



DEPARTMENT OF MICROBIOLOGY

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



Attainments of COs-POs-PSOs of Department of Microbiology

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

Batch (2021-22)

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



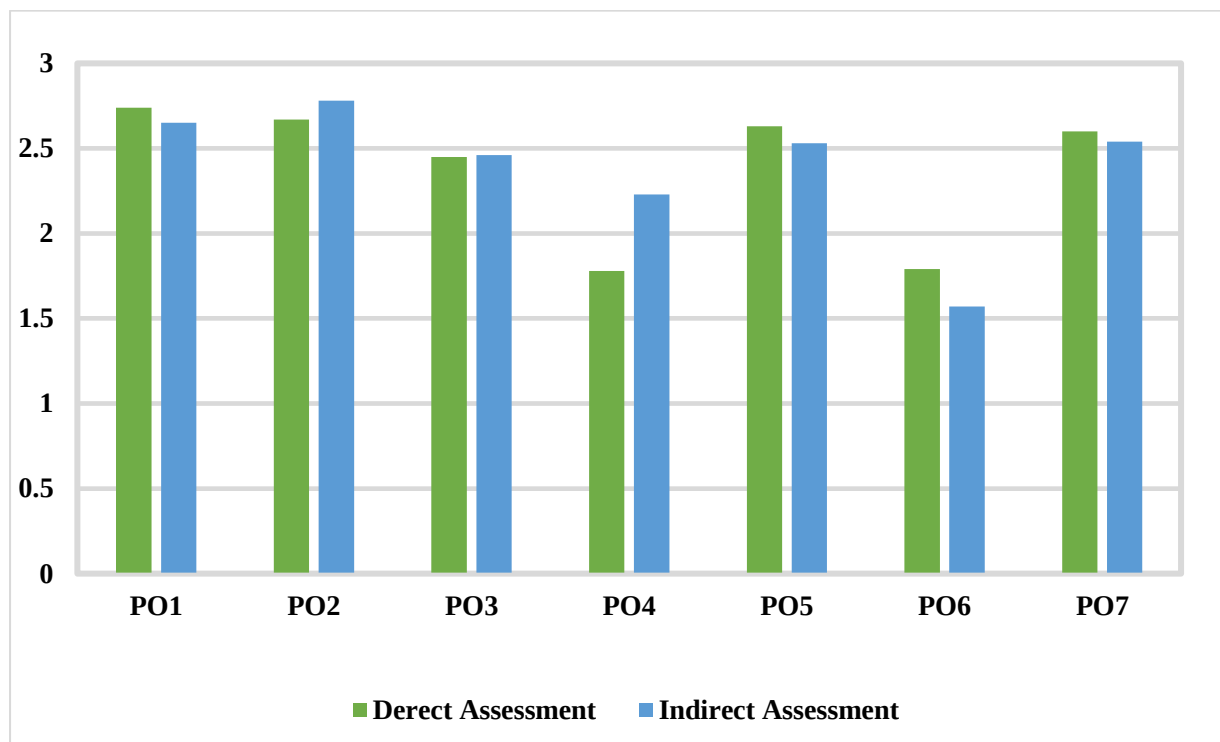
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PO Assessment

Comparison graph for POs Direct and Indirect Attainment

Batch 2021-22



Dr. Pragya Kulkarni
HOD Microbiology

Principal



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PSO Assessment of Batch (2021-22)

