



ANDHRA UNIVERSITY

ఆంధ్ర విశ్వకళా పరిషత్

Accredited by NAAC with Score 3.60, ISO 9001:2015 Certified

Welcome to NAAC Peer Team

**Our Journey to Excellence:
Microbiology Dept.**



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Overview

1. Governance and leadership
2. Infrastructure and learning resources
3. Curricular aspects
4. Teaching-learning and evaluation
5. Research, consultancy, and extension
6. Student support and progression
7. Institutional Values and Best Practices





MICROBIOLOGY DEPT.

VISION

- To develop state-of-the-art laboratories to train students in the latest scientific technologies and enable them to excel in research, ultimately with the goals of improving human health and preparing the next generation of biomedical research scientists.

MISSION

- The Department aims to continuously upgrade and disseminate scientific knowledge, creating and developing highly adaptable skills required to manage the academia-industry interface.



Scope of Microbiology

- Microbiology is a broad and important field of study that plays a vital role in human health, the environment, and the economy.
- Microbiology extends to various fields:
 - *Pharmaceutical industries*
 - *Agriculture*
 - *Medicine*
 - *Food and dairy industries*
 - *Clinical research*



SOCIAL CONCERN

The syllabus has been meticulously designed, considering the need for gender, human values, environment and sustainability



Social Values

Gender and Microbiology

- This course would explore the intersection of gender and microbiology, including topics such as the microbiology of the reproductive tract, **sexually transmitted infections, gender disparities in access to healthcare and education**, and the role of women in microbiological research.

Environmental Microbiology

- This course would cover the role of microorganisms in the environment, including topics such as **bioremediation, climate change, sustainable energy and agriculture**, and the risks and benefits of using microorganisms in environmental biotechnology.

Microbiology for Sustainability

- This course would focus on the use of microorganisms to promote sustainability, including topics such as sustainable **food production, waste management and recycling, soil health, and the development of sustainable biofuels and other microbial products**.



1. Governance and leadership (HODs)

provides a framework for managing organizations.



Prof. T. Govardhan Reddi

1999-2002



Prof. G. Seshagiri Rao

2002-2005



Prof. G. Subbah Rangaiah

2005-2010



Prof. KPJ Hemalatha

2010-2016

PAST

ONGOING



Prof P Ratana Kumar

2016-2018



Prof V. Lakshmi Kalpana

2018-2019



Prof. Sudhakar

2022-2023



Prof. V Lakshmi

2019-2022

2023-Till Date



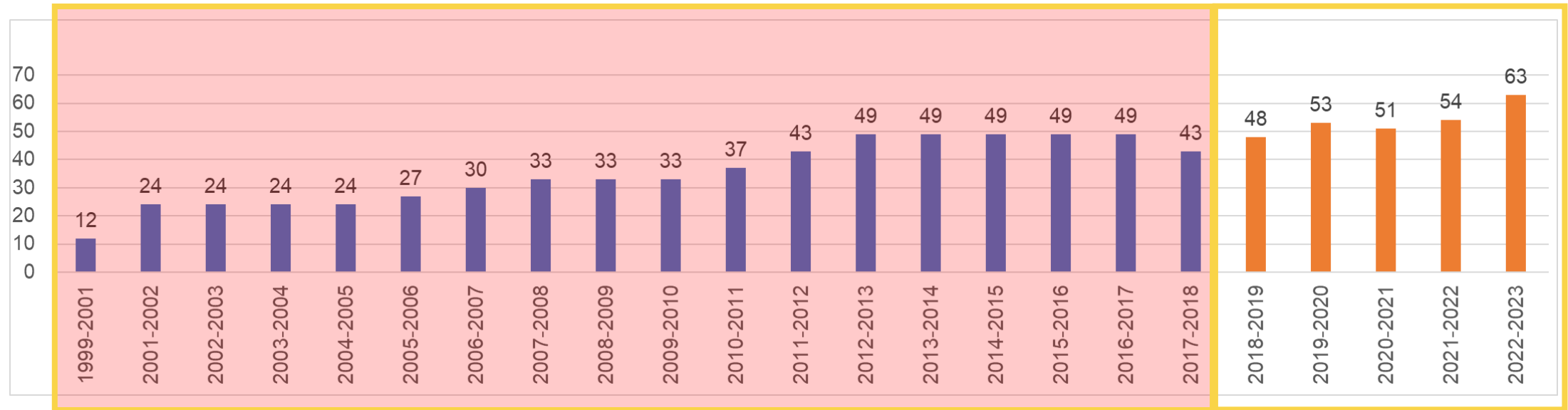
Programs Offered

- Master of Science in Microbiology (M.Sc.)
 - Since 1999
- Doctor of Philosophy in Microbiology(Ph.D.)
 - Since 2013

https://www.andhrauniversity.edu.in/syllabus/new/1.2.1_M.Sc_Micro_20-21_Syllabus.pdf



MSc STUDENTS ENROLLMENT



As Per SSR, Last 5 Years details are Highlighted here.



