <sup>th</sup> Sept celebrated Christian Gram Birthday Lecture of Dr. L P. Sharma, 23 <sup>rd</sup> Campus Interview- Progenisis
October	Workshop on <i>Rhizobia</i> isolation by Dr. Rahi				6 <sup>th</sup> Campus Interview Up Think PVT LTD 24 <sup>th</sup> celebration of Antony Van Leeuwenhoek Birthday, 29 <sup>th</sup> Guidance by Ms. Shivani Khetvani, Ms Pranali Kasat on Research analyst
November					Invited Lecture by Dr. Nair on Bioinformatics
December		6 <sup>th</sup> Guest lecture by Saurabh Vispute On toxicology.		Seminar by Dr. Shouche on Transformation of Science information into business	Career Guidance for Microbiology Dr. Indrajeet Ghodke

## Departmental Activity 2018-2023





# Department of Microbiology



**DEPLOYMENT  
&  
ASSESSMENT**

Timetable

Allocation of  
Courses / Topics

Teaching as per  
Plans

Review by HoD

Monitoring by  
IQAC

Assessment

30 % Internal & 70 % External

Class Tests (Theory and Labs)

Open Book / Home Assignments

Field Visit Reports (Experiential Learning)

Out-of-classroom (Co- and Extra  
Curriculars)

Research (Projects *viva-voce*;  
Presentations)

*Group Discussion/ Brain Teaser*

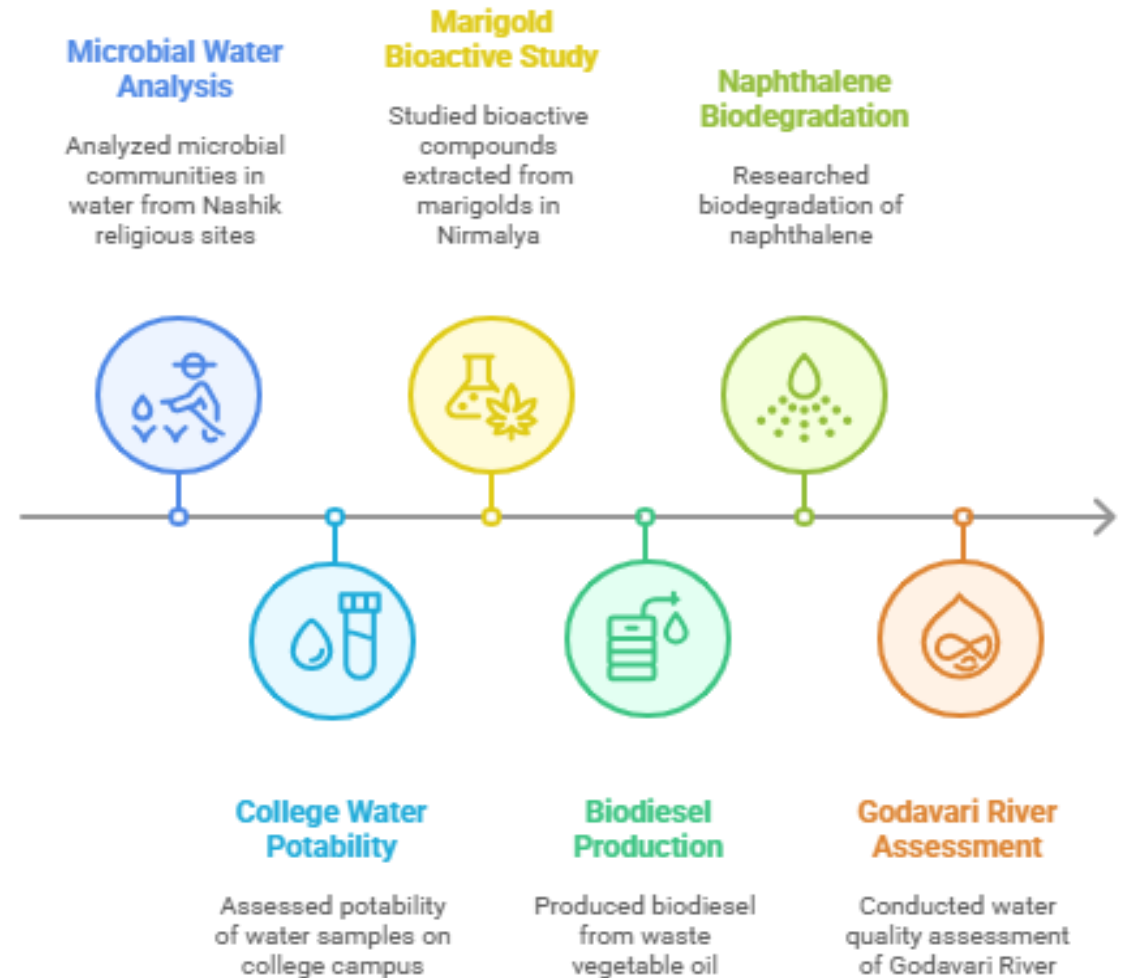
*Weekly Seminars*





# Cross cutting issues transacted: Environment and Sustainability

- **Micro quantity (Chemicals)**
- **Used Microbiology Media is autoclaved before discarding**
- **Separation of waste such as Broken glass material, Solid waste, Medical Waste**









# Field Visits/ Industrial Visits /Study tour



*Every Year students take Field and Industrial visit as part of their curriculum*





**1. Jankalyan Blood Bank 2022-2023**

**3. Nashik Speciality Laboratory 2021-2022**

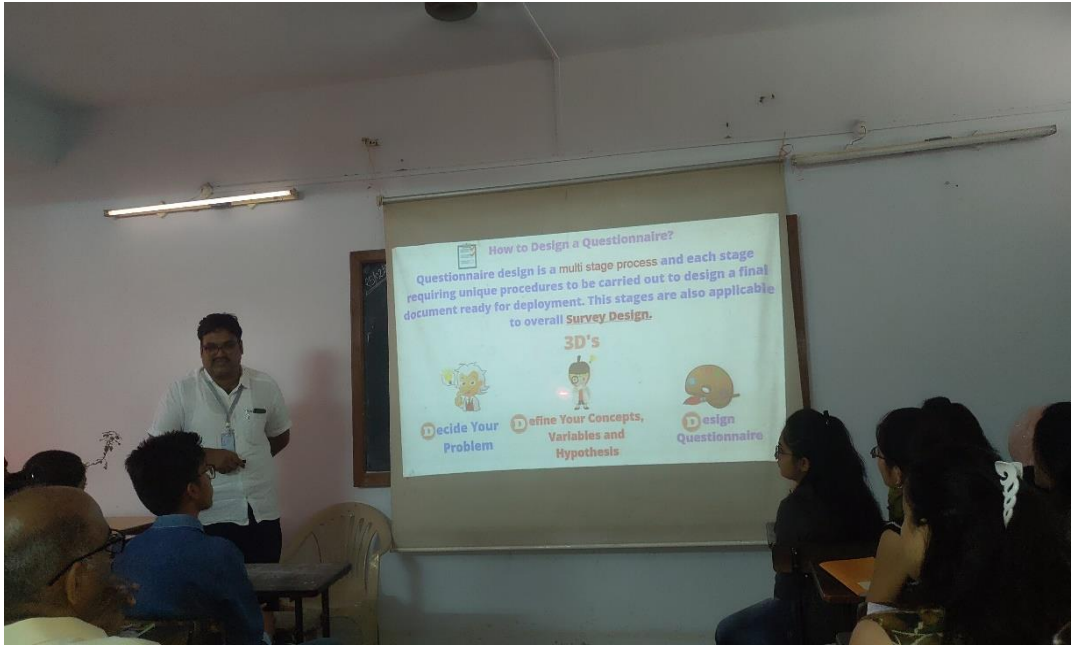
**2. Nashik Speciality Laboratory 2022-2023**

**4. Arpan Blood Bank 2018-2019**





# Department of Microbiology



*Invited Lecture by Prof. Harish Khairnar, Dept. of Political Science, HPT College, Nashik, on “Desing Questionnaire for Survey” on 27/02/2020 for Microbiology Students.*

Gokhale Education Society's  
HPT Arts & RYK Science College, Nashik

Department of Microbiology  
T. Y. B. Sc. (2019-20)

**Practical Course – III**  
**MB-349: Diagnostic Microbiology and Immunology**

Epidemiological Survey  
**A SURVEY ON**  
**“CORONA VIRUS DISEASE-19 (COVID-19)**  
**AWARENESS AMONGST COLLEGE STUDENTS”**

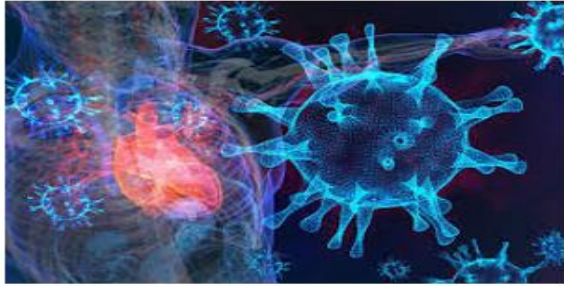
*Every Year T. Y.B.Sc. Students have conducted Survey on various socially related topics as part of their Curriculum*

