



DEPARTMENT OF MICROBIOLOGY

GOVT. V.Y.T. PG AUTONOMOUS COLLEGE, DURG



Programme Outcomes

Master of Science (M.Sc. Program)

- PO1: Knowledge:** Acquire an overview of concepts, fundamentals and advancements of science across a range of fields, with in-depth knowledge in at least one area of study. Develop focused field knowledge and amalgamate knowledge across different disciplines.
- PO2: Complementary skills:** Students will be able to engage in critical investigation through principal approaches or methods and through effective information search and evaluation strategies. Employ highly developed conceptual, analytical, quantitative and technical skills and are adept with a range of technologies
- PO3: Applied learning:** Students will be able to apply disciplinary or interdisciplinary learning across multiple contexts, integrating knowledge and practice. Recognize the need for information; effectively search for, evaluate, manage and apply that information in support of scientific investigation or scholarly debate
- PO4: Communication:** Communicate effectively on scientific achievements, basic concepts and recent developments with experts and with society at large. Able to comprehend and write reports, documents, make effective presentation by oral and/or written form.
- PO5: Problem solving:** Investigate, design and apply appropriate methods to solve problems in science, mathematics, technology and/or engineering.
- PO6: Environment and sustainability:** Understand the impact of the solutions in ethical, societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.
- PO7: Teamwork, collaborative and management skills:** Recognize the opportunities and contribute positively in collaborative scientific work. Engage in intellectual exchange of ideas with other disciplines

Program Specific Outcome (PSO): M.Sc. Microbiology

By the end of this program, the students will be able:

- To give comprehensive understanding about the microbes, their organizational units and response towards other life entities
- To inculcate the students to the knowledge of molecular characters and performance of microorganisms

- To make the hypothetical assumptions about the microbial forms and their behavior and establish the facts with data interpretation
- To develop capability of handling of instruments and to build inference for scientific conclusions
- To make the students approachable for problem solving skills and to introduce them towards research aptitude
- To create employable skills in the field of medical, food, Dairy and industrial microbiology
- To build the competency for use of knowledge in relation with environment consciousness, ethical values and socio-economical aspects
- To be able to analyze problems involving microbes, articulate this with peers/ team members/ other stake holders, and undertake remedial measures



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Attainments of COs-POs-PSOs of Department of Microbiology

COs – POs Matrix for all courses of M.Sc. Microbiology

Batch (2023-24)

Sem.	Course Outcomes (CO)	Program Outcomes (PO)							
		Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7
I	MMB101	Bacteriology and Virology	1.45	1.93	1.31	0.82	0.82	0.82	1.14
	MMB102	Phycology and Mycology	2.27	2.03	2.36	1.25	1.45	1.07	2.11
	MMB103	Biochemistry	2.93	2.87	2.93	2.00	2.93	1.87	2.80
	MMB104	Fundamentals of Immunology	2.00	2.13	2.13	1.20	2.13	1.00	2.13
	MMBL 01	Lab Course Based on Paper I and II	2.87	3.00	2.00	2.00	3.00	2.00	3.00
	MMBL 02	Lab Course Based on Paper III and IV	3.00	3.00	2.2	2.00	2.00	1.2	3.00
II	MMB201	Molecular Biology	2.93	2.87	2.93	2.00	2.93	1.87	2.80
	MMB202	Microbial Genetics	2.93	3.00	2.07	1.13	2.93	1.07	2.00
	MMB203	Microbial Physiology	2.93	2.87	2.87	1.87	3.00	1.93	2.93
	MMB204	Biostatistics	3.00	2.13	2.13	1.13	3.00	2.00	3.00
	MMBL 03	Lab Course Based on paper I and II	2.87	3.00	2.00	2.00	3.00	2.00	3.00
	MMBL 04	Lab Course Based on paper III and IV	2.84	2.77	2.56	2.12	2.17	2.00	2.89
III	MMB301	Biophysical Technique and Instrumentation	2.87	3.00	2.87	1.87	3.00	2.07	3.00
	MMB302	Medical Microbiology	3.00	3.00	3.00	1.00	3.00	2.00	3.00
	MMB303	Food and Dairy Microbiology	2.93	2.07	2.93	2.00	2.93	1.93	1.93
	MMBL 05	Lab Course Based on Paper I	2.93	3.00	2.00	2.93	2.80	2.93	1.87
	MMBL 06	Lab Course Based on Paper II and III	2.93	3.00	2.93	2.00	2.93	2.07	2.87
IV	MMB401	Environmental Microbiology	3.00	2.86	3.00	2.58	2.95	2.69	2.58
	MMB402	Industrial Microbiology & Fermentation Technology	2.93	2.87	2.93	2.00	2.93	1.87	2.80
	MMB403	Microbial Biotechnology	2.00	2.33	2.13	1.20	2.33	1.00	2.53
	MMBL 07	Lab Course Based on Paper I	2.87	3.00	2.00	2.00	3.10	2.12	3.00
	MMBL 08	Lab Course Based on Paper II and III	2.93	2.17	2.83	2.10	2.73	1.97	2.90
Direct Attainment			2.74	2.67	2.45	1.78	2.63	1.79	2.60
Indirect Attainment			2.65	2.78	2.46	2.23	2.53	1.57	2.54



