

**M.Sc. Biotechnology
Semester I**

| Course code* | Course Title | Type | Teaching | | | Evaluation Scheme | | | | | | Minimum Passing | | | | | | Credit |
|--------------------|--------------------------------------------------|-------|----------|---|----|-------------------|-----|-----|----------|-----|------|-----------------|----------|----|-----|----------|----|--------|
| | | | | | | Internal | | | External | | | Total | Internal | | | External | | |
| | | | L | T | P | CA | MSE | TW | ESE | PR | CA | | MSE | TW | ESE | PR | | |
| (Mandatory) | | | | | | | | | | | | | | | | | | |
| MBT-111 | Microbiology and Immunotechnologies | Core | 3 | | | 20 | 20 | 20 | 90 | | 150 | | | | 36 | | 60 | 3 |
| MBT-112 | Protein Engineering for Industrial Biotechnology | Core | 3 | | | 20 | 20 | 20 | 90 | | 150 | | | | 36 | | 60 | 3 |
| MBT-113 | Biochemistry | Minor | 2 | | | 10 | 20 | 10 | 60 | | 100 | | | | 24 | | 40 | 2 |
| MBT-114 | Cell Biology | Minor | 2 | | | 10 | 20 | 10 | 60 | | 100 | | | | 24 | | 40 | 2 |
| PGL-111 | Bioskill Lab (Practical) | Core | | | 6 | 20 | 25 | 15 | | 90 | 150 | | | | 36 | | 60 | 3 |
| PGL-112 | Bioindustry Lab (Practical) | Core | | | 6 | 20 | 25 | 15 | | 90 | 150 | | | | 36 | | 60 | 3 |
| MNP-113 | Mini Project | MNP | | | 6 | 20 | 25 | 15 | | 90 | 150 | | | | 36 | | 60 | 3 |
| OEC-114 | Open Elective Course | OEC | | | 2 | 10 | 15 | 15 | | 60 | 100 | | | | 24 | | 40 | 2 |
| | Total | | 10 | 2 | 20 | 130 | 170 | 120 | 300 | 330 | 1050 | | | | | | | 21 |

Semester II

| Course code* | Course Title | Type | Teaching | | | Evaluation Scheme | | | | | | Minimum Passing | | | | | Credit | |
|--------------|------------------------------------------------------------------|-------|----------|---|----|-------------------|-----|-----|----------|-----|------|-----------------|----------|----|-----|----------|--------|-------|
| | | | | | | Internal | | | External | | | Total | Internal | | | External | | Total |
| | | | L | T | P | CA | MSE | TW | ESE | PR | CA | | MSE | TW | ESE | PR | | |
| | (Mandatory) | | | | | | | | | | | | | | | | | |
| MBT-121 | Molecular Cell Biology | Minor | 3 | | | 20 | 20 | 20 | 90 | | 150 | | | | 36 | | 60 | 3 |
| MBT-122 | Bioinformatics and computational Biology | Minor | 2 | | | 10 | 20 | 10 | 60 | | 100 | | | | 24 | | 40 | 2 |
| MBT-123 | Gene Technology and Synthetic Biology | Core | 3 | | | 20 | 20 | 20 | 90 | | 150 | | | | 36 | | 60 | 3 |
| MBT-124 | Industrial Biotechnology: Enzymes, Biochemicals and Biomaterials | Core | 3 | | | 20 | 20 | 20 | 90 | | 150 | | | | 36 | | 60 | 3 |
| PGL-121 | Exploration Biotechnology (Practical) | Core | | | 4 | 20 | 10 | 10 | | 60 | 100 | | | | | 24 | 60 | 2 |
| PGL-122 | Biofactory Laboratory (Practical) | Core | | | 6 | 20 | 25 | 15 | | 90 | 150 | | | | 36 | | 60 | 3 |
| MNP- 123 | Micro Project | MIP | | | 6 | 20 | 25 | 15 | | 90 | 150 | | | | 36 | | 60 | 3 |
| ACT- 124 | Academic Tutorial | AT | | 2 | | 10 | 20 | 10 | 60 | | 100 | | | | | | 40 | 2 |
| SEM-125 | Seminar | RBS | 2 | | | 10 | 10 | | 30 | | 50 | | | | | | 20 | 1 |
| OEC-126 | Open Elective Course | OEC | | | 4 | 10 | 15 | 15 | | 60 | 100 | | | | 24 | | 40 | 2 |
| | Total | | 13 | 2 | 20 | 160 | 185 | 135 | 420 | 300 | 1200 | | | | | | | 24 |