## Department of Microbiology

T. Y. B. Sc. Microbiology (2021-22)

Practical Course : DSEC MB – 357

**Diagnostic Microbiology and Immunology**



Epidemiological Survey

**“Post Covid-19 Complications”**

G. E. Society's

H. P. T. Arts and R. Y. K. Science College, Nashik

**Department of Microbiology**

**T. Y. B. Sc. Microbiology (2022-23)**

Practical Course : I MB – 357

**Diagnostic Microbiology and Immunology**

Epidemiological Survey

**“Correlation of Body Mass Index (BMI) with Hemoglobin level and Body Fat among College Girls”**

Gokhale Education Society's  
HPT Arts & RYK Science College, Nashik

Department of Microbiology

T. Y. B. Sc. (2023-24)

Practical Course – III

**MB-357: Diagnostic Microbiology and Immunology**

Epidemiological Survey

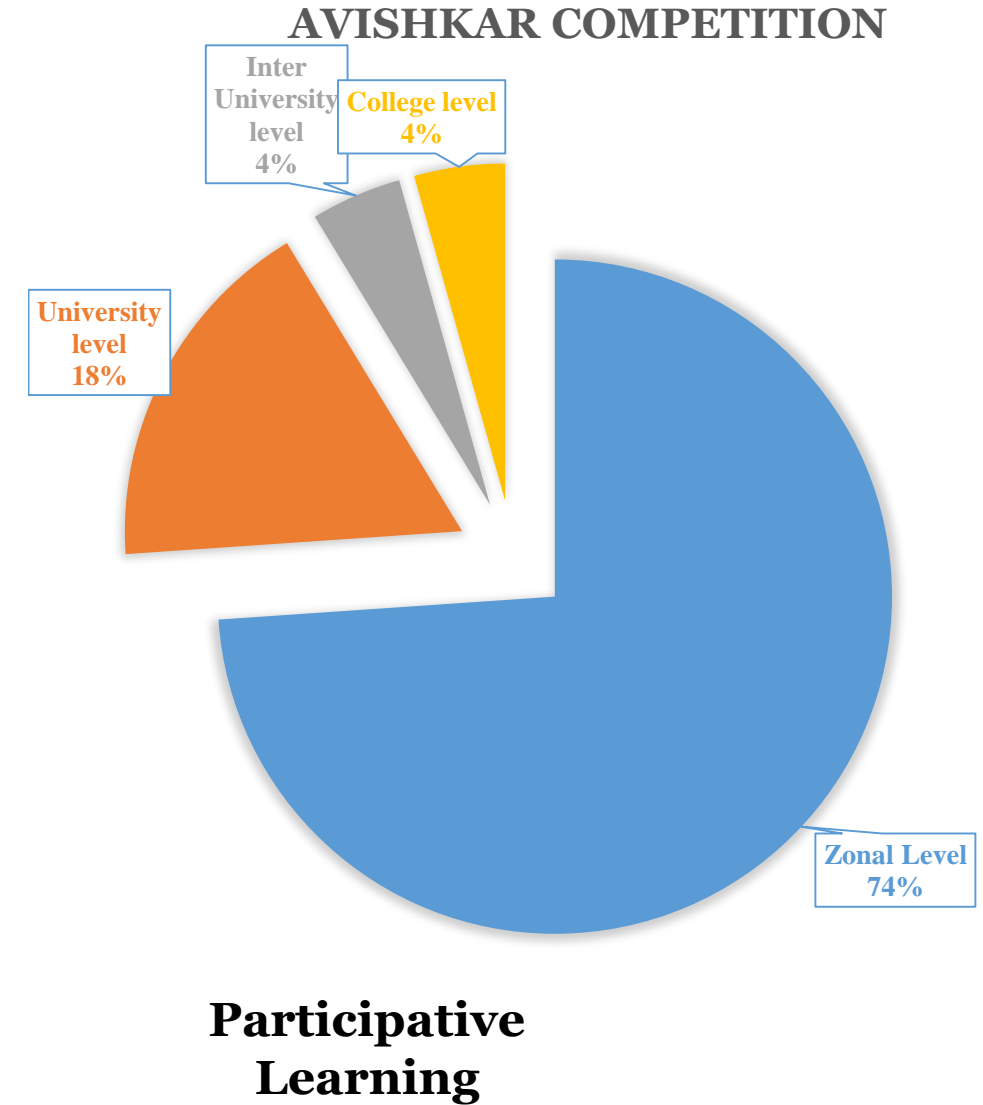
**A SURVEY ON**

**“AWARENESS OF POLYSYSTIC OVARY  
SYNDROME (PCOS) AND POLYCYSTIC OVARY  
DISEASE (PCOD)”**

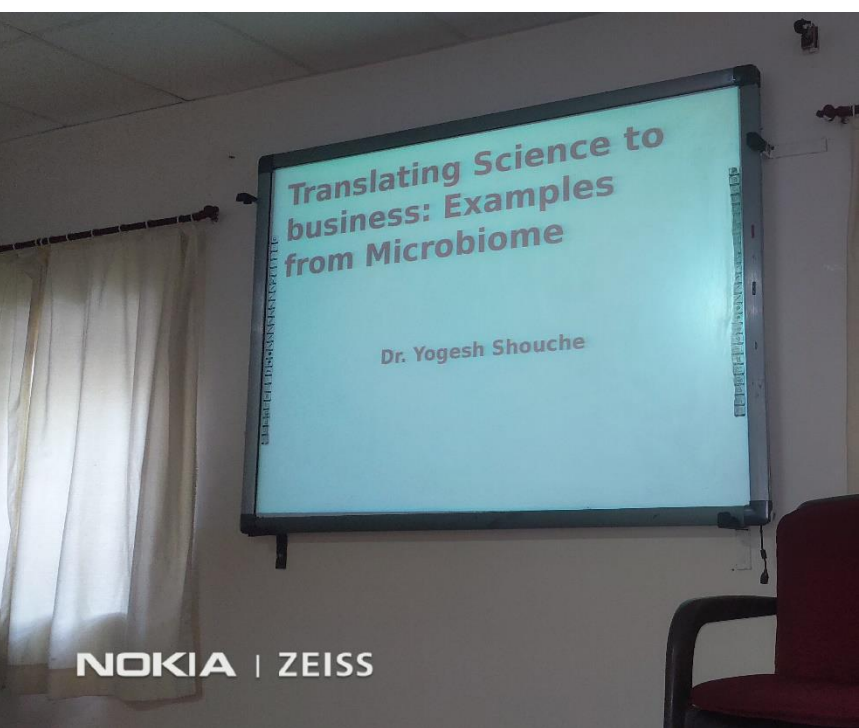


# Department of Microbiology

Sr. No.	Name of the candidate	Event	Level Of Competition	Year
1.	Handore Smita Sudhakar	Avishkar	Zonal level	2022
2.	Joshi Jae Jayant	Avishkar	Zonal level	2022
3.	Joshi Divya Prakash	Avishkar	Zonal level	2022
4.	Bacchav Mrunal Mahendra	Avishkar	Zonal level	2022
5.	Hendve Tejaswini Vinod	Avishkar	Zonal level	2022
6.	Ubale Snehal Suresh	Avishkar	Zonal level	2022
7.	Pange Alfiya Husen	Avishkar	Zonal level	2022
8.	Khandwe Salonee Deepak	Avishkar	Zonal level	2022
9.	Khan Kashish Miraj	Avishkar	Zonal level	2022
10.	Hendve Tejaswini Vinod	Avishkar	University level	2022
11.	Ubale Snehal Suresh	Avishkar	University level	2022
12.	Vrushali Naresh Khadtale	Avishkar	Zonal level	2022
13.	Gohel Nandini Harshad	Avishkar	Zonal level	2022
14.	Gohel Nandini Harshad	Avishkar	College level	2022
15.	Sali Srushti Jaydeep	Avishkar	Zonal level	2022
16.	Ubale Snehal Suresh	Avishkar	Inter University level	2023
17.	Yash Suresh Maurya	Avishkar	Zonal level	2023
18.	Gauri Vijay Sonar	Avishkar	Zonal level	2023
19.	Suryawanshi Abhidnya Bhanudas	Avishkar	University level	2023
20.	Suryawanshi Abhidnya Bhanudas	Avishkar	Zonal level	2023
21.	Danish Yunus Shaikh	Avishkar	Zonal level	2023
22.	Darshan Ashok Unawane	Avishkar	Zonal level	2023
23.	Darshan Ashok Unawane	Avishkar	University level	2023