Student's Demand Ratio

Program	Year	Applications received	Students Selected	Demand Ratio
M.Sc. Microbiology	2017-18	3169	42	1:85
	2018-19	3448	49	1:73
	2019-20	3690	52	1:69
	2020-21	3291	50	1:72
	2021-22	3290	56	1:72



Student Strength

YEAR	GEN	BC	SC	ST	INT'NL	TOT
2017-2018	10	20	9	3	-	43
2018-2019	12	21	6	1	6	48
2019-2020	14	29	6	2	-	53
2020-2021	15	25	7	3	-	51
2021-2022	19	22	8	3	-	54
2022-2023	15	28	11	4	4	63
TOTAL	85	145	47	16	10	303

Students Diversity

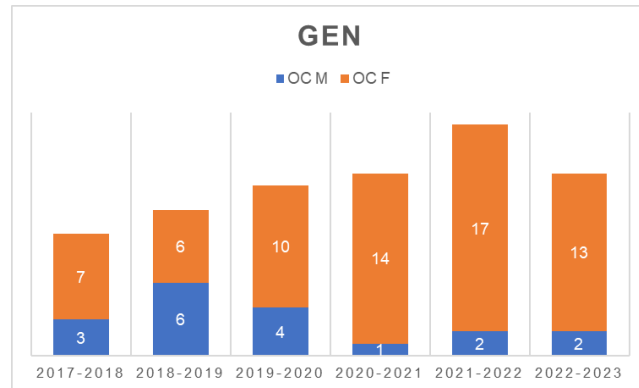


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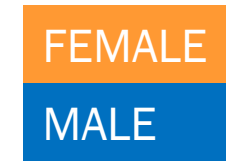
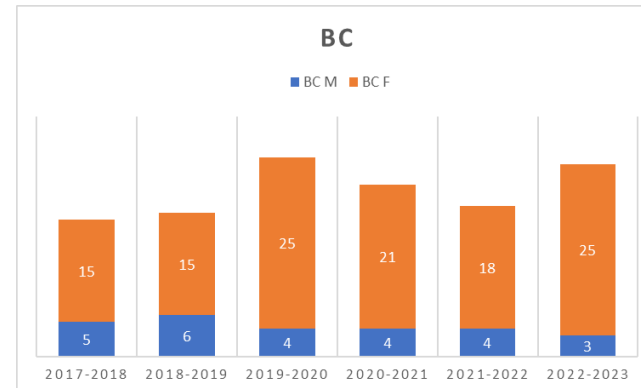
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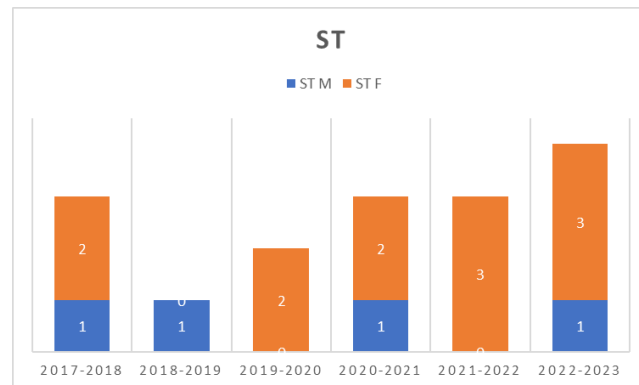
GEN-85



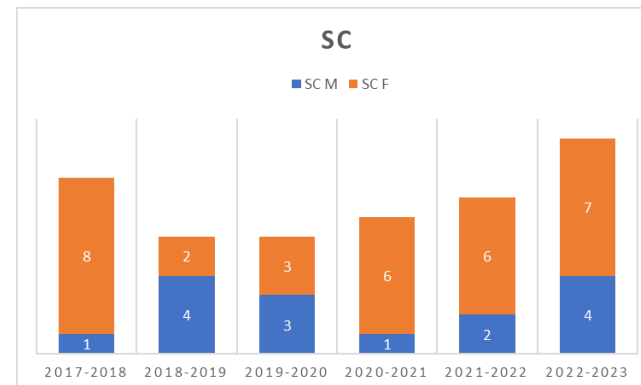
BC-145



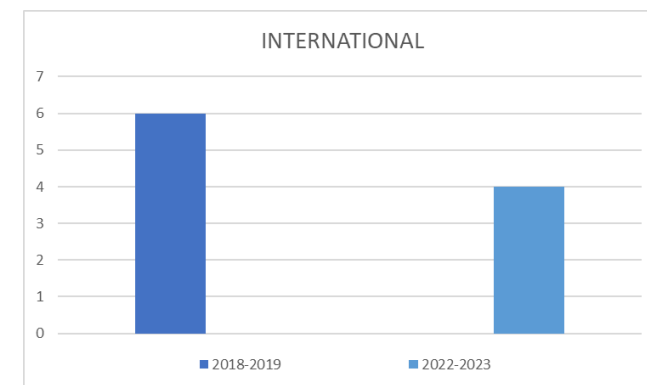
ST-16



SC-47



INTERNATIONAL -10





2. Infrastructure and learning resources

Infrastructure

- Lab Fermenter-1
- BOD Incubator-1
- Autoclave -4
- Microscopes -20
- Refrigerator- 3
- Freezer (-20C) -1
- PCR Machine- 1
- Transilluminator-1
- Electrophoresis-2
- Hot air Oven-3
- Bio safety cabinet-2

BOD INCUBATOR



Physical facilities

- Library – 300 books
- Drinking Water facility
- Ladies Rest Room
- Ramp for Physically challenger

MICROSCOPES



PCR MACHINE



Learning Resources

- LCD Projectors and Smart Screens
- Integrated Library Management System (ILMS)
- books/ e-books and subscription to journals/e-journal

