

MANGALORE UNIVERSITY

DEPARTMENT OF STUDIES AND RESEARCH IN MICROBIOLOGY POST GRADUIATE
CENTRE, JNANA KAVERI CAMPUS, KODAGU-571232

Microbiology

M. Sc. Degree Course in

Choice Based Credit System



Syllabus

(Approved in the BOS held on 17th January, 2020)

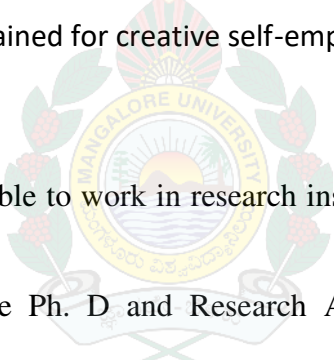
General Objectives of the Course

1. To excel in various fields of Microbiology.
2. To gain higher education in the field of microbiology.
3. To gain knowledge regarding microbiological and analytical skills related to medical, food, pharmaceuticals, environmental and agricultural aspects.
4. To train the students practically eligible to pursue higher research work.
5. To make them competent to address various societal issues.

Programme Outcome: M. Sc Degree in Microbiology

The M.Sc., Microbiology programme, intends to equip candidates with microbiological skills to render their service in various institutions and companies. The program prepares the students to gain knowledge in various specific areas/fields of Microbiology. The students are trained to get through competitive examinations at international, national and state level. The students are taught different aspects of microbiology and trained for creative self-employability.

Programme specific Outcomes

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- PSO 1 Employability skills capable to work in research institutes, Industries and Government departments.
- PSO 2 Research skills to pursue Ph. D and Research Assistants, Research Associates in reputed institutes.
- PSO 3 Establishment of own diagnostic centers and industries.
- PSO 4 Teaching – Universities and Colleges.
- PSO 5 Work with FSL laboratories, Pollution control boards and Coffee board.
- PSO 6 Take up further research in abroad and outside the state.
- PSO 7 Work with NGOs to create awareness of hygiene in rural and urban areas.
- PSO 8 Field work research through Project Works

**Question Paper Pattern for University Examination
Microbiology (CBCS-PG-CGPA)**

Time: 3 Hours

Max Marks: 70

I. Write short notes on **any five** of the following 3X5 =15

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

II. Write notes on **any five** of the following 5 x 5 = 25

- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.



III. Answer **any three** of the following 10 X3= 30

- 15.
- 16.
- 17.
- 18.
- 19.

While setting question paper equal weightage should be given to all the units of the paper.

**Question Paper Pattern for Internal Assessment
Microbiology (CBCS-PG-CGPA)**

Time: 1.30 Hours

Max Marks: 30

I. Answer **any two** of the following

6 x 2 = 12

- 1.
- 2.
- 3.

II. Write notes on **any three** of the following

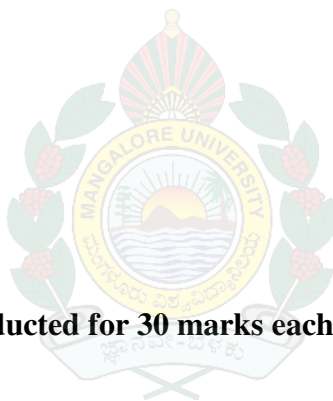
4 x 3 = 12 .

- 4.
- 5.
- 6.
- 7.

III. Write short notes on **any three** of the following

2 x 3 = 6

- 8.
- 9.
- 10.
- 11.
- 12.



Note: Two tests to be conducted for 30 marks each and the average of the two shall be awarded as IA marks

MANGALORE UNIVERSITY

SYLLABUS & SCHEME

CBCS-PG-CGPA: CHOICE BASED CREDIT SYSTEM-POST GRADUATE CUMULATIVE GRADE POINT AVERAGE

Sem	Course Code	Course title	Ins.Hrs /week	Credit	Exam Hrs	Marks		Total
I	HARD CORE					Int	Ext	
	MBH -401	Bioanalytical Techniques in Microbiology	4	4	3	30	70	100
	MBH-402	Bacteriology and Virology	4	4	3	30	70	100
	MBH-403	Phycology and Mycology	4	4	3	30	70	100
	MBH-404	Microbial Genetics	4	4	3	30	70	100
	MBP-405	Microbial Techniques	4	2	4	15	35	50
	MBP-406	Microbial Physiology	4	2	4	15	35	50
	SOFT CORE (Any two out of three soft core papers to be selected)							
	MBS-407	Microbial Cell Biology	3	6	3	30	70	200
	MBS-408	Microbial Diversity	3		3	30	70	
	MBS-409	Biomolecules	3		3	30	70	
		Total	33	26				700
II	HARD CORE							
	MBH-451	Genetic Engineering	4	4	3	30	70	100
	MBH-452	Food Microbiology	4	4	3	30	70	100
	MBH-453	Medical Microbiology & Immunology	4	4	3	30	70	100
	MBP-454	Genetic Engineering & Food Microbiology	4	2	4	15	35	50
	MBP-455	Immunology & Medical Microbiology	4	2	4	15	35	50
	SOFT CORE (Any two out of three soft core papers to be selected)							
	MBS-456	Microbial Biotechnology	3	6	3	30	70	200
	MBS-457	Phytopathology	3		3	30	70	
	MBS-458	Immunotechnology	3		3	30	70	
	OPEN ELECTIVE							
	MBE-459	General Microbiology	3	3	3	30	70	100
	MBE-460	Bioinoculants						
		Total	32	25				700

Code			weeks		Hrs			
III		HARD CORE				Int	Ext	
	MBH -501	Molecular Biology	4	4	3	30	70	100
	MBH -502	Environmental Microbiology	4	4	3	30	70	100
	MBH -503	Biostatistics and Bioinformatics	4	4	3	30	70	100
	MBP-504	Molecular Biology	4	2	4	15	35	50
	MBP-505	Environmental Microbiology, Biostatistics and Bioinformatics	4	2	4	15	35	50
SOFT CORE (Any two out of three soft core papers to be selected)								
	MBS-506	Metagenomics & Proteomics	3	6	3	30	70	200
	MBS-507	Marine Microbiology	3		3	30	70	
	MBS-508	Cancer Biology	3		3	30	70	
OPEN ELECTIVE								
	MBE-509	Microbial Techniques	3	3	3	30	70	100
	MBE-510	Pharmacology and Pharmacognosy						
		Total	32	25				700
IV		HARD CORE						
	MBH -551	Agricultural Microbiology	4	4	3	30	70	100
	MBH-552	Industrial Microbiology	4	4	3	30	70	100
	MBP-553	PROJECT WORK	4	4	3	30	70	100
SOFT CORE (Any one out of two soft core papers to be selected)								
	MBS-554	Bio-Nanotechnology	3	3	3	30	70	100
	MBS-555	Research Methodology	3		3	30	70	
		Total	18	15				400
	Grand Total (I+II+III+IV)		115	91				2500

Note: **Internal Assessment marks may be awarded as follows**

- Conduct of 02 internal assessment tests for 30 marks, average Converted to 10 marks
- Seminar presentation with submission of seminar manuscript for 10 marks
- Assignment /Field Report / Tour report/Summer project for 10 marks

MBP- 553: Project work

- Project work shall be decided by the Department Council before starting the III Semester
- The project work may be carried out either in the department or outside institutions (common to all students)
- Internal assessment marks for project work may be awarded through pre-final project presentation (1 or 2 times)
- The project report/dissertation shall be evaluated by an Internal and External Examiners or by the Board