Translating Science to  
business: Examples  
from Microbiome

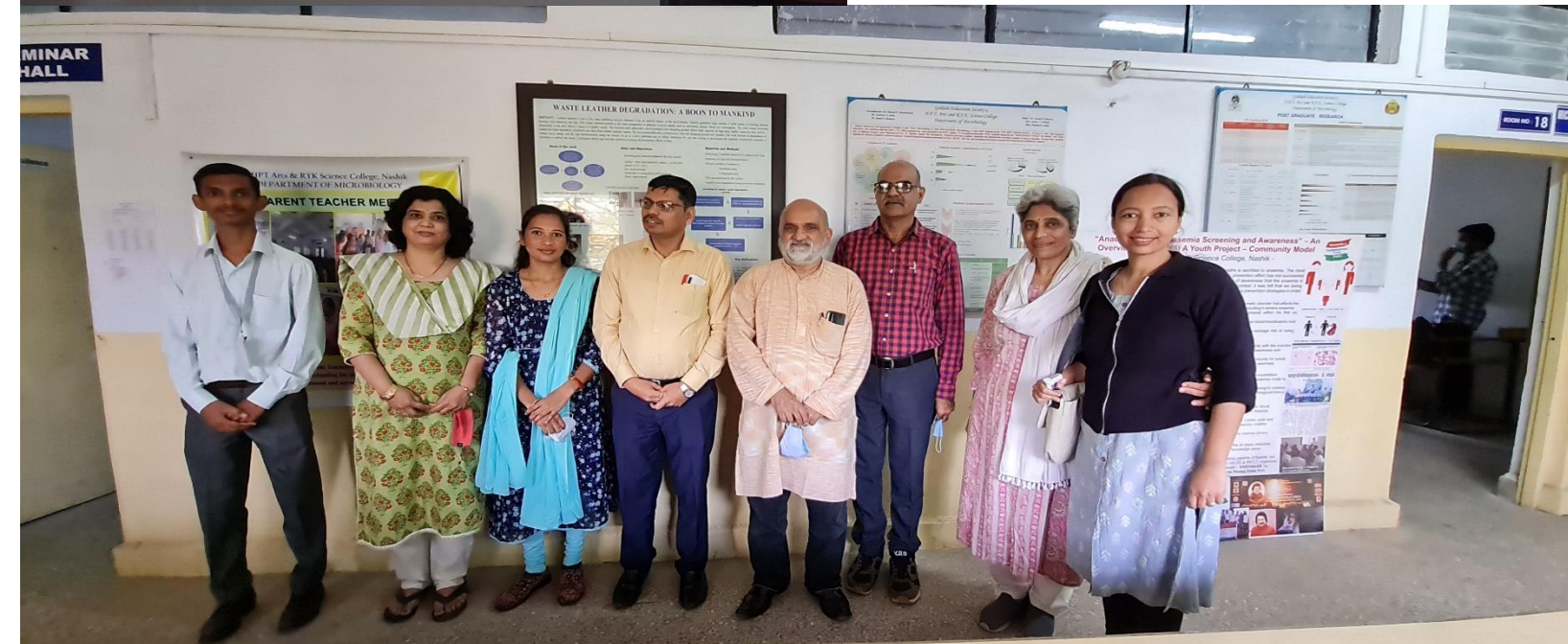
Dr. Yogesh Shouche

NOKIA | ZEISS

*Eminent Scientist Dr.  
Yogesh Shouche, NCCS,  
Pune delivering Invited  
lecture to B.Sc. & M.Sc.  
Students of Life Sciences on  
Entrepreneurship  
opportunities in Life  
Sciences.*



NOKIA | ZEISS



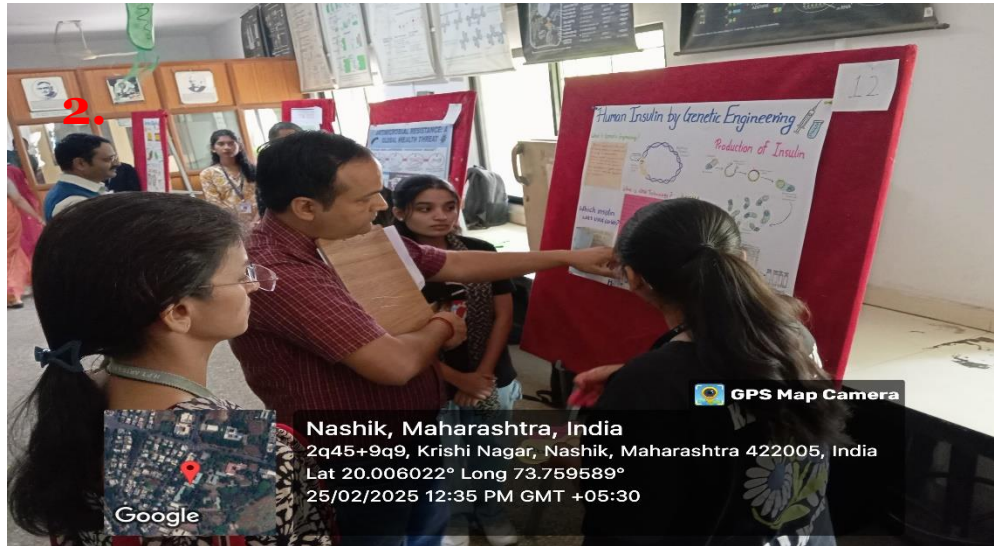




# Department of Microbiology



- ## Micro-fest
1. Quiz Competition
  2. Poster Presentation
  3. Rangoli Competition
  4. Model Preparation



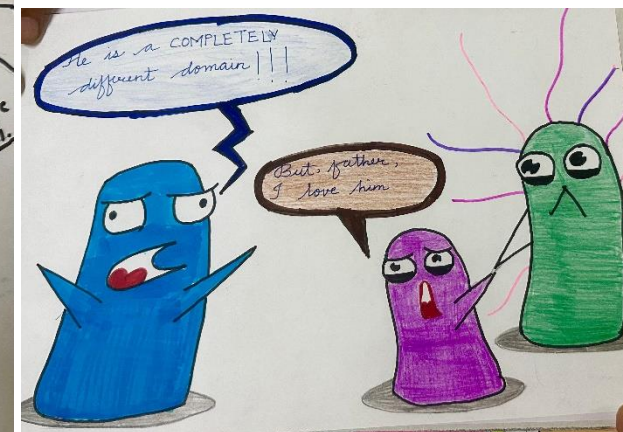
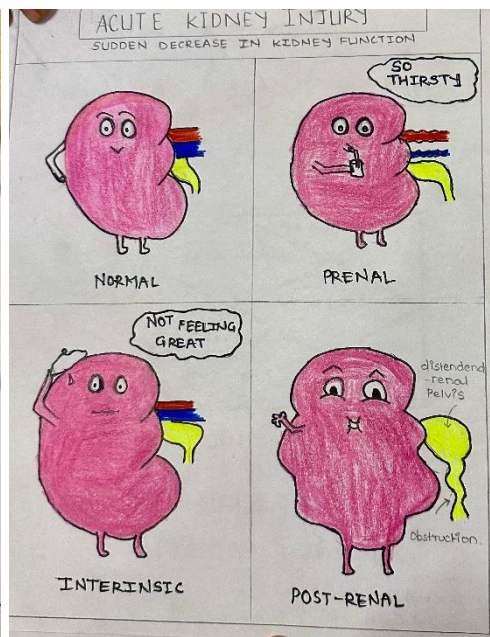
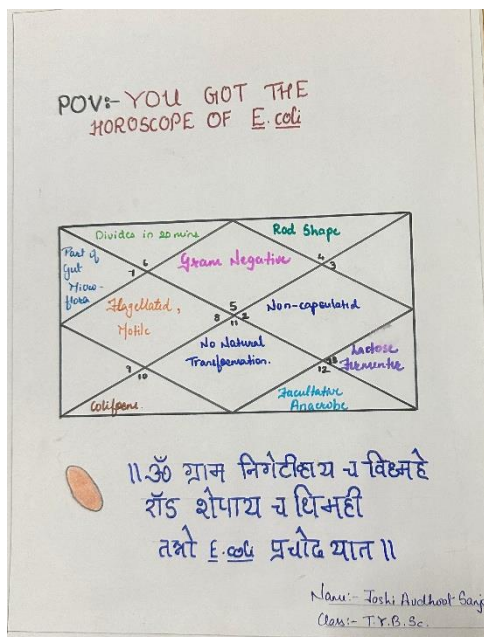




# Department of Microbiology



## Agar Art Competition



## Micro meme & Microtoons





**Molecular Biology Technique Workshop 2020**

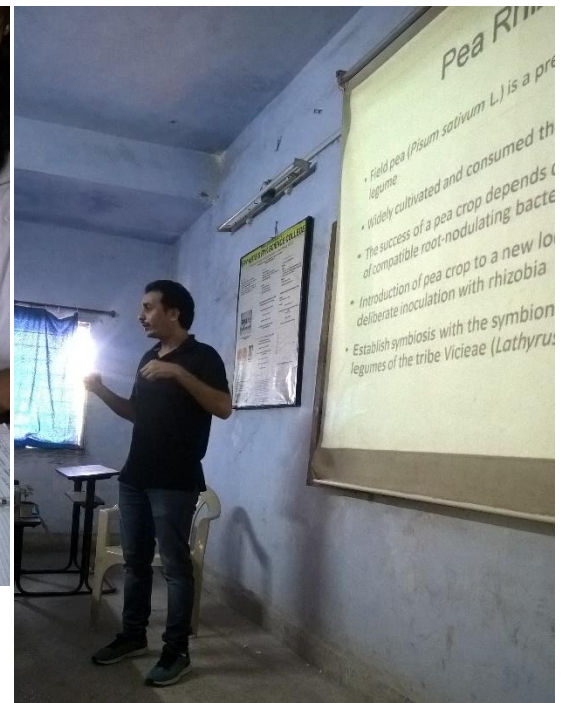


*Donation and Demonstration of working of “Fold Scope” to Microbiology Students by Faculty of NCCS, Pune.27/10/2018*