BOOKS/JOURNALS





Infrastructures

Classroom



Library

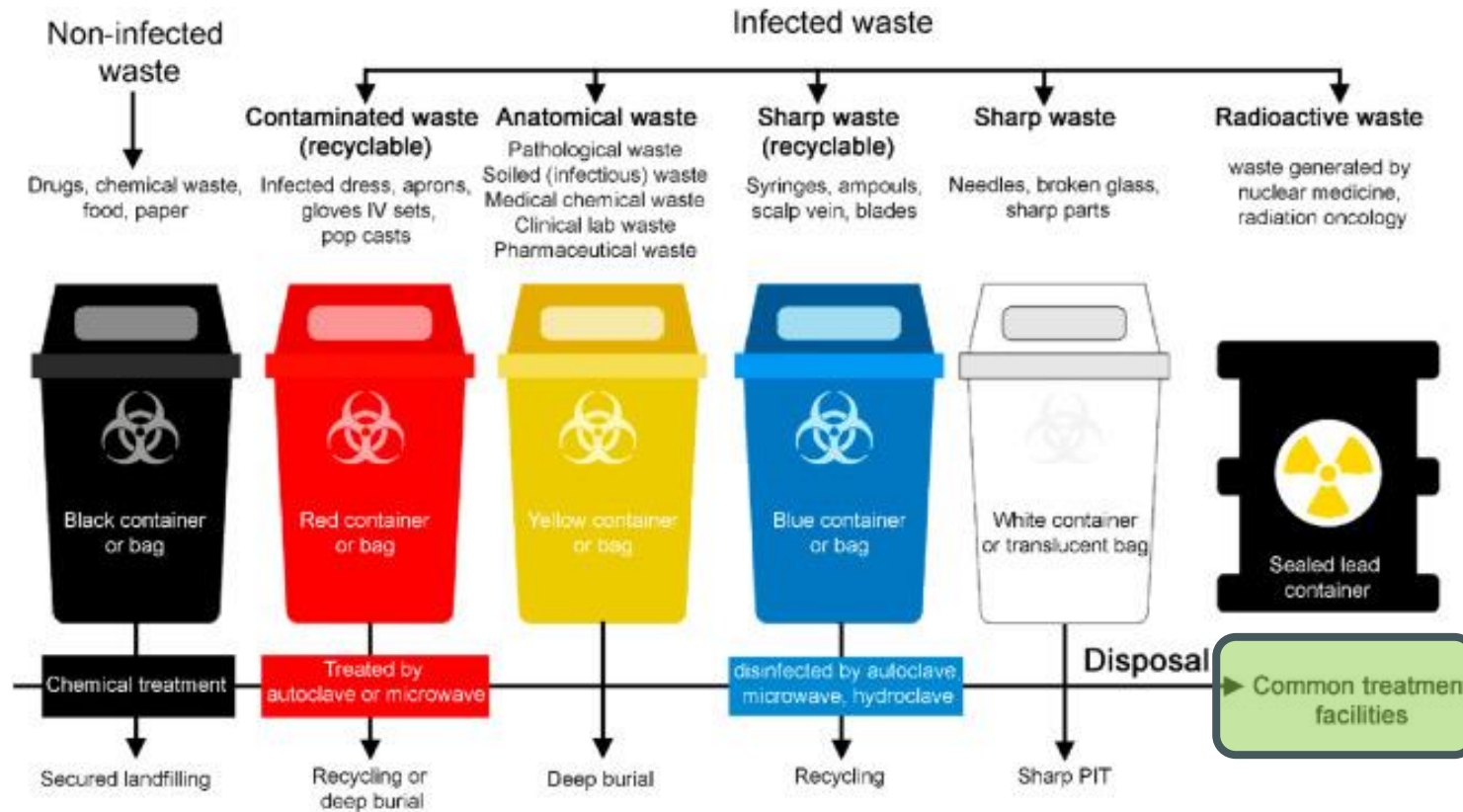


Laboratory





Microbiology Lab: Waste Management

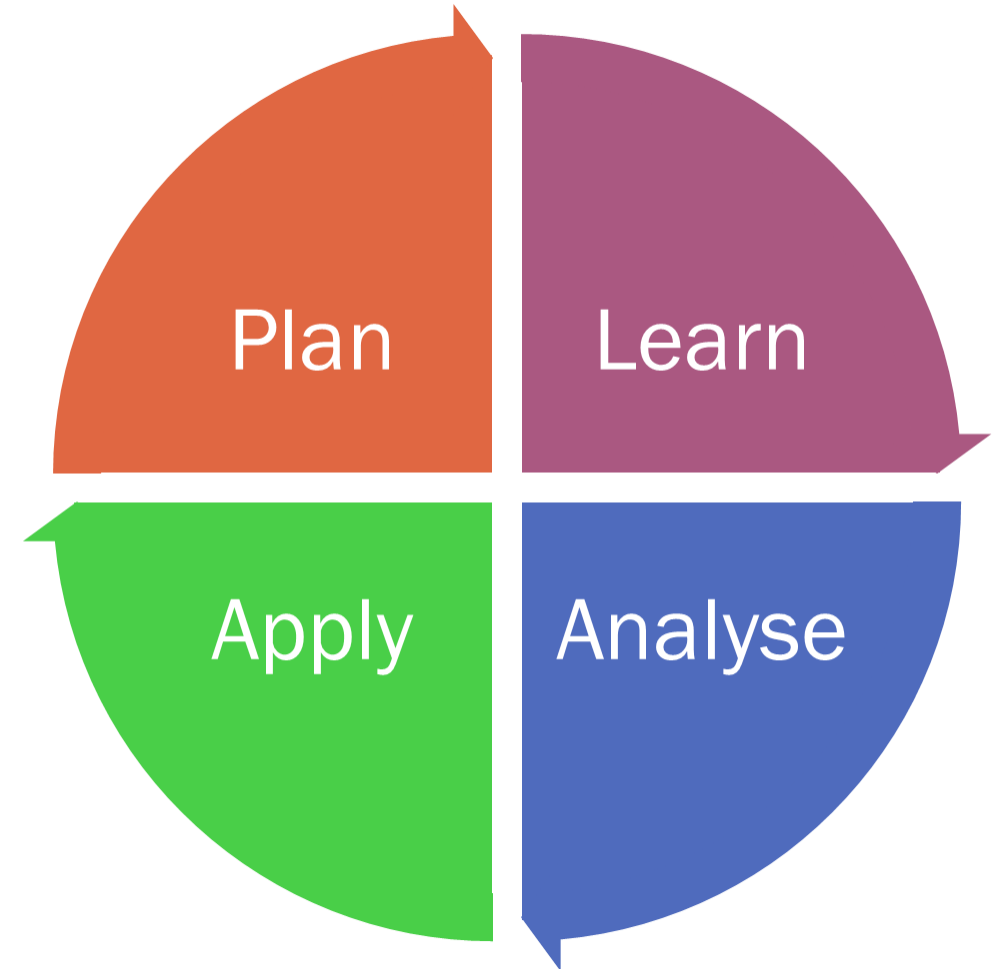




3. Curricular aspects

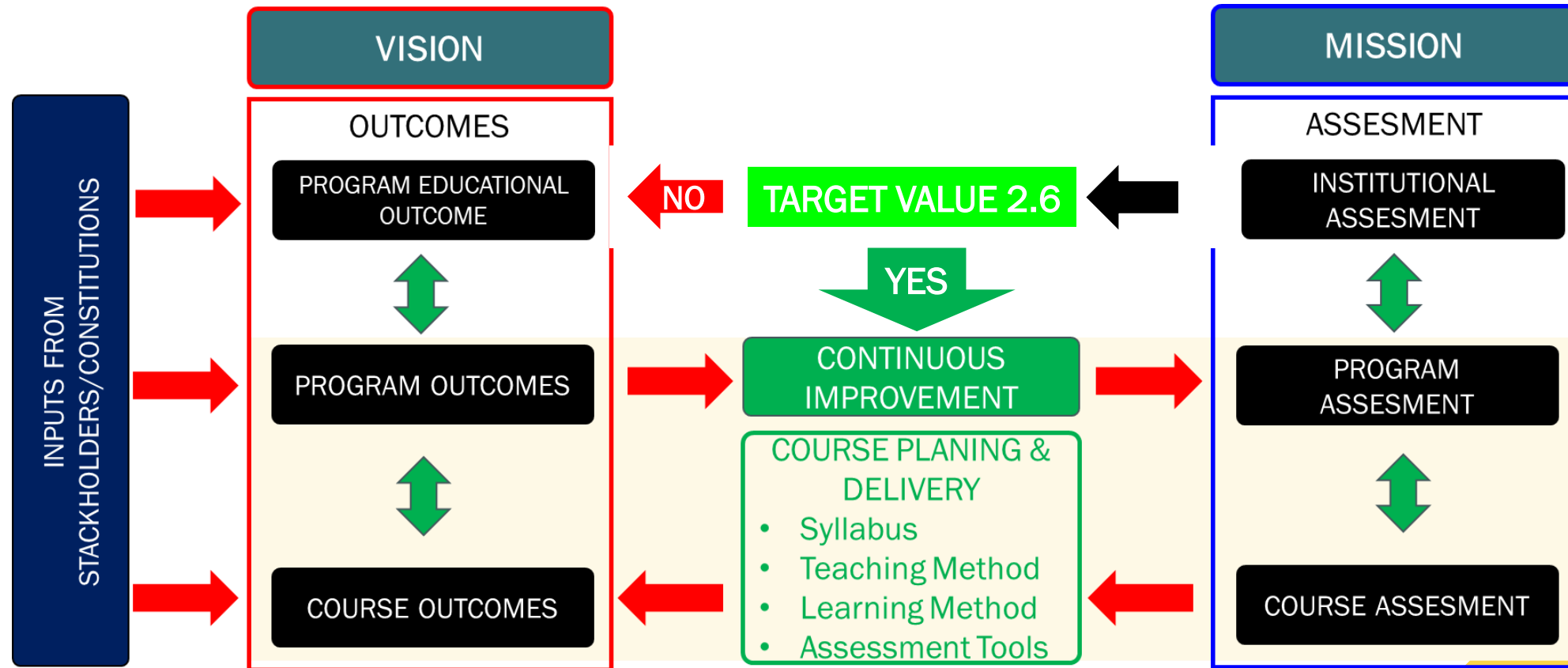
Outcome Based Education (OBE)

- **PLAN:** What do you want the students to have or be able to do?
- **LEARN:** How can you best help students achieve it?
- **ANALYSE:** How will you know what they have achieved it?
- **APPLY:** How do you close the loop?





