



BRAINWARE UNIVERSITY
SCHOOL OF BIOTECHNOLOGY & BIOSCIENCES
DEPARTMENT OF BIOTECHNOLOGY
CURRICULUM & SYLLABUS: MASTER OF SCIENCE IN MICROBIOLOGY [MSCMB]

Programme duration: 2 years (Semester I-IV)
Total credits: =96; Total marks: =2200

SEMESTER - I

Theory full marks = 100 x 5 = 500

Seminar/Journal Club/Assignment = 100

Total Credits = 24

Practical full marks = 100 x 1 paper = 100

Total marks: 700

| Course Code | Course Name | L-T-P | Credits | Total Marks |
|-------------|--|-------|-----------|-------------|
| MMB101 | General Microbiology & Microbial Physiology | 3-0-0 | 3 | 100 |
| MMB102 | Virology | 3-0-0 | 3 | 100 |
| MMB103 | Research Methodology & Techniques | 3-0-0 | 3 | 100 |
| MMB104 | Microbial Biochemistry | 3-0-0 | 3 | 100 |
| MMB105 | Cell & Molecular Biotechnology | 3-0-0 | 3 | 100 |
| MMB191 | MSCMB Laboratory - I (General Microbiology, Virology & Microbial Biochemistry) | 0-0-8 | 8 | 100 |
| MMB181 | MSCMB Seminar - 1 | 0-0-1 | 1 | 100 |
| | Total | | 24 | 700 |

SEMESTER - II

Theory full marks = 100 x 5 = 500

Seminar/Journal Club/Assignment = 100

Total Credits = 24

Practical full marks = 100 x 1 paper = 100

Total marks: 700

| Course Code | Course Name | L-T-P | Credits | Total Marks |
|-------------|--|-------|-----------|-------------|
| MMB201 | Molecular Biology and Microbial Genetics | 3-0-0 | 3 | 100 |
| MMB202 | Environmental & Agriculture Microbiology | 3-0-0 | 3 | 100 |
| MMB203 | Immunology | 3-0-0 | 3 | 100 |
| MMB204 | Pharmaceutical Microbiology | 3-0-0 | 3 | 100 |
| MMB205 | Medical Virology & Parasitology | 3-0-0 | 3 | 100 |
| MMB291 | MSCMB Laboratory - II (Molecular Biology, Environmental Microbiology & Immunology) | 0-0-8 | 8 | 100 |
| MMB281 | MSCMB Seminar - 2 | 0-0-1 | 1 | 100 |
| | Total | | 24 | 700 |



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SEMESTER – III

Theory full marks = 100 x 5 = 500
Project proposal submission = 100
Total Credits = 24

Practical full marks = 100 x 1 paper = 100
Total marks: 700

| Course Code | Course Name | L-T-P | Credits | Total Marks |
|-------------|--|-------|-----------|-------------|
| MMB301 | Food Microbial Technology | 3-0-0 | 3 | 100 |
| MMB302 | Medical Bacteriology | 3-0-0 | 3 | 100 |
| MMB303 | Microbial Ecology & Plant Microbe Interactions | 3-0-0 | 3 | 100 |
| MMB304 | Microbe Identification and Cell Culture | 3-0-0 | 3 | 100 |
| MMB305 | MSCMB Elective: A. Industrial Microbiology B. Microbial Proteomics C. Microbial Biotechnology | 3-0-0 | 3 | 100 |
| MMB391 | MSCMB Laboratory – III (Food Microbial Technology, Medical Bacteriology and Pharmaceutical Microbiology) | 0-0-5 | 5 | 100 |
| MMB381 | Project Proposal Submission & Presentation | 0-0-4 | 4 | 100 |
| | Total | | 24 | 700 |

SEMESTER – IV

Theory full marks = 100 x 1 paper = 100
Total marks: 200

Project Works & Viva = 100
Total Credits = 24

| Course Code | Course Name | L-T-P | Credits | Total Marks |
|-------------|----------------------------------|--------|-----------|-------------|
| MMB401 | Entrepreneurship in Microbiology | 4-0-0 | 4 | 100 |
| MMB481 | MSCMB Project Work & Viva | 0-0-20 | 20 | 100 |
| | Total | | 24 | 200 |

Electives for Sem-III:

1. Industrial Microbiology
2. Microbial Proteomics
3. Microbial Biotechnology

Topics for Project/Dissertation for SEM-IV

1. Mushroom Hybrid Production & Cultivation Technology



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2. Biofuel Production
3. Water Recycling and Irrigation
4. Microbial Technology
5. Economically Important Microbes and Applications
6. Industrial & Food Biotechnology
7. Industrial Microbiology
8. Waste Management
9. Microbial Diversity
10. Entrepreneurship Development

Important features: Mandatory

- 1) Internal assessment of each course will be made as per the Brainware University Standard.