**Experiential learning**



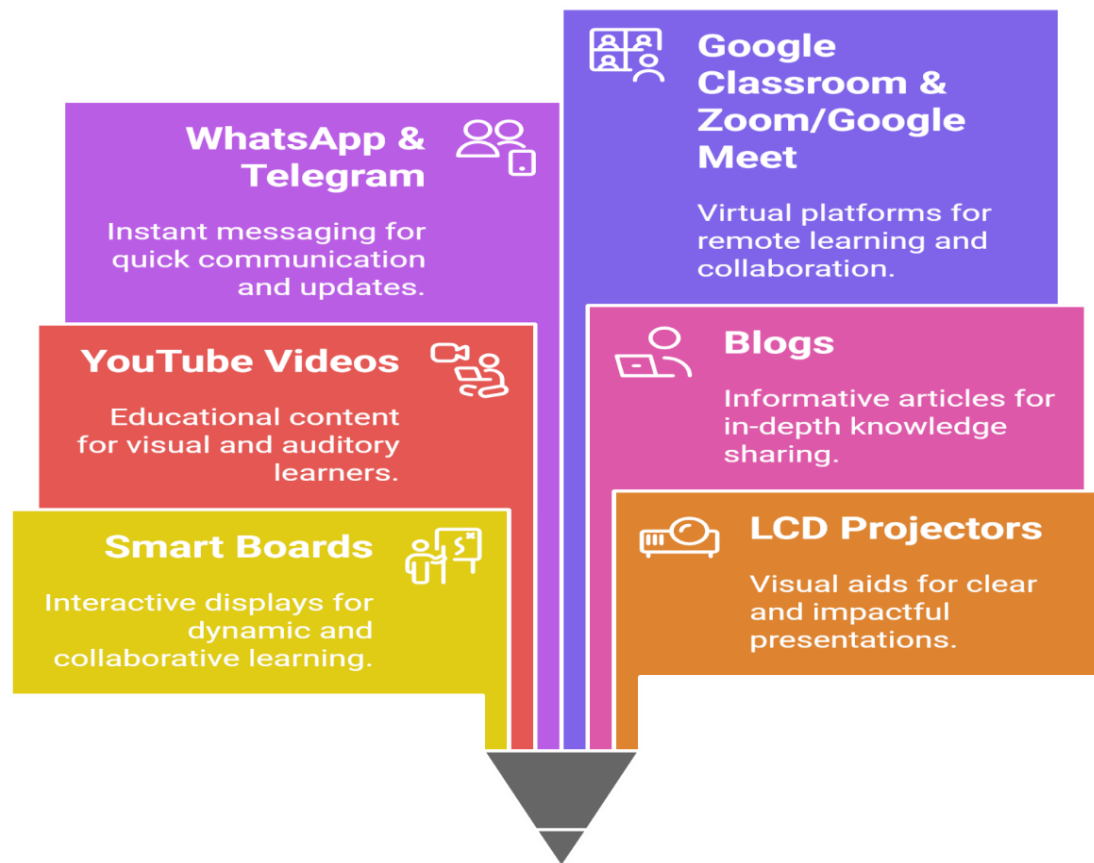


***Workshop on Rhizobia isolation and Cultivation from Rhizosphere soil conducted by Dr. Rahi, NCCS, Pune. 26/10/2028 to 27/10/2018***



# Department of Microbiology

## ICT Tools for Education



- *All Microbiology Staff is well versed with use of ICT tools for teaching Learning.*
- *They use Social media platforms for posting study related material, carrier opportunities, co-curricular and extra curricular courses*



# Online classes conducted/ Social Media Platform

The screenshot shows the Google Classroom web interface. The main area displays a list of assignments for the course 'M.Sc SEM I (21-22) PART 1'. The assignments include 'COVID 19 Case study', 'STUDENTS ENROLLMENT', 'STRUCTURE AND FUNCTION OF Go...', 'Structural organization and funcio...', 'Internal exam', 'Instructions regarding internal exam', 'CELL BIOLOGY', and 'CELL BIOLOGY'. The sidebar on the left shows the course details and a list of related courses.

The screenshot shows a LinkedIn profile for Sameer Joshi, a Master of Science (M.Sc.) at the Department of Microbiology, University of Pune. The profile has 657 followers. Below the profile is a job post from Gokhale Education Society for a Walk-In-Interview. The job is for a QC Officer for a Pharma Company, requiring 3 years of experience and a B.Sc. in Chemistry or Microbiology. The salary is 20k to 25k Gross, and the location is Dindori, Nashik. The job description includes knowledge of HPLC and finishing goods analysis of pellets/tablets/capsules. The candidate is a male, and interested candidates can share their CV at gkhr.corporate@gmail.com.

**GOKHALE EDUCATION SOCIETY**  
 Prin. T. A. Kulkarni Vidyanagar, Nashik - 422 005  
 Tel. No. (0253) - 2574682

**WALK-IN-INTERVIEW**  
 Registration Timing : 10.00 A.M. To 11.00 A.M.

Qualified, competent & eligible Open & Reservation category candidates are intimated to attend Walk-in-Interview on dates mentioned against subject, for the posts of Assistant Professors (Lecturers) at their own cost at Society's Sir Dr. M. S. Gosavi Institute for Entrepreneurship Development, Prin. T. A. Kulkarni Vidyanagar, Nashik-5 Phone No. (0253) 2574682 with application accompanied by original & certified Xerox copies of all Certificates / Marksheet & photograph along with IPO of Rs. 200/- in favour of Gokhale Education Society for following Grant-in-aid Posts on Clock Hour Basis in Society's Senior Colleges affiliated to Savitribai Phule Pune University for the academic year 2024-25 only. (Ref. NOC No. तसमिका - 2024/1485571/24/Pune Region, dated 23.5.2024 & तसमिका - 2024/Pune Region, dated 23.5.2024)

**Qualification: As per UGC / University & Govt. Norms.**

Sr. No.	Subject	Name of the Colleges				Total CHB Posts
		HPT/RVK (CHB Posts)	BYK (CHB Posts)	NBT (CHB Posts)	Nashik Road (CHB Posts)	
(A) Date of Interview : 28 <sup>th</sup> June, 2024						
1.	Marathi	6	-	-	8	14
2.	Microbiology	2	-	-	-	2
3.	Psychology	2	-	-	-	2
4.	Economics	2	4	-	4	10
5.	Hindi	2	-	-	2	4
6.	English	2	2	-	2	6
7.	Geography	2	-	-	-	2
8.	History	2	-	-	2	4
9.	Physics	18	-	-	2	20
10.	Botany	2	-	-	4	6
CHB Posts (A)		40	6	-	24	70
(B) Date of Interview : 29 <sup>th</sup> June, 2024						

The screenshot shows a WhatsApp chat conversation. The contact is 'MSc Micro 2...' with a profile picture of a person. The chat history shows a message from the contact asking for a QC Officer for a Pharma Company. The response lists the experience (3 Yrs), qualification (B.Sc Chemistry/ Microbiology), salary (20k to 25k Gross), location (Dindori, Nashik), and job description (Knowledge of HPLC, Finish Goods Analysis of Pellets/Tablet/Capsule). The candidate is a male, and interested candidates can share their CV at gkhr.corporate@gmail.com. The chat is dated 3 October 2023.

**3.** 28 September 2023

Required QC Officer for Pharma Company:

Experience: 3 Yrs.

Qualificaiton: B.Sc Chemistry/ Microbiology

Salary: 20k to 25k Gross

Location: Dindori, Nashik.

Job Description:

- Knowledge of HPLC
- Finish Goods Analysis of Pellets/Tablet/Capsule

Male Candidate

Interested candidate can share the CV  
[gkhr.corporate@gmail.com](mailto:gkhr.corporate@gmail.com)

3 October 2023

1. Google Class Room for classes
2. LinkedIn for Job Post
3. WhatsApp for Job/Study related material

# Online classes conducted/ Social Media Platform

The collage consists of five overlapping WhatsApp chat screenshots:

- Top Left:** Chat with 'MSc Micro 2...' (Choughule, Deshmu...). It features a video call icon, a voice call icon, and a 'Medical Mycology' course advertisement with a link to <https://www.fun-mooc.fr/en/courses/medical-mycology/?s=08>.
- Top Middle:** Chat with 'MSc 2 Microbiology...' (Darshan Unavane, Gauri, Jay...). It shows a message from 'Sameer Joshi Sir' dated July 8, 2024, asking if anyone is interested in teaching at Chandwad College, and another message about immediate recruitment.
- Top Right:** Chat with 'MSc Part 1 2024-2025' (Abhishek, Aniket, Bharati, Ja...). It displays two Instagram posts from 'Sameer Joshi' dated July 29, 2024, with links to Instagram reels.
- Bottom Left:** Chat with 'MSc Micro 2...' (Choughule, Deshmu...). It shows a 'Forwarded' message about a job vacancy for a Microbiologist at Sudeep Nutrition Pvt. Ltd. in Vadodara.
- Bottom Right:** Chat with 'MSc 2 Microbiology...' (Darshan Unavane, Gauri, Jay...). It shows a 'Forwarded' message dated March 21, 2025, from 'Sameer Joshi Sir' about an interview for an apprentice at Akrale, and another 'Forwarded' message dated April 5, 2025, from 'Jayashree Baviskar Ma'am' about hiring a trainee/officer at Advanced Enzyme Technologies Ltd. in Malegaon, Sinnar.





# Department of Microbiology

Classroom > M.Sc. 1 2020-2021  
Microbiology

Home **1.** | Stream | **Classwork** | People | Marks

Calendar

Teaching

To review

MSc 1 2021-22  
Microbiology

MSc 2  
Microbiology

**M.Sc. 1 2020-2021**  
Microbiology

Archived classes

Settings

**+ Create**

MB501 Material 10 | Posted 17 Apr 2021

Microbial Taxonomy References II 14 | Posted 11 Apr 2021

Microbial Taxonomy References I 13 | Posted 11 Apr 2021

Sexual Selection 14 | Posted 12 Feb 2021

Study Material For Evolution 24 | Edited 4 Feb 2021

Classroom > M. Sc. 2 2020-2021  
Microbiology

Home **2.** | Stream | Classwork | People | Marks

Calendar

Class is archived. Restore it to add or edit anything.