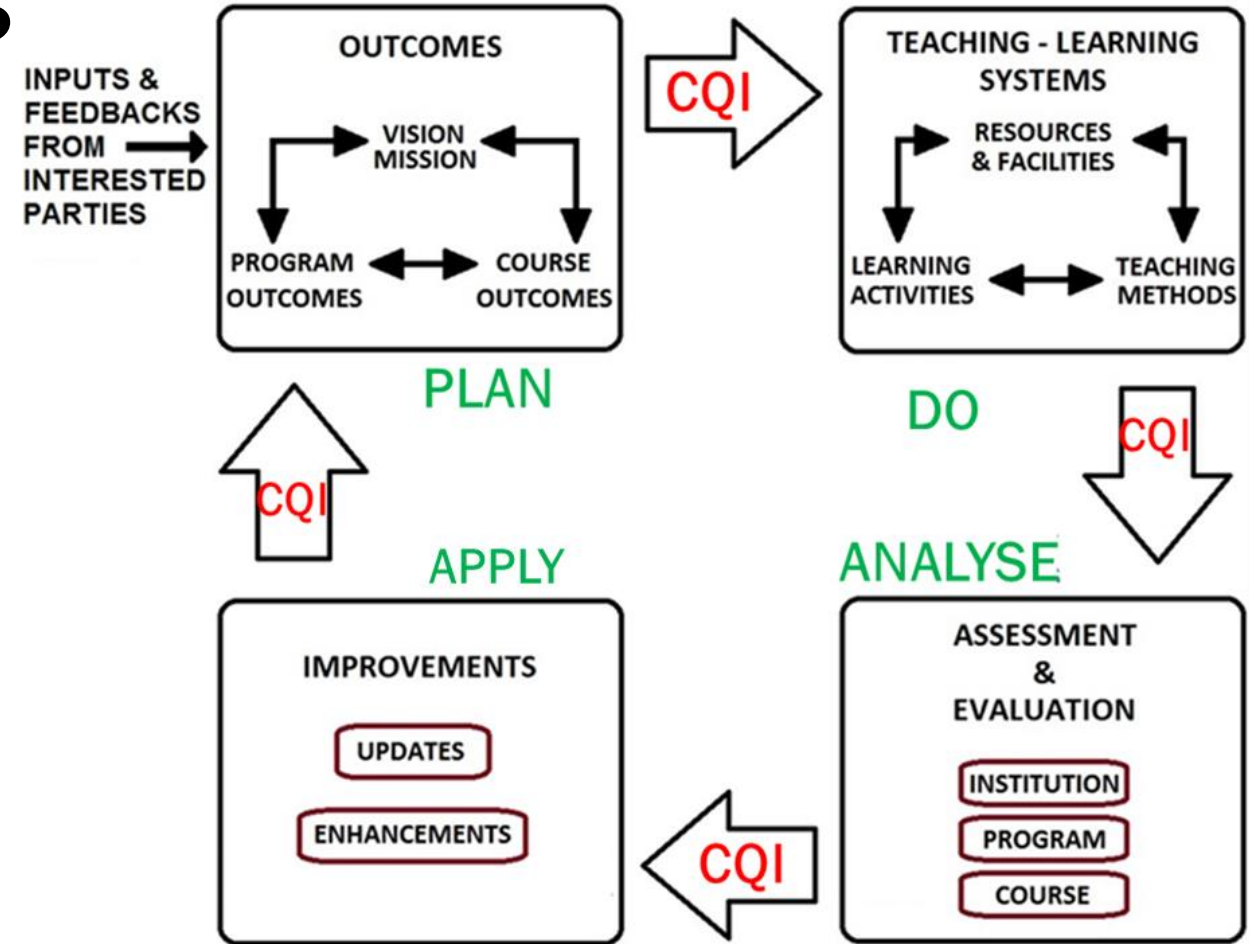
Outcome-Based Education Framework





4. Teaching-learning and evaluation

- PROGRAM OUTCOMES
- COURSE OUTCOMES



*Continuous Quality Improvement

Program Outcomes

PROGRAM OUTCOMES 1

To provide students with training in basic and advanced areas of Microbiology, focusing on the recent trends in the discipline, with particular emphasis on practical aspects.

PROGRAM OUTCOMES 2

To foster scholarly progression and intellectual development within the program, grooming students for excellence.

PROGRAM OUTCOMES 3

To incorporate the latest advances in Microbiology by organizing conferences, symposia, workshops, and webinars.

PROGRAM OUTCOMES 4

To promote talent and personality development, boosting self-confidence and self-reliance in students to help them achieve their goals.

PROGRAM OUTCOMES 5

To instill moral values and professional ethics in students, guiding them to become responsible individuals for a better society.



Course Outcomes

COURSE OUTCOMES 1

Students will become familiar with various microbiological methods and analytical techniques, enabling them to pursue higher education.

COURSE OUTCOMES 2

Laboratory training for students will empower them to pursue careers in research institutions and pharmaceutical industries.

COURSE OUTCOMES 3

Students will develop knowledge in a specialized area of Microbiology, based on research experience from a master's project and international literature.

COURSE OUTCOMES 4

Students will gain profound insights into a wide range of microorganisms, their metabolism, and industrial applications.

COURSE OUTCOMES 5

The Master's degree in microbiology will address the increasing demand for skilled scientific professionals with a deep understanding of global research applications in the field of basic and applied Microbiology.





PO Attainment Calculation

Copy of Micro PHYSICAL FINAL REPORT 20-22 philip [Compatibility Mode] - Excel

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Clipboard Font Alignment Number Styles Cells Editing Add-ins