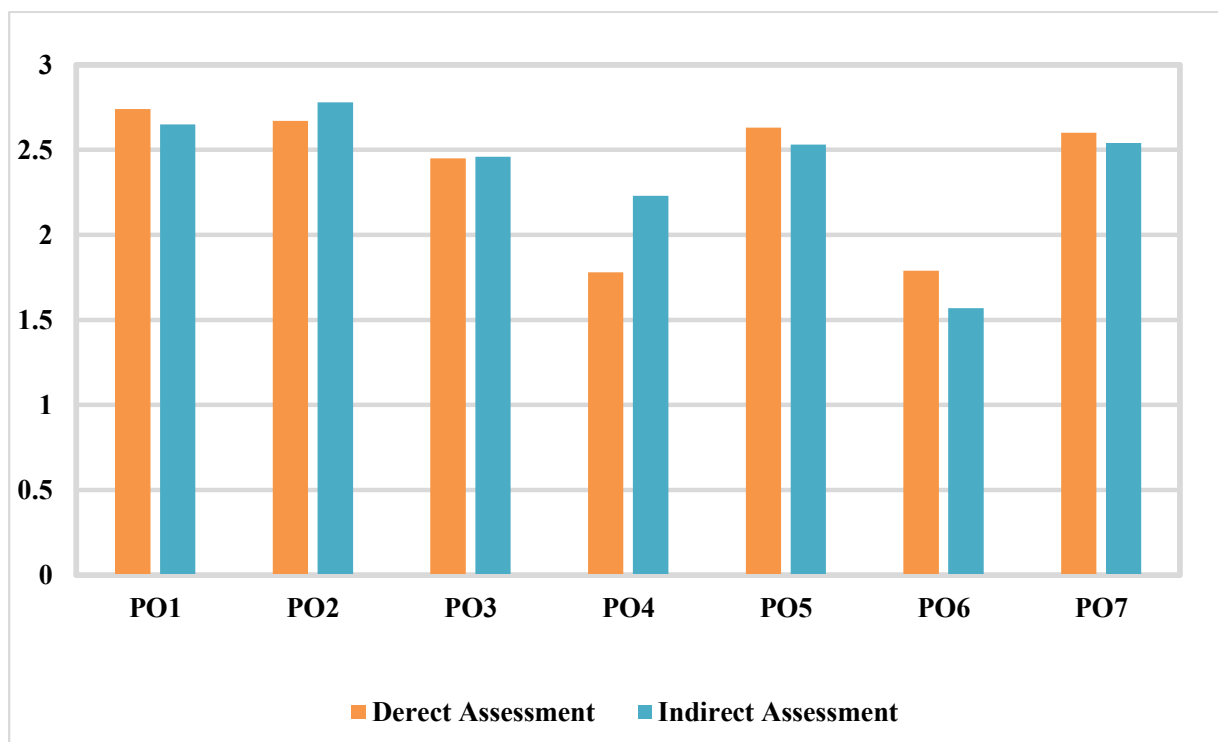
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PO Assessment