Teaching

To review

MSc 1 2021-22  
Microbiology

MSc 2  
Microbiology

M.Sc. 1 2020-2021  
Microbiology

Archived classes

Settings

SAMEER JOSHI posted a new material: Acinetobacter baumannii

Posted 18 Jan 2021

Review Articles

Clinical Microbiology Re...  
PDF

fcimb-07-00055.pdf  
PDF

fmicb-10-01601.pdf  
PDF

idr-166750-insight-into-...  
PDF

PIIS1198743X14626008.p...  
PDF




24 class comments

**1, 2. Google class rooms**



# Department of Microbiology

## PSO vs CO

Characteristic	PSO1	PSO2	PSO3
 <b>Microbial Understanding</b>	Understanding of microbial world	Development of handling microbes skills	Application of knowledge for mankind
 <b>Specific Knowledge</b>	Knowledge of various microbiology fields	Basic microbiology skills development	Application for mankind's benefit
 <b>Understanding</b>	Developments in last three centuries	Further studies preparation	Knowledge for the benefit of mankind

## **B. Sc. (Microbiology):**

**PSO1:** Understanding of **Microbial world, History & developments** in last three centuries.

**Fundamentals of Microbiology**, Food, Agriculture and Applied Microbiology, Medical Microbiology, Immunology, Genetics & Molecular Biology, Enzymology & Metabolism, Fermentation Technology etc.

**PSO2:** Development of **Basic Skills of Microbiology and handling microbes** for further studies.

**PSO3:** Application of the knowledge for the **benefit of mankind**.



## **B. Sc. (Microbiology):**

CO1: Understanding of diseases caused by bacterial pathogens.

CO2: Understanding of gene manipulation and recombinant DNA technology.

CO3: Understanding basics of Biochemistry of metabolism and its regulation at enzyme level.

CO4: Understanding of Humoral and Cell Mediated Immune Response.

CO5: Understanding Fermentation process, scale up & scale down, Upstream and Downstream.

CO6: Understanding Food Microbiology, food sanitation, spoilage & preservation of food.



# Department of Microbiology

## Program Specific Outcomes

- Knowledge of Fundamentals -
- Microbiological Techniques -
- Research Quotient -
- Scientific Responsibilities -
- Career Building -
- Problem Solving Skills -
- Instrument Knowledge -
- Experimental Techniques -



M. Sc.  
Microbiology  
Program



## Course Objectives

- Bacterial and Fungal Taxonomy
- Gene Manipulation
- Analytical Instruments
- Microbial Metabolism
- Immunology
- Fermenter Design
- Research Skill Development

## **M. Sc. (Microbiology):**

**PSO1:** Knowledge of fundamentals & advances in Microbiology.

**PSO2:** Applications of different Microbiological techniques.

**PSO3:** Knowledge and training in the pure microbial sciences.

**PSO4:** Developing **Research Quotient in Microbiology.**

**PSO5:** Inculcate sense of **scientific responsibilities and social and environment awareness.**

**PSO6:** Build-up a progressive and successful career.

**PSO7:** Development of **analysing and Problem solving skills – reasoning and thinking.**

**PSO8:** Knowledge of Microbiological instruments and their applications.

**PSO9:** Understanding of different experimental and analytical techniques like **microscopy, spectroscopy, X-ray diffraction, bioinformatics, molecular biology.**

## **M. Sc. (Microbiology):**

CO1: Understanding of bacterial and fungal taxonomy.

CO2: Use of gene manipulation and recombinant DNA technology.

CO3: Working and Handling of analytical instruments with GLP.

CO3: Understanding Microbial metabolism and its applications.

CO4: Understanding Immunology with respect to development of Immune therapy.

CO5: Understanding different parameters of fermenter design and standardization of various fermentation processes for production of fermented product on large scale and concept of IPR, Start-ups.

CO6: Development of Research skill through Dissertation.



# Department of Microbiology

Dept. of Microbiology

T.Y.B.Sc. Paper IV: Genetics

Internal Test

Sem I- 2023-24

Total Mks.-15

Time-30 Minutes

Q.1 Answer in one line - Any 5 (CO1)

5 mks

- Which two strains of *S.pneumoniae* were used in Griffith's experiment and what were their properties.
- Enlist any two properties of F-factor involved in bacterial conjugation?
- Which two types of transduction are found in bacteria? Which types of phages mediate them?
- Who discovered conjugation in bacteria?
- What is Lambda dg?
- What are blebs involved in conjugation in *H.influenzae*?

Q.2 Write short notes on - Any 2 (CO2)

5 mks

- Eclipse period in transformation
- Result of cross between Hfr and F<sup>-</sup> strains of *E.coli*
- Site specific recombination by Lambda phage.

Q.3 Attempt the following- Any 1 (CO3)

5mks

- With suitable diagram explain the steps in transformation in *Pneumococci*
- With suitable diagram explain the discovery of transduction in *Salmonella typhimurium*.

Department of Microbiology

Semester V

T.Y.B.Sc -Semester V

DSEC -MB 354: Genetics

[2 Credits; 36 Lectures]

[1 credit=15hrs x 60 mins = 900mins/50mins=18 lectures]

## Course Outcomes

- To exhibit a knowledge base in Genetics and Molecular Biology
- To understand the central dogma of Molecular Biology
- To construct genetic map of bacteria and fungi
- To get introduced to concept of recombination and bacteriophage Genetics
- To understand the concept cloning in bacteria
- To demonstrate the knowledge of common and advanced laboratory practices in Molecular Biology

## Syllabus

### Credit I

#### Topic 1: DNA Replication and Gene Expression

##### 1. Process of prokaryotic DNA replication

- Single replicon
- Bidirectional movement of replication fork
- Ori C
- Pre-priming and Priming reaction.
- DNA polymerases, DNA synthesis of leading, lagging strand
- Okazaki fragments.
- Termination- Ter sequence, Tus protein.

##### 2. Prokaryotic and Eukaryotic Transcription

###### i. Transcription in Prokaryotes

- Structure of promoter
  - Structure and function of RNA polymerase
  - Steps of transcription: Initiation, Elongation and termination
- ###### ii. Transcription in eukaryotes with respect to protein coding Gene:
- Promoter, promoter proximal elements and enhancers
  - Transcription regulatory proteins
  - RNA polymerases
  - Steps in transcription: Initiation, Elongation, Termination
  - Post transcriptional modifications: 5' capping, 3' polyadenylation and introduction to RNA splicing

##### 3. Regulation of transcription:

Concept and components of operon:  
Lac operon: Inducible operon

##### 4. Translation in prokaryotes and eukaryotes





# Department of Microbiology

- a. Structure and role of m-RNA, t-RNA and Ribosomes in Translation
- b. Role of Aminoacyl t-RNA synthetase in translation
- c. Steps in translation: Initiation, elongation, translocation and termination of protein synthesis
- d. Salient features of Eukaryotic translation



## Credit II

### Gene transfer and mapping techniques

#### 5. Gene transfer by Transformation

- a. Discovery of Transformation
- b. Natural transformation Systems-  
*Streptococcus pneumoniae* and *Haemophilus influenzae*.
- c. Factors affecting transformation
- i. Competence development
- ii. Size of DNA
- iii. Concentration of DNA

#### 6. Gene transfer by Conjugation

- a. Discovery of Conjugation.
- b. Properties of F plasmid, F<sup>+</sup>, F<sup>-</sup>, Hfr and F' strains
- c. Process of conjugation between F<sup>+</sup> and F<sup>-</sup>, Hfr and F<sup>-</sup>, F' and F<sup>-</sup>.

#### 7. Gene transfer by Transduction

- a. Discovery of Transduction
- b. Generalized transduction mediated by P22
- c. Specialized transduction mediated by lambda phage

4

#### 8. An introduction to Gene mapping

- a. Gene linkage and concept of genetic recombination
- b. Recombination mapping: Map unit, recombination frequency
- c. Mapping of genes by co-transformation
- d. Mapping of genes by co-transduction
- e. Mapping by interrupted mating experiment
- f. Numerical problems based on co-transformation, cotransduction and interrupted mating

H.P.T Arts and R.Y.K.Science College, Nashik

Dept.of Microbiology

T.Y.B.Sc. Paper IV: Genetics

Internal Test

Sem I- 2023-24

Marklist

Sr. No.	Seat Nos.	Name	Q.1	Q.2	Q.3	out of 15
1	9746	Bhalerao Prajкта	5	4	3	12
3	9747	Charose Hrutuja	4	5	3	12
2	9748	Chauk Prachiti	3	4	3	10
4	9749	Dandgaval Arya	5	4	2	11
5	9750	Gangurde Diksha	5	4	4	13
6	9751	Gangurde Rucha	4	5	4	13
7	9752	Gosavi Prarthana	3	4	3	10
8	9753	Kanhe Sneha	5	4	3	12
10	9754	Magare Ashwini	4	4	3	11
9	9755	Nagarale Jaai	4	3	4	11
11	9756	Shetty Megha	5	5	4	14



CO attainment  
Example

L.P. Patil  
(Dr. L.P. Patil)  
Subject Teacher

L.P. Patil  
(Dr. L.P. Patil)  
Head  
Dept. of Microbiology  
H.P.T. Arts & R.Y.K. Sci. College  
NASHIK-422 005

Sr. No.	Seat Nos.	Name	CO1 Q.1(5)	CO3 Q.2(5)	CO4 Q.3(5)	out of 15
1	9746	Bhalerao Prajкта	5	4	3	12
3	9747	Charose Hrutuja	4	5	3	12
2	9748	Chauk Prachiti	3	4	3	10
4	9749	Dandgaval Arya	5	4	2	11
5	9750	Gangurde Diksha	5	4	4	13
6	9751	Gangurde Rucha	4	5	4	13
7	9752	Gosavi Prarthana	3	4	3	10
8	9753	Kanhe Sneha	5	4	3	12
10	9754	Magare Ashwini	4	4	3	11
9	9755	Nagarale Jaai	4	3	4	11
11	9756	Shetty Megha	5	5	4	14
Total			47	46	36	
Average			4.27	4.18	3.27	
Criteria 60%			11	11	10	
Scale 3			3	3	2.7	
			Fully aligned	Fully aligned	Fully aligned	

Action Taken: The teacher can continue teaching this paper with the same methodology.