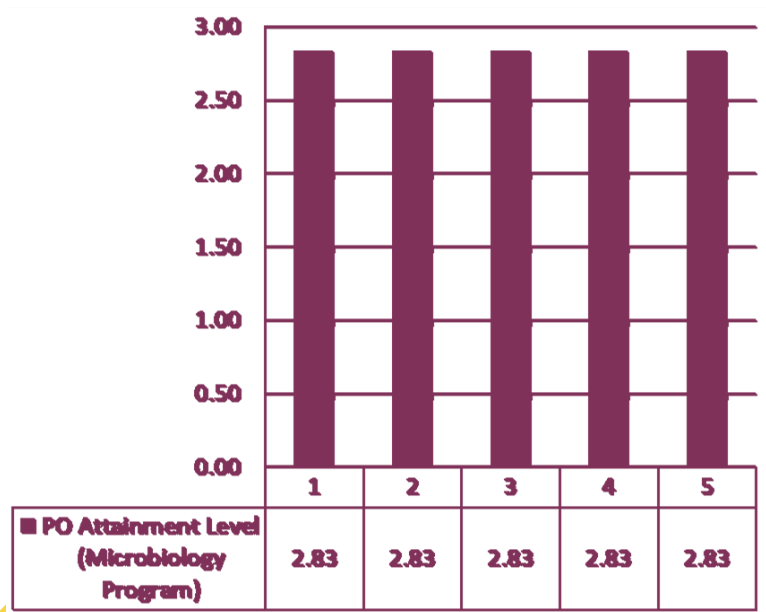
J14

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V			
1						PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO Attainment Level of a course											
2	S. No.	Semester	Name of the Course	CO	Overall CO Attainment Level	CO-PO Mapping Levels: 1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), put -: No Correlation								PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8				
3	1	I	General Microbiology	CO1	3	2.8	2.8	2.8	2.8	2.8					3	3	3	3	3	0	0	0			
4				CO2	3	2.8	2.8	2.8	2.8	2.8															
5				CO3	3	2.8	2.8	2.8	2.8	2.8	2.8														
6				CO4	3	2.8	2.8	2.8	2.8	2.8	2.8														
7				CO5	3	2.8	2.8	2.8	2.8	2.8	2.8					CO average	2.8	2.8	2.8	2.8	2.8	0	0	0	
9	2	I	Virology	CO1	3	2.6	2.6	2.6	2.6	2.6					3	3	3	3	3	0	0	0			
10				CO2	3	2.6	2.6	2.6	2.6	2.6															
11				CO3	3	2.6	2.6	2.6	2.6	2.6	2.6														
12				CO4	3	2.6	2.6	2.6	2.6	2.6	2.6														
13				CO5	3	2.6	2.6	2.6	2.6	2.6	2.6					CO average	2.6	2.6	2.6	2.6	2.6	0	0	0	

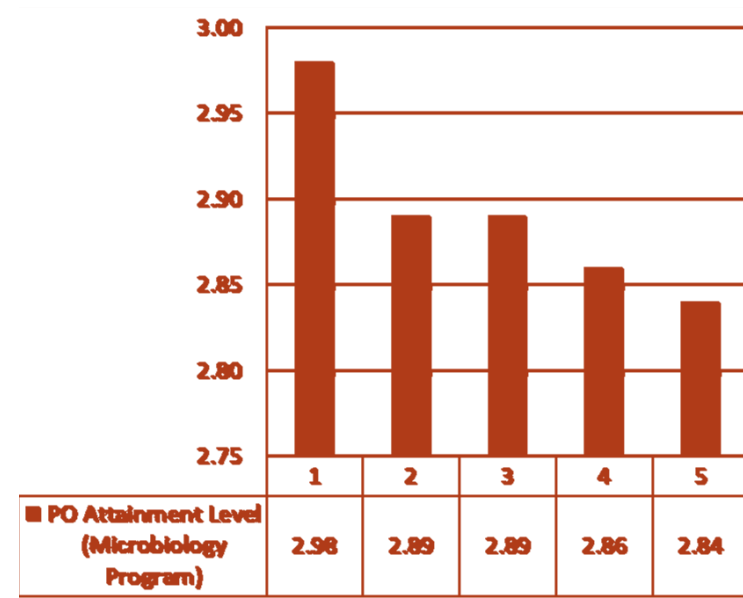


PO Attainment of Program

M.Sc. (Microbiology): 2020-2022



M.Sc. (Microbiology): 2021-2023





Special Program for Slow and Advanced Learners

	Slow learners	Fast learners
1	Peer-assisted Teaching (revision)	Workshops
2	Informal Interactions and Mentorship	Seminars
3	Resource Distribution	Career Counselling
4	Regular Monitoring	Competitive exams
5	Remedial Classes	NPTEL, ICT-YouTube, MOOCS*



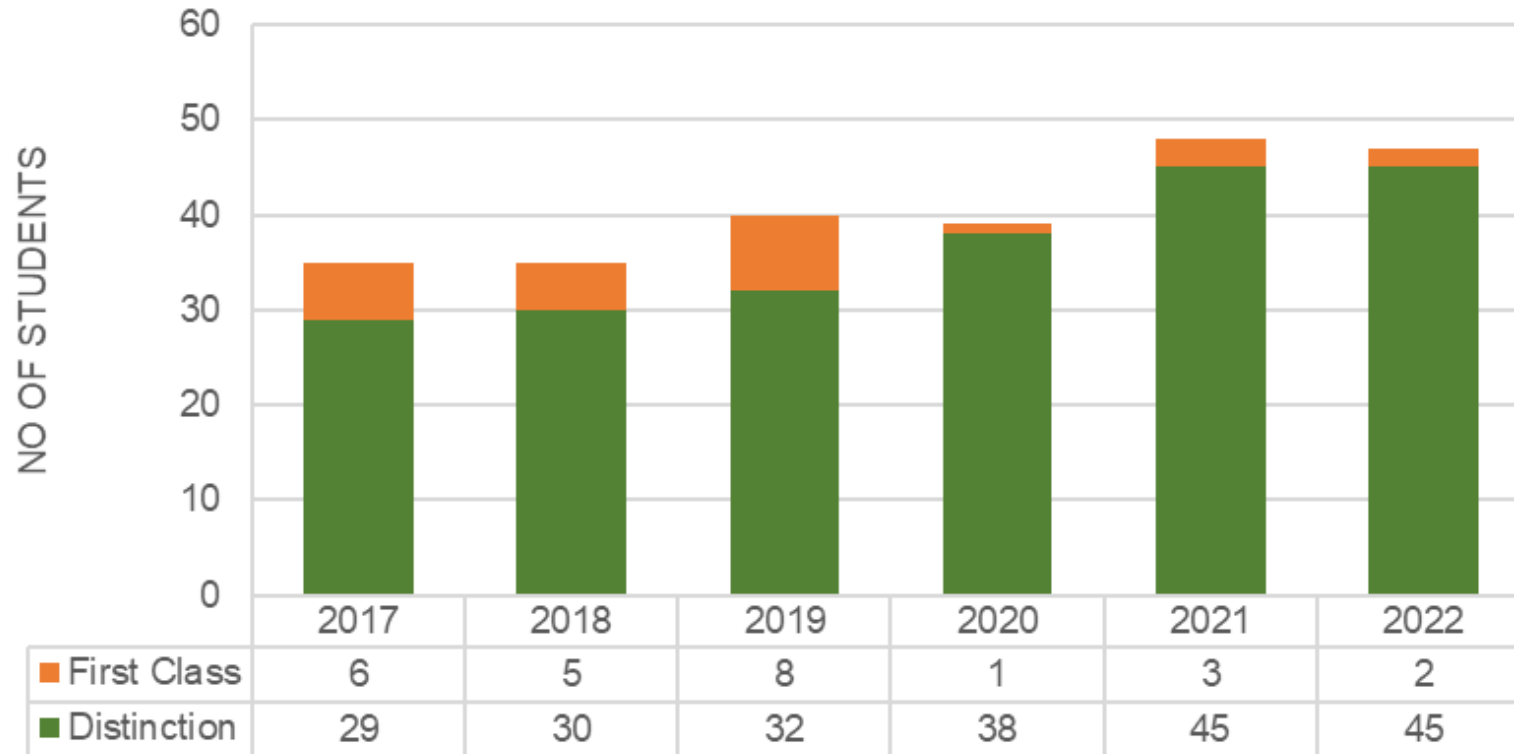
Identification of Slow and Advanced Learners