Comparison graph for POs Direct and Indirect Attainment

Batch 2023-24



Dr. Pragya Kulkarni
HOD Microbiology

Principal



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PSO Assessment of Batch (2023-24)

COs - PSOs Matrix for all courses of M.Sc. Microbiology

Sem.	Course Outcomes (CO)	Program Outcomes (PSO)				
		Course	PSO1	PSO2	PSO3	PSO4
I	MMB101	Bacteriology and Virology	2.1	1.22	2.13	1.14
	MMB102	Phycology and Mycology	2.13	1.00	2.00	2.00
	MMB103	Biochemistry	2.07	1.00	2.17	1.00
	MMB104	Fundamentals of Immunology	2.93	1.93	3.00	2.53
	MMBL 01	Lab Course Based on Paper I and II	2.15	1.42	2.23	1.44
	MMBL 02	Lab Course Based on Paper III and IV	2.23	1.12	2.05	2.00
II	MMB201	Molecular Biology	2.17	1.92	2.17	1.11
	MMB202	Microbial Genetics	2.93	2.30	3.00	2.13
	MMB203	Microbial Physiology	2.15	1.32	2.23	1.34
	MMB204	Biostatistics	2.13	1.20	2.30	2.42
	MMBL 03	Lab Course Based on paper I and II	2.07	1.00	2.47	1.00
	MMBL 04	Lab Course Based on paper III and IV	2.95	1.93	3.00	2.53
III	MMB301	Biophysical Technique and Instrumentation	2.12	1.22	2.13	1.14
	MMB302	Medical Microbiology	2.15	1.00	2.00	2.00
	MMB303	Food and Dairy Microbiology	2.27	1.30	2.17	1.44
	MMBL 05	Lab Course Based on Paper I	2.93	2.43	3.00	2.83
	MMBL 06	Lab Course Based on Paper II and III	2.17	1.52	2.73	1.54
IV	MMB401	Environmental Microbiology	2.16	1.30	2.22	2.00
	MMB402	Environmental Microbiology	2.47	1.33	2.27	1.00
	MMB403	Microbial Biotechnology	2.93	1.93	3.00	2.53
	MMBL 07	Lab Course Based on Paper I	2.28	1.42	2.63	1.64
	MMBL 08	Lab Course Based on Paper II and III	2.13	1.00	2.30	2.22
Direct Attainment			2.34	1.44	2.41	1.77
Indirect Attainment			2.13	1.35	2.62	1.85



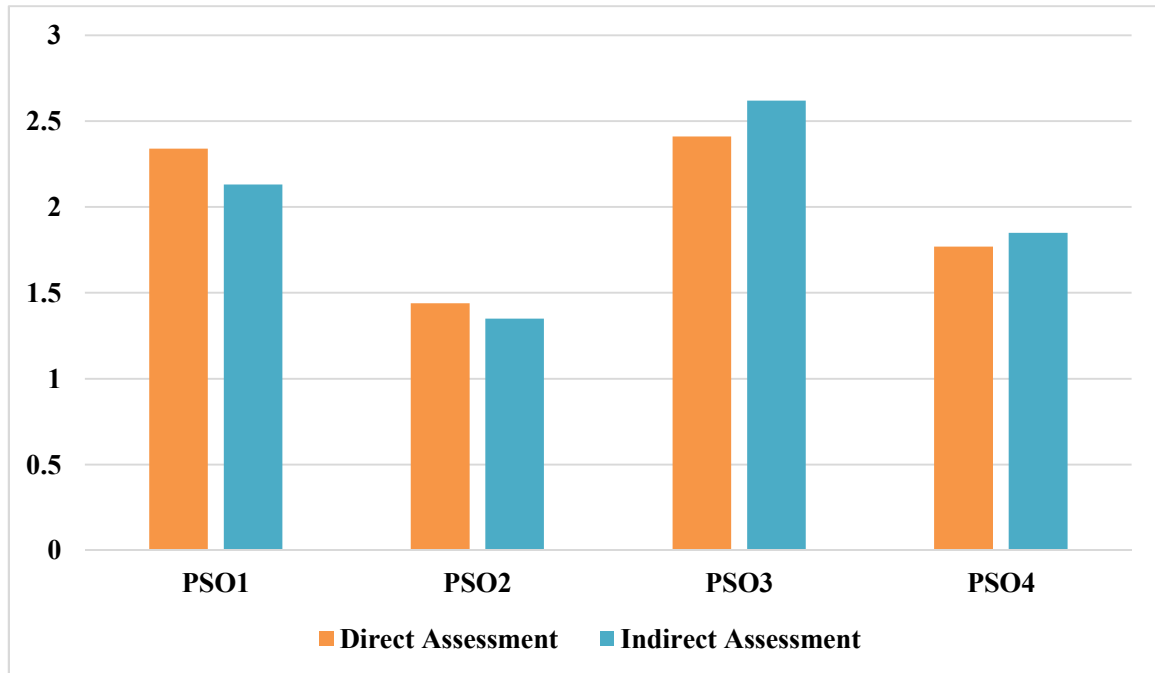
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PSO Assessment