L.P. Patil  
(Dr. L.P. Patil)  
Subject Teacher



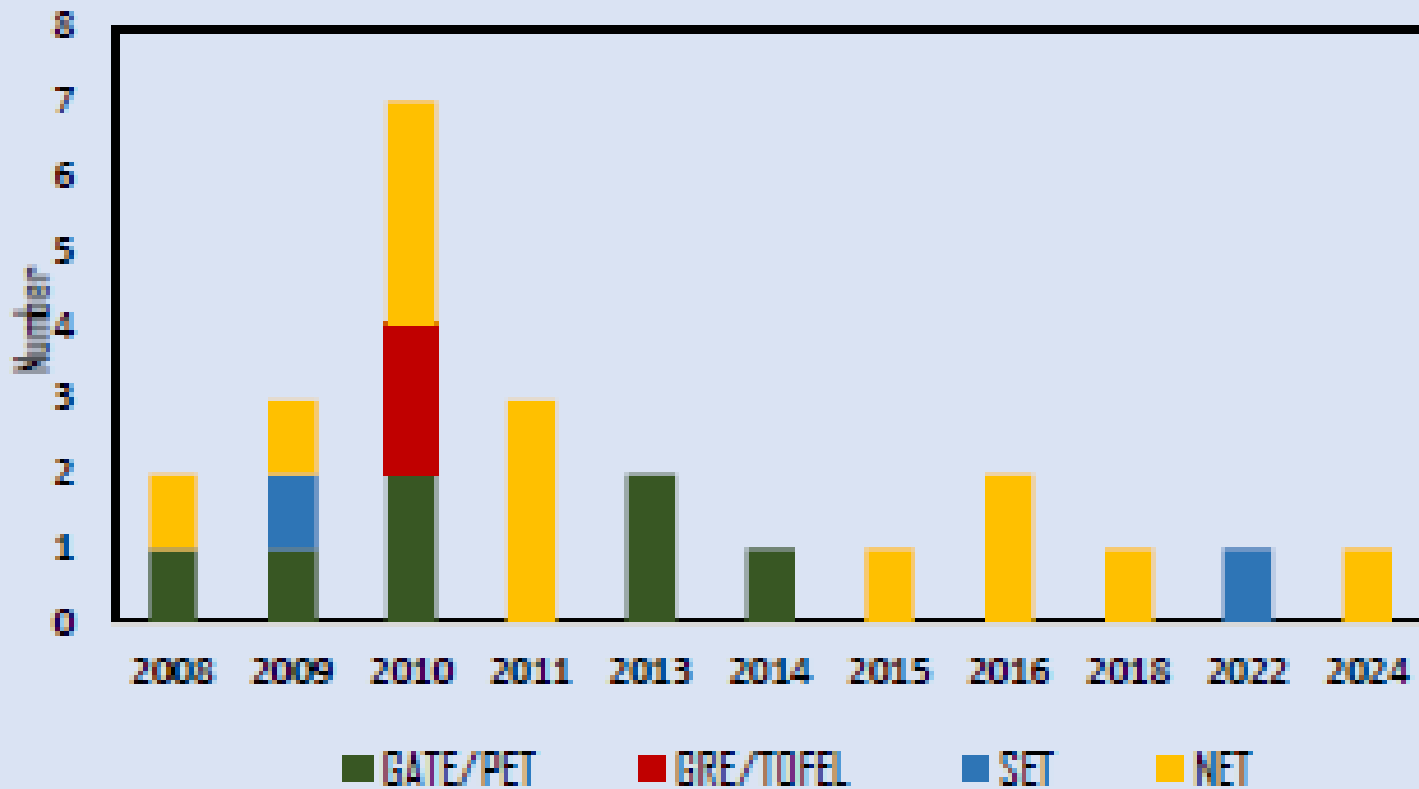
College Stamp

L.P. Patil  
(Dr. L.P. Patil)  
Head of the Department  
Head  
Department of Microbiology  
H.P.T. Arts & R.Y.K. Sci. College  
NASHIK-422 005

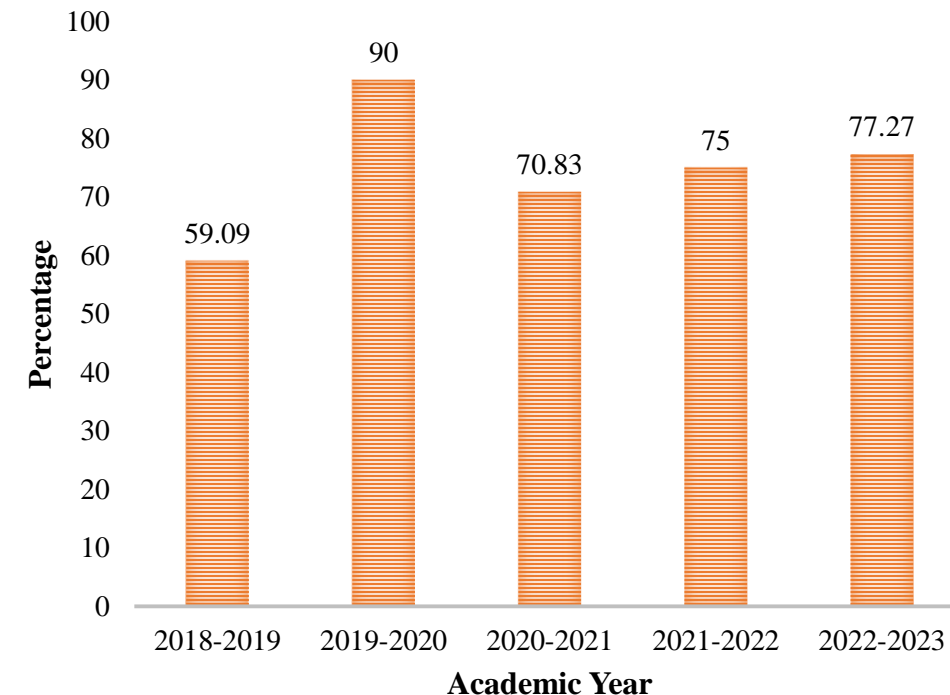


# Department of Microbiology

## Students' Academic Achievements



## PERCENT PLACEMENT



***B.Sc. = 100 % Students went for Higher Studies (M.Sc., MBA)***  
***M.Sc. = 3 Students are pursuing Ph.D.***



# Department of Microbiology

## SECTORWISE PLACEMENT

- *Paterl's Metropole Lab*
- *Datar Genetics*
- *Suprem Diagnostic*

Diagnostics Laboratory  
29%

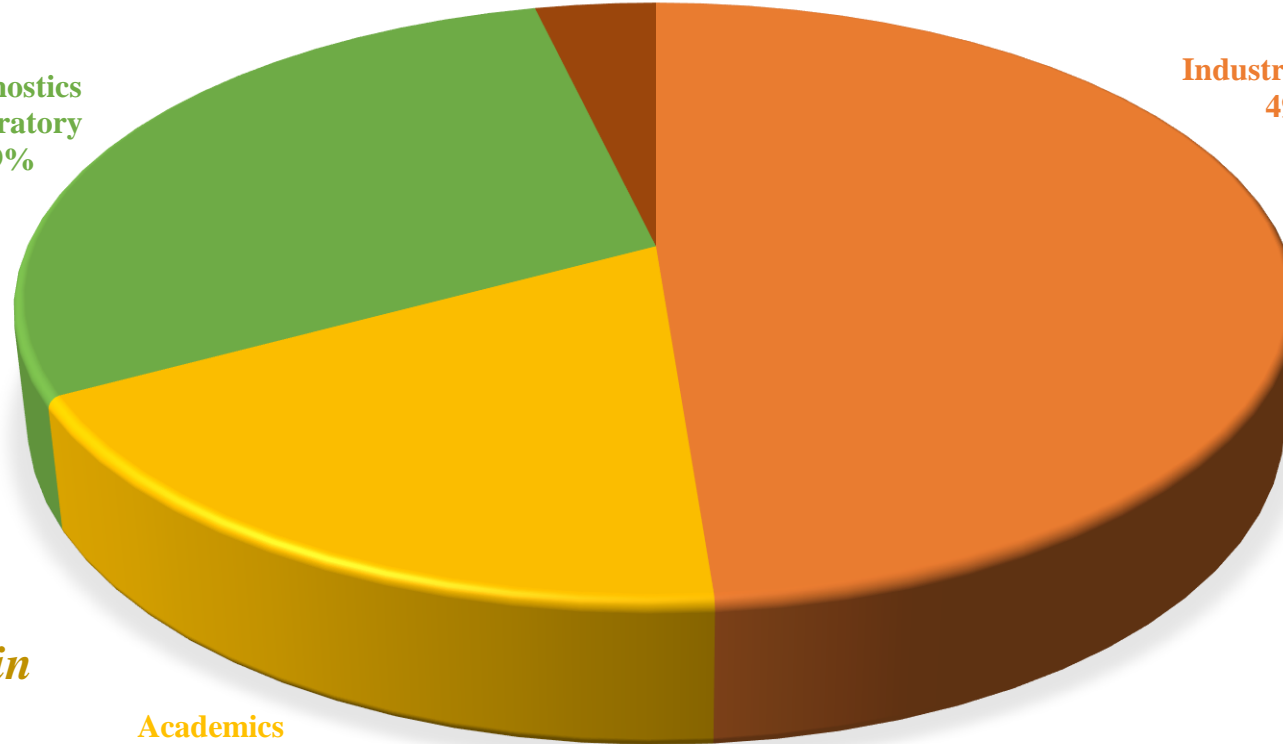
*SPPU Affiliated Senior Colleges in Maharashtra*