Year	Slow Learners	Fast Learners
2017-2019	6	5
2018-2020	1	5
2019-2021	Nil	5
2020-2022	1	5
2021-2023	4	-
Evidence of Success (Outcomes)	Better performance in every semesters.	Increased CENTUM RESULTS with university toppers.



Results analysis/Pass Percentage

STUDENT'S RESULTS ANALYSIS



S.No	Year	Total	Distinction	1 st Class	Pass %
1.	2017	37	29	6	100%
2.	2018	42	30	5	100%
3.	2019	42	32	8	100%
4.	2020	49	38	1	100%
5.	2021	52	45	3	100%
6.	2022	50	45	2	100%



Courses with value added programs

EMPLOYABILITY

- Pharmaceutical Microbiology,
- Environmental Microbiology,
- Food Microbiology
- Agriculture Microbiology

SKILL DEVELOPMENT

- Molecular Biotechnology,
- Analytical Techniques,
- Bio-statistics & Bio-informatics,
- Fermentation Technology
- Industrial Microbiology

VALUE ADDED COURSES

- IPR and Research Methodology



5. Research, consultancy, and extension

Total (Last 5 Years)

FACULTIES PROFILE

Name	Research Publications	Patents	Books/ Book Chapters	Seminars/Workshops			Ph.Ds/ M.Phil guided	H-index
				Organized	Presentation	Attend		
Dr V. Lakshmi Associate Professor., Head	55 (10)	-	2	13	-	34	11	8
Dr. Arivudainambi. S Chair PoP	10(3)	5	2	3	4	15	-	5
Prof. T. Raghava Rao Chairman, BOS	70 (17)	-	2	3		10	-	12
Dr. P. Lakshmi Asst Prof (Contract)	20(3)	-	3	1	19 (6)	56 (18)	-	8
Dr. P. Raja Ramesh Kumar TTA	4 (1)	-	-	-	4	5	-	3
Dr. K. Chandana Vineela TTA	13 (2)	-	-	-	-	20(6)	-	2



Research Scholars

- Doctor of Philosophy in Microbiology(Ph.D.)
 - Since 2013 Completed 7, Ongoing 6
- Number of PhD fellowship-01
- Number of PDF-01



Research Laboratory

Biosafety Cabinet



Sample Collections



Sample Processing





Students Internship and Projects

Hospitals

- King George Hospital, Visakhapatnam
- Government General Hospital, Visakhapatnam
- Apollo Hospitals, Visakhapatnam
- Seven Hills Hospital, Visakhapatnam
- CARE Hospitals, Visakhapatnam

Research Institutions

- National Institute of Nutrition (NIN), Hyderabad
- Indian Institute of Chemical Technology (IICT), Hyderabad
- Centre for Cellular and Molecular Biology (CCMB), Hyderabad
- National Institute of Pharmaceutical Education and Research (NIPER), Hyderabad
- National Institute of Technology (NIT), Warangal

Industries

- Hindustan Antibiotics Limited, Hyderabad
- Bharat Biotech International Limited, Hyderabad
- Dr. Reddy's Laboratories Limited, Hyderabad
- Aurobindo Pharma Limited, Hyderabad
- Mylan Laboratories Limited, Hyderabad



Achievement Awards

The university every year presents Sarvepalli Radhakrishnan Best Academician award

University Best Researcher award for outstanding faculty.

The research scholars were given best Ph.D. thesis awards.

- Prof T Ramana Merit Scholarship for Topper
- Dr. T Govardhan Reddi Merit Scholarship for EBC





6. Student support and progression

Placements

- Microbiologists work in Hospitals, clinical laboratories, food, water and dairy facilities (Food safety Officers) as well as in pharmaceutical industries as quality control and quality assurance technologists.



Divis Laboratories Ltd.