Semester III

| Course code* | Course Title | Type | Teaching | | | Evaluation Scheme | | | | | | Minimum Passing | | | | | Credit | |
|--------------------|--------------------------------------------------------------------------------------------------|-------|----------|---|----|-------------------|-----|-----|----------|-----|------|-----------------|----------|----|-----|----------|--------|-------|
| | | | | | | Internal | | | External | | | Total | Internal | | | External | | Total |
| | | | L | T | P | CA | MSE | TW | ESE | PR | CA | | MSE | TW | ESE | PR | | |
| (Mandatory) | | | | | | | | | | | | | | | | | | |
| MBT-131 | Biopharmaceutical Processing: Development, Design, and Implementation of Manufacturing Processes | Core | 3 | | | 20 | 20 | 20 | 90 | | 150 | | | | 36 | | 60 | 3 |
| MBT-132 | Cell Culture Engineering: Recombinant Protein Production | Minor | 4 | | | 20 | 40 | 20 | 120 | | 200 | | | | 48 | | 80 | 4 |
| PGL-131 | Bioinnovation Lab (Practical) | Core | | | 6 | 20 | 25 | 15 | | 90 | 150 | | | | | 36 | 60 | 3 |
| MNP-132 | Major Project | MRP | | | 14 | 45 | 45 | 50 | 140 | 210 | 350 | | | | | 56 | 140 | 7 |
| ACT-133 | Academic Tutorial | AT | | 2 | | 10 | 20 | 10 | 60 | | 100 | | | | | | 40 | 2 |
| SEM-134 | Seminar | RBS | 2 | | | 10 | 10 | | 30 | | 50 | | | | | | 20 | 1 |
| BCL-135 | Blend Course | BC | | | 4 | | | | 60 | 40 | 100 | | | | | | 40 | 2 |
| | Total | | 9 | 2 | 24 | 125 | 160 | 115 | 500 | 340 | 1100 | | | | | | | 22 |

Semester IV

| Course code* | Course Title | Type | Teaching | | | Evaluation Scheme | | | | | | Minimum Passing | | | | | Credit | |
|--------------------|-----------------------|-------|----------|---|----|-------------------|-----|----|----------|-----|-----|-----------------|----------|----|-----|----------|--------|-------|
| | | | | | | Internal | | | External | | | Total | Internal | | | External | | Total |
| | | | L | T | P | CA | MSE | TW | ESE | PR | CA | | MSE | TW | ESE | PR | | |
| (Mandatory) | | | | | | | | | | | | | | | | | | |
| MBT-141 | Ethics/ Biosafety/IPR | Minor | 3 | | | 20 | 20 | 20 | 90 | | 150 | | | | 36 | | | 3 |
| BIC-142 | Big Idea | MRP | | | 20 | | | | 360 | 240 | 600 | | | | | 96 | 240 | 12 |
| BCL-143 | Blended Course | BC | | | 4 | | | | 60 | 40 | 100 | | | | | | 40 | 2 |
| | Total | | 3 | 0 | 24 | 20 | 20 | 20 | 510 | 280 | 850 | | | | | | | 17 |

L- Lecture, T-Tutorial, P-Practical, CA- Continuous Assessment, MSE- Mid Semester Examination, ESE- End Semester Examination, PR-Practical, TW-Term Work