Academics  
18%

Research/Higher Study  
4%

Industrial Sector  
49%

- *Relience Life Science*
- *Serum Institute*
- *Sula Vinyard*
- *Vital Health Care*
- *Sonukul Agroindustry*
- *Advance Enzymes*
- *Tojovikas International PVT LTD*







# Department of Microbiology

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- S. Y. B.Sc. Student Ms. Samrudhi Pawar got selected for Summer Internship at centre for Life Sciences, Mahindra University, Hyderabad with free accommodation facility and travel allowance
- S.Y.B.Sc. Student Ms. Roshani Patil selected for summer research fellowship stipend 1000/- per week at Amity University, Noida
- Ms. Jayshree Patil M.Sc. Part 1 qualified CSIR-NET exam for Ph.D. only conducted in December 2024.
- Ms. Vrushali Khadtale M.Sc. Part 2 qualified GATE exam conducted in February 2024.
- Mr. Shreyas Kapure M.Sc. Part 2, received “PanvHAVATI Gaurav Purskar” at Sarvajanic Vachnalay for his achievement in National level Microolympiad, 2025, Essay Competition.



# Department of Microbiology

## Students Encouragement by felicitating them for their achievements



Best Student award from MBSI Unit



- Shri Laxminarayan Rathi Bahuudeshiya Seva Society, Scholarship Award for 1<sup>st</sup> Rank in M.Sc. Microbiology **cash 5000/-**
- Rajanikant Gad **prize cash 1000/-**
- Late Mrs. Sharayu Shouche **Prize cash 1000/-**



Nashik, Maharashtra, India  
2Q45+7RH, Krishi Nagar, Nashik, Maharashtra 422005, India  
Lat 20.00569°  
Long 73.759646°  
24/02/23 02:07 PM GMT +05:30





*Every Year Student's participation in State Level Microbiolympiad organized by R.C. Patel College Shirpur*





# Department of Microbiology



**Compound Microscope  
Donation by Ms.  
Salonee Parashare**

## Books Donation

Alumni donating  
books to the  
institution

Books Donation by : 120

1. Prithish Kulkarni
2. Prashant Dashpute
3. Vrushali Lawar
4. Aditi Patil
5. Neha Joshi
6. Manjiri Gujrathi
7. Rupali Badgajar

## Invited Lectures

Alumni sharing  
knowledge through  
lectures

## Alumni Contributions Overview

1. Poonam Kanojiya (South Africa)
2. Kimaya Bomblay (Mumbai)
3. Apurva Sabnis (Estonia)
4. Vinayaki Pillai (US)
5. Snehal Ubale (Nashik)
6. Salman Shaikh (Bhiwandi)
7. Nikhil Bharambe (Singapore)
8. Aishavarya Pathak (Bangalore)
9. Sai Kulkarni (US)
10. Kalpesh Vidhate (Pune)



# Department of Microbiology



***Department has conducted 1 credit Certificate course on Bio-curation and Bio active indexing with expertise of Ms. Ruchita Panchbhai , our Alumni, for M.Sc. Part 2 Studnets***





*Every year faculty of Department Is involved inter college activity such as Conducting Basic Microbiology of Practicals for Second year B.Sc. Students of Nursing College of G. E. Society Nashik.*



*Every year faculty of Department Is involved inter college activity such as Conducting Basic Microbiology of Practicals for home science Nutrition and Dietetics food microbiology of SMRK College of G. E. Society Nashik.*



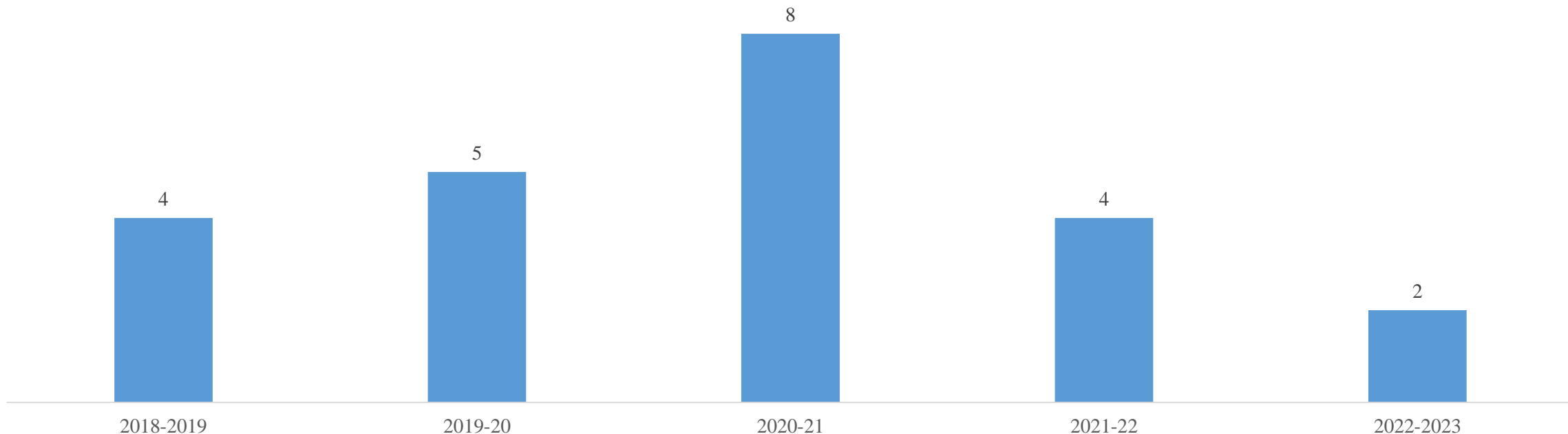




# Department of Microbiology

## Research Publications by Faculty members in Research journals and Book chapters (Total -23)

Research Publications



- **57 M.Sc. Dissertation Projects completed from 2018 till date.**



# Department of Microbiology

## MoUs: 03

- Jai Biotech Industries, Nashik
- Ashwamedh Engineers and consultants, Nashik
- Asean Agrotechnologies, Nashik

**On Job Training at Asean Agrotechnologis, Nashik.**





# Department of Microbiology

## Contribution to Institutional Development

### **Curriculum Development (SPPU BoS Members)**

1. Dr. Leena Pathak, Microbiology, BOS Member,
2. Dr. Jayshree Baviskar, Microbiology, BOS Member, R. B. N. Borwade Autonomous College, Srirampur

### **Revenue Generation**

1. Consultancy- Consultancy for EPCOS – TDK, Nashik, Shweta package Pvt. Ltd, MIDC, Malegaon, Nashik.
2. Sale of Microbial Culture





- All faculty of Microbiology is Member of “Microbiology Society of India”
- Département hosted State Level seminar “Frontiers in Microbiology” & “Annual Microbiologist Meet” in October 2018

***State Level seminar “Frontiers in Microbiology” and “Annual Microbiologist Meet” in collaboration of Ashwamedh Engineers and Consultant, Nashik.***



# Department of Microbiology

## Conferences organized

Date	Title	Objective
<b>1<sup>st</sup> &amp; 2<sup>nd</sup> February 2020</b>	<b>Analytical techniques and opportunities in Life Sciences</b>	To establish the background for projects that utilizes specific analytical techniques to address a life science question and explore its implications for future opportunities.





1. Inauguration at the hands of Sir Dr. M. S. Gosavi Sir  
 3. Poster Presentation by participants  
 5. Prize Distribution

2. Lecture by Dr. R. L. Deopurkar  
 4. Participants Interaction  
 6. Valedictory Function





# Department of Microbiology

- Department has successfully implemented NEP2020 pattern for Post graduate course.
- Department has conducted syllabus framing workshop for M.Sc. Part 1 Microbiology NEP 2020 pattern to be implemented in 2023-2024.
- All faculty members actively participation in organising and conducting Workshop.