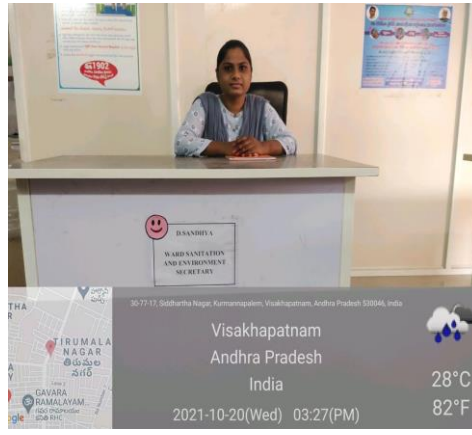
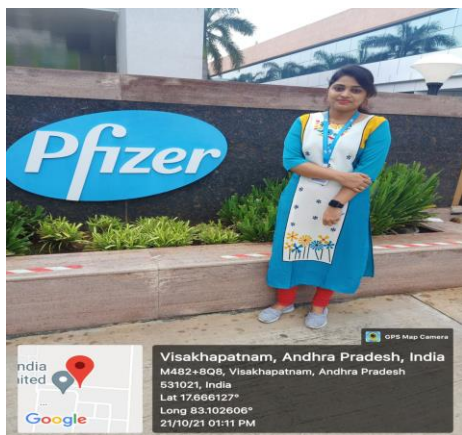
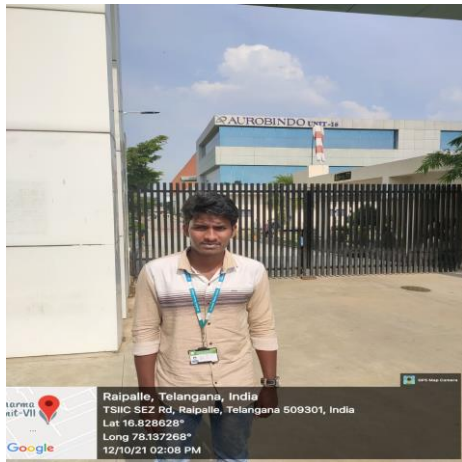
Campus Placement



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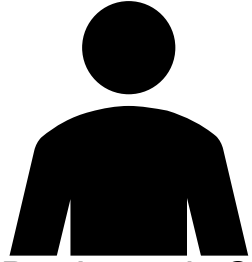
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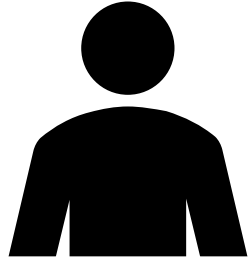




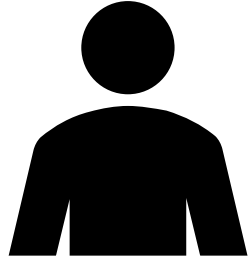
Microbiology Alumni



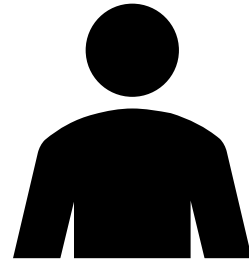
Dr. Joseph G



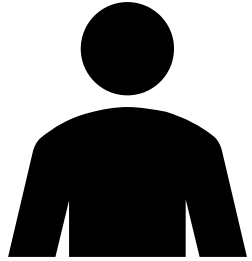
Mr R Rajesh



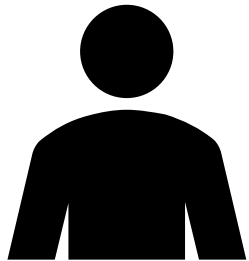
Mr. V Prasad



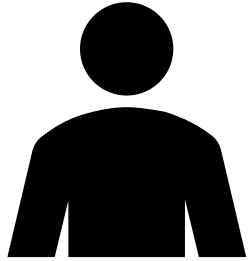
Mr RaviTeja K



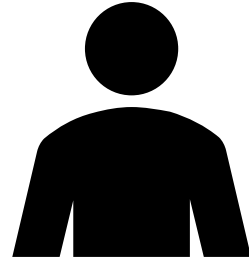
Ms Alisha



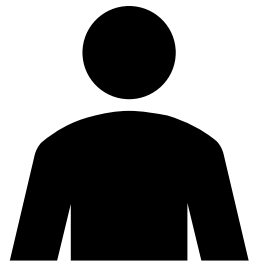
Mr R Lakshmi
Pavani



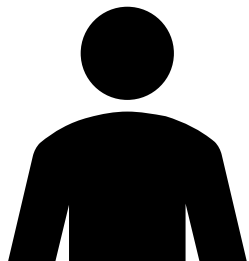
Mr Uday Sagar



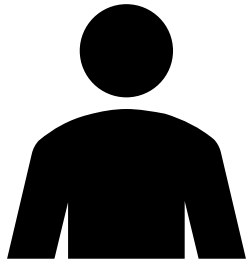
Mr RaviTeja K



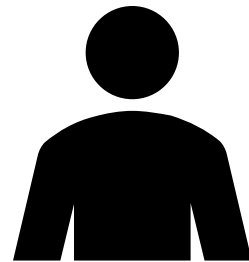
Mr Manikanta



Ms Chandana



Mr R. Namrata



Mr RaviTeja K

- Ms Tejaswi
- Ms Vineela,
- Mr Krupa, Ms Harsha, Ms Priya Nayana,
- Mr Philp,
- Mr M. Sai Siddartha, Mr Rushitej,
- International students from countries like Iran, Iraq, Ethiopia, UAE Ghana, Tanzania and Nepal are some of our alumni

National workshop on Bioinformatics tools: Theory and Practice



4th March 2023

National workshop



4th March 2023

National workshop



3rd March 2023

National workshop



3rd March 2023

National workshop



SCIENCE DAY 2023



EXPERT INTERACTION 2023



OUTREACH ACTIVITY 2023

ACHIVEMENT AWARDS 2023



NATIONAL SEMINAR 2023



AWARNESS CAMPAIGN 2023





7. Institutional Values and Best Practices

- Developing new interdisciplinary programs with other departments in the university.
- E.g.: Biochemistry, Computer science.
 - Sequence and analyze the genome of a microorganism.
 - Identify and characterize new genes and proteins in microorganisms
 - Use genomic data to study the evolution of microorganisms
- Partner with local businesses and industries to provide students with hands-on experience.





Thank you