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



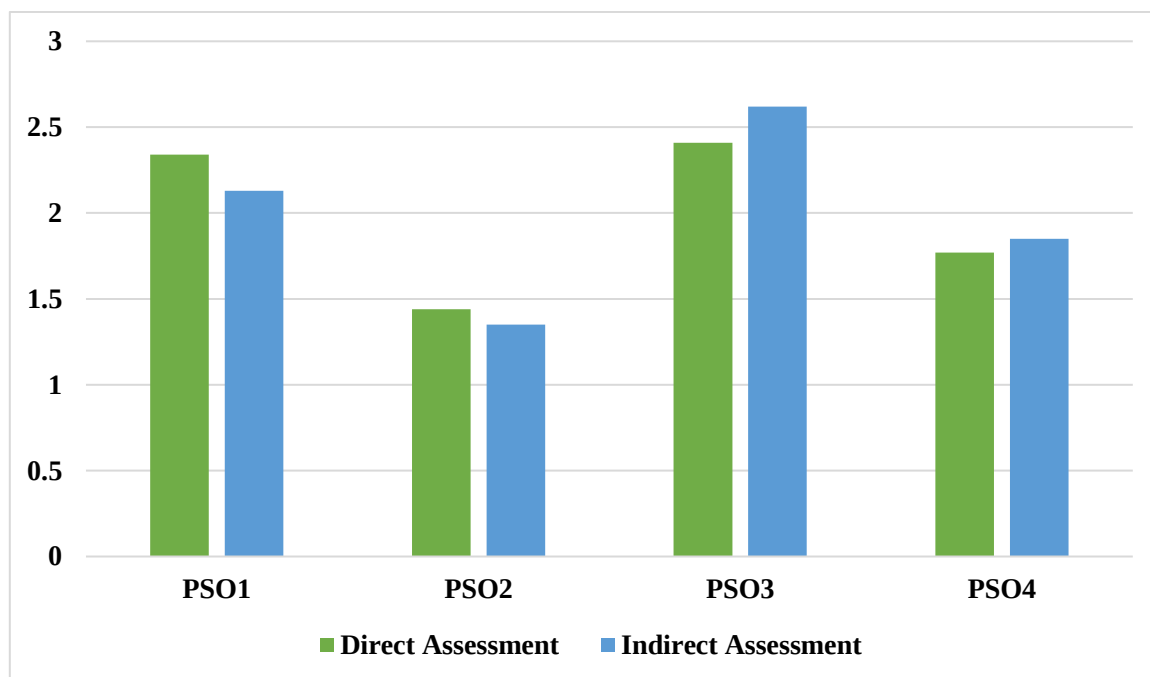
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PSO Assessment

Comparison graph for PSOs Direct and Indirect Attainment

Batch 2021-22



Dr. Pragya Kulkarni
HOD Microbiology

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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, 2021-22

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

Sem. I Paper I Class Test – I Marks (CT 1)

S.No.	Roll No.	Name of Student	Bacteriology and Virology		
			Q. 1	Q. 2	CT1
1	13701	Amita Sonwani	5	6	11
2	13702	Bhavesk Thakur	5	6	11
3	13703	Bhumika Bajaj	5	6	11
4	13704	Daminee	7	8	15
5	13705	Garima Thakur	6	6	12
6	13706	Himanshi Dewangan	6	7	13
7	13707	Himanshu Nayak	5	7	12
8	13708	Jagjit Singh Garewal	6	6	12
9	13709	Kajal	7	6	13
10	13710	Ketki Yadav	6	7	14
11	13711	Lukeshwari	8	7	15
12	13712	Maya Soni	7	7	14
13	13713	Namrata Thakur	5	6	11
14	13714	Paridhi Shrivast	6	6	12
15	13715	Pawan Kumar Patel	7	9	16
16	13716	Pinisha	7	7	14
17	13717	Ranjita Haldar	7	7	14
18	13718	Rupeshwari	5	8	13
19	13719	Sakshi	6	6	12
20	13720	Saleha Naj	6	7	13
21	13721	Shaily Tamrakar	7	7	14
22	13722	Tilotama	7	8	15
23	13723	Vaibhavi Sahare	8	7	15
Total			144	157	302
Average			6.260	6.826	13.13
Average in %			62.60	68.26	65.43

Mapping between COs and CT1 Questions

Mapping					Ave CO Attainment
Question	Outcome of the Course				
	CO1	CO2	CO3	CO4	
Q.1	3	-	-	-	3
Q.2	-	2	-	-	2
					2.5

CO Attainment for CT1

Mapping between CO and CT1 Questions					Ave CO Attainment
Question	Outcome of the Course				
	CO1	CO2	CO3	CO4	
Q.1	66.04	-	-	-	
Q.2	-	44.02	-	-	
Average	66.04	44.02	-	-	55.03

If CO1 is less than 60%: then 1 If CO1 is between 60% to 75%: then 2 If CO1 is greater than 75%: then 3					Average CO1 attainment for CT1 is 55.03 Level 1			
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	Ave
MMB 101 (From CO-PO Mapping)	3	3	3	1	1	2	1.25	
Ave MMB 101 Attainment	55.03	55.03	55.03	55.03	55.03	55.03	55.03	
PO attainment of MMB 101 for CT1 in terms of %	55.03	55.03	55.03	18.34	18.34	36.68	22.92	37.33
PO attainment of MMB 101 for CT1 in terms of levels	3	3	3	1	1	2	1	2
Internal Assessment (20%)	0.6	0.6	0.6	0.2	0.2	0.4	0.2	0.4

Sem. I Paper I Class Test – II Marks (CT 2)