**One day workshop on Syllabus restructuring of M.Sc. Microbiology ( As per NEP 2020) jointly organised by BOS Microbiology, SPPU and HPT Arts and RYK Science college, Nashik.**






# Department of Microbiology



## Outreach Activities

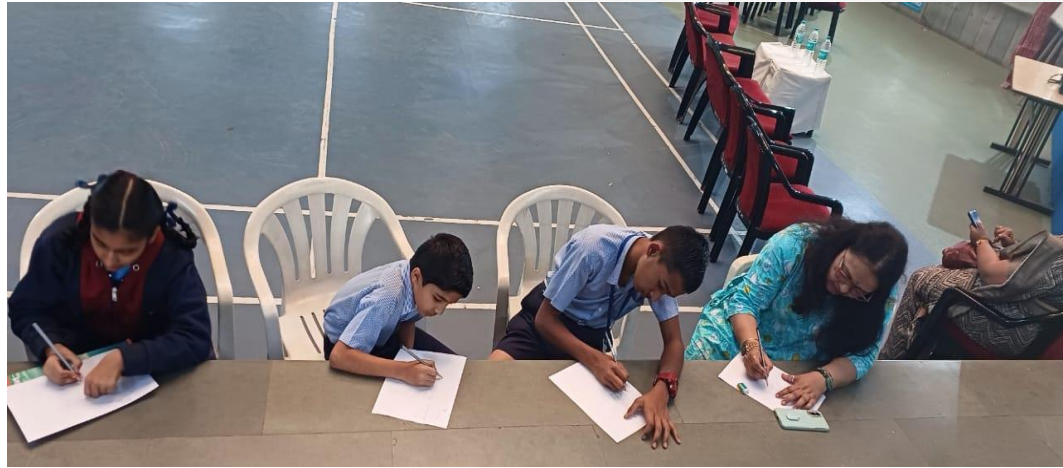


- 
1. Blood Donation
  2. Covid Warriors (7 Students)
  3. Thalassemia Awareness



# Department of Microbiology

## Outreach Activities



Warli Painting Workshop, a key segment of the NMC Interschool Competition, organized as a part of Spandan Day. Conducted by Dr. Swati Bhavsar

**मायक्रोबायोलॉजिस्ट्स सोसायटी, इंडिया**

डॉ. स्वाती भावसार यांनी **Campylobacter Jejuni** या विषयावर पी एचडी केले आहे, त्यांच्याशी चर्चा करणार आहोत

डॉ. स्वाती भावसार  
मायक्रोबायोलॉजी विभाग,  
आर.वाय.के. कॉलेज, नाशिक

९ फेब्रुवारी २०२५  
रविवार  
दुपारी ४ वाजता

संयोजक

डॉ. अरविंद देशमुख,  
अध्यक्ष  
मायक्रोबायोलॉजिस्ट्स सोसायटी, इंडिया

अपर्णा होनखांबे,  
समन्वयक,  
मायक्रोबायोलॉजिस्ट्स सोसायटी, इंडिया

[www.microbiosociety.com](http://www.microbiosociety.com)

Awareness-Campylobacteriosis and Guillain Barre Syndrome: Related Precautionary care and Measures. By Dr. Swati Bhavsar



Blood Donation By Prof. Sameer Joshi



Outreach for subject awareness / importance; Participation in socially relevant activities.

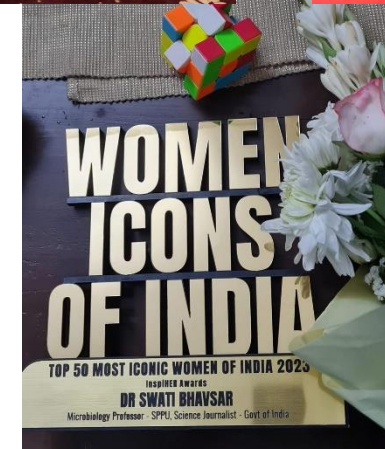
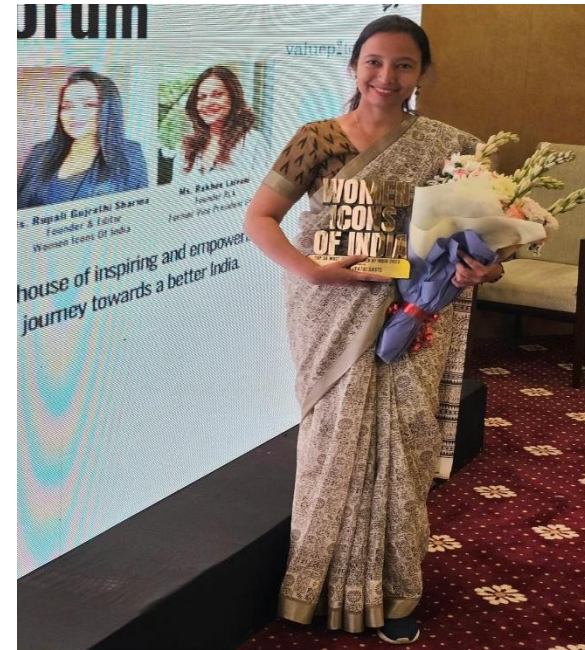




# Department of Microbiology

## Awards & Recognition Received By Dr. Swati Bhavsar For Her Outreach Activities (Covid Warrior)

1. **‘Women Icons of India’** recognition awarded by A global digitalized Magazine, acknowledged the contribution to the society Hon. Rekha Sharma mam, chairperson, National Commission of Women, Delhi, Govt. of India on 02.12.2023.
2. **‘Scientist Who Embraced Uncertainty’** recognition by BioPatrika” a digital platform, acknowledged the contribution to the science on 01.10.2022
3. **क्रांती ज्योती सावित्रीबाई फुले जयंती सत्कार सोहळा, महाराष्ट्र राज्य पोलिस** On 3rd January 2024, Award and Felicitation of Dr.Prof.Swati Bhavsar for social outreach and extraordinary activities in the graceful presence of Mr. Sandeep Karnik, Commissioner of Police- Nasik, Smt. Ashima Mittal, IAS, Dy Commissioner NMC Nashik, Smt. Monica Raut, DCP Nashik.





# Department of Microbiology



## Dr. Leena Pathak Received 2 awards

1. Research Excellence Award
2. First Prize in paper Presentation in Three Days International Virtual Conference.

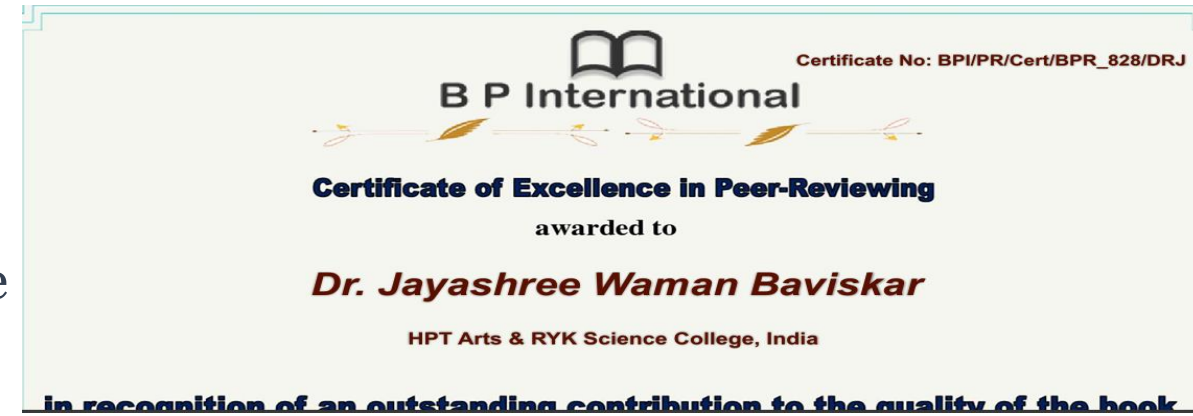




# Department of Microbiology

Dr. Jayashree Baviskar :-

- Received BARTI fellowship (JRF)
- Worked as **Reviewer** for Journals Such as
- Journal of advances in Microbiology
- International Journal of Environment and Climate change (2023)
- B P International Book Peer reviewing



**International Journal of Environment and Climate Change**

(Indexing: Ebsco, Proquest, Index Copernicus, Google Scholar, NAAS - 5.13 (2022))

**2023**

Certificate No: SDI/HQ/PR/Cert/104515/JAY

**International Journal of Environment and Climate Change**

(Indexing: Ebsco, Proquest, Index Copernicus, Google Scholar, NAAS - 5.13 (2022))

**2023**

Certificate No: SDI/HQ/PR/Cert/99170/DRJ

**Certificate of Excellence in Reviewing**

awarded to

**Dr. Jayashree W. Baviskar**

H.P.T & R.Y.K College, Nasik

**Journal of Advances in Microbiology**

**2021**

Certificate No: SDI/HQ/PR/Cert/73969/JAY

**Certificate of Excellence in Reviewing**

awarded to

**Dr. JAYASHREE WAMAN BAVISKAR**

MICROBIOLOGY, SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE, INDIA



# Department of Microbiology

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## Best Practices

- Weekly Seminar by Students on research papers/topics
- Department runs Mentor Mentee Systems
- Micro-fest
- Microflix

## Future Goals

- Upgradation/ Procurement of advanced instruments for research
- Certificate courses in Microbiology
- Research Centre
- Get patents in future
- Establishment of Bacterial culture centre
- Increasing Number of Linkages with industries and institutes





# Department of Microbiology

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*Thank you*