Comparison graph for PSOs Direct and Indirect Attainment

Batch 2023-24



Dr. Pragya Kulkarni
HOD Microbiology


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Principal
Govt. V.Y.T.P.G.Autn. College,
Durg (G.G.)


Sign of the Principal

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Attainments of POs-PSOs of Department of Microbiology

After successful completion of the program, the student will be able to:

- PSO1-** To give comprehensive understanding about the microbes, their organizational units and response towards other life entities
- PSO2-** To inculcate the students about molecular characters and performance of microorganisms
- PSO3-** To make the assumptions about the microbial forms and their behaviour and establish the facts with data interpretation
- PSO4-** To develop capability of handling of instruments and to build inference for scientific conclusions

SEMESTER - I

MMB 101 Bacteriology and Virology

After successful completion of the course, the student is expected to:

- CO1:** Learn the diversity among Bacteria and their respective forms
- CO2:** Know about the classification and grouping of bacteria through diverse systems
- CO3:** Get an overview to the Viruses, Related agents and Bacteriophages and their organizations
- CO4:** Have idea about the cultivation of Viruses and get impression of Viral diseases of plants and animals

CO-PO Matrix

Mapping of Course Outcomes (CO) with Program Outcomes (PO)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	1	1	2	2	3	1	1	-
CO2	3	3	3	1	1	2	1	3	1	1	-
CO3	3	3	3	1	1	2	1	3	1	1	-
CO4	3	3	3	1	1	2	1	3	1	1	-
Average	3	3	3	1	1	2	1.25	3	1	1	-

Semester I Internal Assessment Test - I, 2023-24

M.Sc. Microbiology

Paper- I

Bacteriology and Virology

[Time: 1:30 Hours]

[Maximum Marks: 20]

- Part A and B of each question in each unit consist of very short answer type questions which are to be answered in one or two sentences.
- Part C (Short answer type) of each question will be answered in 200-250 words.
- Part D (Long answer type) of each question should be answered within the word limit 400-450.

Unit – I

Q. No.	Question	Marks	COs mapping	Bloom's Level
1 A	What do you mean by Antigenic properties in Bacteria	(1)	CO1	L2
1 B	Define Endospore.	(1)		L2
1 C	Write a short note on Structure and functions of flagella. OR Explain composition and function of Bacterial Capsule.	(3)		L2
1 D	Give a brief description on morphological type and ultrastructure of bacteria. OR Describe Storage food material in bacteria with example.	(5)		L2

Unit - II

Q. No.	Question	Marks	COs mapping	Blooms Level
2 A	Differentiate shake & still cultures.	(1)	CO2	L2
2 B	Define Differential media and give two examples.	(1)		L2
2 C	Describe Control measures of bacteria. OR Describe the Nutritional types of bacteria.	(3)		L3
2 D	Explain Whittaker's five kingdom concept of bacterial classification OR Write a brief note on cultivation of aerobic and anaerobic bacteria.	(5)		L3



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