S.No.	Roll No.	Name of Student	Bacteriology and Virology		
			Q. 1	Q. 2	CT2
1	13701	Amita Sonwani	6	7	13
2	13702	Bhavesk Thakur	7	7	14
3	13703	Bhumika Bajaj	6	6	12
4	13704	Daminee	7	9	16
5	13705	Garima Thakur	6	7	13
6	13706	Himanshi Dewangan	6	7	13
7	13707	Himanshu Nayak	5	7	12
8	13708	Jagjit Singh Garewal	6	7	13
9	13709	Kajal	7	7	14
10	13710	Ketki Yadav	7	8	15
11	13711	Lukeshwari	7	8	15
12	13712	Maya Soni	7	8	15
13	13713	Namrata Thakur	5	7	12
14	13714	Paridhi Shrivast	5	8	13
15	13715	Pawan Kumar Patel	8	9	17
16	13716	Pinisha	7	8	15
17	13717	Ranjita Haldar	7	8	15
18	13718	Rupeshwari	6	6	12
19	13719	Sakshi	6	8	14
20	13720	Saleha Naj	5	9	14
21	13721	Shaily Tamrakar	7	8	15
22	13722	Tilotama	7	8	15
23	13723	Vaibhavi Sahare	7	9	16
Total			147	176	323
Average			6.391	7.652	14.043
Average in %			63.91	76.52	70.21

Mapping between COs and CT2 Questions

Mapping					Ave CO Attainment
Question	Outcome of the Course				
	CO1	CO2	CO3	CO4	
Q.3			2		2
Q.4				3	3
					2.5

CO Attainment for CT2

Mapping between CO and CT2 Questions					Ave CO Attainment
Question	Outcome of the Course				
	CO1	CO2	CO3	CO4	
Q.3			50.50		
Q.4				70.80	
Average			50.50	70.80	60.65

If CO1 is less than 60%: then 1 If CO1 is between 60% to 75%: then 2 If CO1 is greater than 75%: then 3	Average CO1 attainment for CT2 is 59.00 Level 1
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End Sem Exam

Mapping of CO with MMB 101					Ave.
CO/ Ques	Q.1	Q.2	Q.3	Q.4	
CO1	3				3
CO2		2			2
CO3			3		3
CO4				2	2
Average Attainment of MMB 101 for Bacteriology and Virology					2.5

Mapping of CO and Question Paper in terms of percentage					Ave.
CO/ Ques	Q.1	Q.2	Q.3	Q.4	
CO1	46.41				46.41
CO2		30.94			30.94
CO3			46.41		46.41
CO4				30.94	30.94
Average Attainment of MMB 101 for Bacteriology and Virology					38.67

[illegible]

MMB101 CO-PSO mapping	PSO1	PSO2	PSO3	PSO4	If PSO is less than 40%: then 1 If PO is between 40% to 60%: then 2 If PO is greater than 60%: then 3
MMB 101	3	3	3	1	
Average marks	46.41	46.41	46.41	46.41	
PO Attainment of MMB101 in terms of %	46.41	46.41	46.41	15.47	38.67
PO Attainment of MMB 101 in terms of levels	2	2	2	1	1.75
External Assessment (80%)	1.6	1.6	1.6	0.8	1.4

Space for Scanned Question Paper

S.No.	Roll No.	Name of Student	End Sem Marks	Q. 1	Q.2	Q.3	Q.4
1		Akansha Humne	48	13	14	12	9
2		Ananya Singh	47	12	12	12	11
3		Chhaya Sahu	40	12	11	11	6
4		Deepshikha	54	13	13	14	14
5		Deepti Sinha	45	13	14	12	6
6		Dharamraj	40	12	11	11	6
7		Hirondi	35	10	11	10	4
8		Janki Sahu	40	12	11	11	6
9		Kavita Mandavi	41	13	11	11	6
10		Kiran Netam	47	14	12	11	10
11		Lilima Dewangan	53	13	13	13	14
12		Namrata Gautam	43	14	12	11	6
13		Payal Saha	42	13	12	11	6
14		Pramd Kumar Dahre	43	13	13	11	6
15		Priyanka Bhagat	57	14	15	14	14
16		Renuka Dewangan	43	14	12	11	6
17		Ritu	58	15	15	14	14
18		Sameeksha Madhariya	44	15	12	11	6
19		Savita Sudhakar	36	11	12	7	6
20		Subhadra Sahu	41	12	12	11	6
21		Suman Singh Gaur	58	15	15	14	14
22		Swati Dehari	48	13	13	11	11
23		Y.Yoshi	57	15	15	14	13
24		Yogita Lokhande	54	13	13	14	14
Total			1114	314	304	282	214
Average			46.41	13.08	12.66	11.75	8.91
Average in %			58.01	65.40	64.95	58.75	44.55