

CURRICULUM- B.Tech Biotechnology (2023-27)

Semester-I

| Sr. No. | Course Code | Course Title | L | T | P | Credits |
|---------|-----------------|---|---|---|---|-----------|
| 1 | BT 1101/BT 1102 | Basic Mathematics /Introduction to Biology* | 3 | 0 | 0 | 3 |
| 2 | BT 1103 | Introduction to Biotechnology | 2 | 0 | 0 | 2 |
| 1 | BT 1104 | Chemistry of Biomolecules | 3 | 0 | 2 | 4 |
| 5 | PH 1103 | Physics for BT & CB | 3 | 1 | 2 | 5 |
| 6 | ES 103 | Earth and Environmental Sciences | 2 | 0 | 0 | 2 |
| 7 | HS 1101 | English | 0 | 3 | 0 | 3 |
| 8 | HS 1102 | Media Project | 0 | 0 | 2 | 1.5 |
| 9 | FS 1103 | French- I | 0 | 2 | 0 | 0.5 |
| 10 | HS 1104 | Introduction to Entrepreneurship | 0 | 0 | 3 | 1 |
| | | Total Credits | | | | 22 |

***For students with Bio or Math in 10+2**

Semester-II

| S. No | Course Code | Course Title | L | T | P | Credits |
|-------|-------------|-----------------------------------|---|---|---|-------------|
| 2 | BT 1205 | Genetics | 2 | 1 | 2 | 4 |
| 3 | BT 1206 | Biodiversity & Global Conventions | 1 | 0 | 0 | 1 |
| 4 | BT 1207 | Basic Mathematics II | 3 | 1 | 0 | 4 |
| | EE1204 | Basic Electronics & Applications | 2 | 1 | 2 | 4 |
| 4 | CH 1202 | Chemistry-II | 2 | 0 | 2 | 3 |
| 6 | CS 1101 | Introduction to Computing | 2 | 1 | 2 | 4 |
| 7 | HS 1201 | Entrepreneurship Practice | 0 | 0 | 2 | 1 |
| 8 | HS 1202 | Professional Ethics | 0 | 1 | 0 | 1 |
| 9 | HS 1203 | French-II | 0 | 2 | 0 | 0.5 |
| | | Total Credits | | | | 22.5 |

Semester -III

| S. No | Course Code | Course Title | L | T | P | Total Credits |
|-------|-------------|-----------------------------------|---|---|---|---------------|
| 1 | BT 2108 | Enzymes & Metabolism | 3 | 0 | 2 | 4 |
| 2 | BT 2109 | Microbes & Immune Systems | 3 | 0 | 2 | 4 |
| 3 | BT 2110 | Cell & Molecular Biology | 3 | 0 | 2 | 4 |
| 4 | BT 2111 | Probability & Biostatistics | 2 | 1 | 2 | 4 |
| 5 | HS 2101 | Lean Start-up (Fractal) | 0 | 0 | 3 | 1 |
| 6 | HS 2102 | Principles of Economics (Fractal) | 3 | 0 | 0 | 1.5 |
| 7 | HS 2103 | French-III | 0 | 2 | 0 | 0.5 |
| | | Total Credits | | | | 19 |

Semester -IV

| S. No | Course Code | Course Title | L | T | P | Total Credits |
|-------|-------------|-----------------------|---|---|---|---------------|
| 1 | CB 2204 | Computational Biology | 3 | 0 | 2 | 4 |
| 2 | BT 2212 | Omic Technologies | 3 | 0 | 2 | 4 |
| 3 | BT 2213 | Gene Technology | 2 | 0 | 4 | 4 |
| 4 | BT 2214 | Bioprocess Technology | 3 | 1 | 2 | 5 |
| 5 | BT 2215 | IPR & Regulatory | 1 | 0 | 0 | 1 |
| 6 | HS 2201 | Design Thinking | 1 | 0 | 2 | 2 |
| 7 | HS 2202 | Financial Accounting | 3 | 0 | 0 | 1.5 |
| 8 | HS 2203 | French- IV | 0 | 2 | 0 | 0.5 |
| | | Total Credits | | | | 22 |

Semester -V

| S. No | Course Code | Course Title | L | T | P | Total Credits |
|-------|-------------|---|---|---|---|---------------|
| 1 | BT 3116 | Animal Cell & Tissue Culture Technology | 2 | 0 | 4 | 4 |
| 2 | BT 3117 | Machine Learning for Biologists | 2 | 0 | 2 | 3 |
| 3 | BT 3118 | Agriculture Biotechnology | 3 | 0 | 2 | 4 |
| 4 | BT 3119 | Bioprocess Design & Upscaling | 3 | 0 | 2 | 4 |
| 5 | BT 3120 | Good Manufacturing & Laboratory Practices | 2 | 0 | 0 | 2 |
| 6 | BT 3121 | Food Processing & Nutrition | 3 | 0 | 2 | 4 |
| 7 | | HSS Elective -I | 2 | 0 | 0 | 2 |
| | | Total Credits | | | | 23 |

Semester -VI

| S. No | Course Code | Course Title | L | T | P | Total Credits |
|-------|--------------|--|---|---|---|---------------|
| 1 | BT 3222 | Synthetic Biology & Applications | 3 | 0 | 2 | 4 |
| 3 | BT 3223 | Green Biotechnology | 3 | 0 | 0 | 3 |
| 4 | PR 301 | Project-I (Literature review & seminar) | - | - | 4 | 2 |
| 5 | BT 3024 | Elective-I | 3 | 0 | 0 | 3 |
| 6 | BT 3025 | Elective-II | 3 | 0 | 0 | 3 |
| 1 | BT 3026 | Elective-III | 3 | 0 | 0 | 3 |
| 7 | HS 3201 | Introduction to Professional Development | 2 | 0 | 0 | 2 |
| 8 | HSS Elective | HSS Elective II | 2 | 0 | 0 | 2 |
| | | Total Credits | | | | 22 |

Semester -VII

| S. No | Course Code | Course Title | L | T | P | Total Credits |
|-------|--------------|---|---|---|----|---------------|
| 2 | BT 4227 | Research Methods & Ethics | 2 | 0 | 0 | 2 |
| 2 | BT 4028 | Elective-IV | 3 | 0 | 0 | 3 |
| 3 | BT 4029 | Elective-V | 3 | 0 | 0 | 3 |
| 4 | BT 4030 | Elective-VI | 3 | 0 | 0 | 3 |
| 5 | PR 402 | Project-II (Research work and presentation) | 0 | | 10 | 5 |
| 6 | HSS Elective | HSS Elective III | 2 | 0 | 0 | 2 |
| | | Total Credits | | | | 18 |

Semester -VIII

| S. No | Course Code | Course Title | L | T | P | Total Credits |
|-------|-------------|--|---|---|----|---------------|
| 1 | PR 403 | Final Year Project-III (Industrial Internship/R&D Institute with major research project) | 0 | 0 | 24 | 12 |

Total Credits: 22 + 22.5 + 19 + 22 + 23 + 22 + 18 + 12 = 160.5

Electives: Students will choose 4 electives from a particular track (specialization) and remaining 2 electives from any BT or CB baskets

Specializations: Each specialization will have 4 electives and extensive project work

Projects-I, II, III: For students choosing a particular track, all 3 projects will be aligned to track/ specialization