

## Programme structure

Total Credits: 88

Structure of the curriculum

| Course category       | No of courses | Credits per course | Total Credits |
|-----------------------|---------------|--------------------|---------------|
| I. Core courses       | 6             | 3                  | 18            |
| II. Core Courses      | 6             | 2                  | 12            |
| III. Elective courses | 7             | 3                  | 3             |
| IV. Elective courses  | 1             | 2                  | 2             |
| V. Project            | 1             | 20                 | 20            |
| Total credits         |               |                    | 88            |

### 1. SEMESTER-WISE SCHEDULE

#### SEMESTER I

| Course type | Course title                                         | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
|-------------|------------------------------------------------------|-------------|--------------|---------------|------------------|---------|
| Core        | BT 441: Biochemistry                                 | 3           | 0            | 0             | 3                | 3       |
|             | BT 443: Cell Biology                                 | 3           | 0            | 0             | 3                | 3       |
|             | BT 478: Microbiology                                 | 3           | 0            | 0             | 3                | 3       |
|             | BT 447: Molecular Genetics                           | 3           | 0            | 0             | 3                | 3       |
|             | BT 453: Lab-I Biochemistry and Analytical Techniques | 0           | 0            | 3             | 6                | 3       |
|             | BT 455: Lab-II Microbiology                          | 0           | 0            | 3             | 6                | 3       |
|             | BT 449: Basics of Mathematics and Statistics         | 2           | 0            | 0             | 2                | 2       |
|             | BT 451: Basics of Chemistry and Physics              | 2           | 0            | 0             | 2                | 2       |

#### SEMESTER 2

| Course type | Course title              | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
|-------------|---------------------------|-------------|--------------|---------------|------------------|---------|
| Core        | BT 440: Molecular Biology | 3           | 0            | 0             | 3                | 3       |

|  |                                                       |   |   |   |   |   |
|--|-------------------------------------------------------|---|---|---|---|---|
|  | BT 442: Immunology                                    | 3 | 0 | 0 | 3 | 3 |
|  | BT 444: Developmental Biology                         | 3 | 0 | 0 | 3 | 3 |
|  | BT 448: Genomics and Proteomics                       | 3 | 0 | 0 | 3 | 3 |
|  | BT 450: Lab-III Molecular Biology                     | 0 | 0 | 3 | 6 | 3 |
|  | BT 452: Lab-IV Immunology                             | 0 | 0 | 3 | 6 | 3 |
|  | BT 446: Bioinformatics                                | 2 | 0 | 1 | 5 | 3 |
|  | BT 454: Biophysical methods and emerging technologies | 2 | 0 | 0 | 2 | 2 |

### SEMESTER 3

| Course type | Course title                                                                      | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
|-------------|-----------------------------------------------------------------------------------|-------------|--------------|---------------|------------------|---------|
| Core        | BT 457: Genetic Engineering                                                       | 3           | 0            | 0             | 3                | 3       |
|             | BT 461: Bioprocess Engineering and Technology                                     | 3           | 0            | 0             | 3                | 3       |
|             | BT 471: Lab-V Genetic Engineering                                                 | 0           | 0            | 3             | 6                | 3       |
|             | BT 473: Lab-VI Bioprocess Engineering and Technology                              | 0           | 0            | 3             | 6                | 3       |
|             | BT 459: Molecular Diagnostics                                                     | 2           | 0            | 0             | 2                | 2       |
|             | BT 469: Intellectual Property Rights, Biosafety and Bioethics                     | 2           | 0            | 0             | 2                | 2       |
|             | BT 475: Critical analysis of classical papers and scientific communication skills | 0           | 1            | 1             | 2                | 2       |
| Electives   | BT 463: Plant Biotechnology                                                       | 3           | 0            | 0             | 3                | 3       |
|             | BT 465: Animal Biotechnology                                                      |             |              |               |                  |         |
|             | BT 467: Microbial Biotechnology                                                   |             |              |               |                  |         |
|             | BT 477: Computational Biology                                                     |             |              |               |                  |         |
|             | BT 479: Nanobiotechnology                                                         |             |              |               |                  |         |
|             | BT 499: Environmental Biotechnology                                               |             |              |               |                  |         |

### SEMESTER 4

| Course type | Course title                | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
|-------------|-----------------------------|-------------|--------------|---------------|------------------|---------|
| Core        | BT 462: Project             | 0           | 0            | 40            | 40               | 20      |
| Elective    | BT 466: Bioentrepreneurship | 2           | 0            | 0             | 2                | 2       |

## 7. Mapping of course with Program Outcomes (POs)

| Course title                                                                      | PO1 | PO2 | PO3 | PO4 | PO5 |
|-----------------------------------------------------------------------------------|-----|-----|-----|-----|-----|
| BT 441: Biochemistry                                                              | x   | x   | -   | -   | -   |
| BT 443: Cell Biology                                                              | x   | x   | -   | -   | -   |
| BT 478: Microbiology                                                              | x   | x   | x   | x   | -   |
| BT 447: Molecular Genetics                                                        | x   | x   | x   | x   | -   |
| BT 453: Lab-I Biochemistry and Analytical Techniques                              | x   | x   | x   | x   | -   |
| BT 455: Lab-II Microbiology                                                       | x   | x   | x   | x   | x   |
| BT 449: Basics of Mathematics and Statistics                                      | x   | x   | -   | -   | -   |
| BT 451: Basics of Chemistry and Physics                                           | x   | x   | -   | -   | -   |
| BT 440: Molecular Biology                                                         | x   | x   | -   | -   | -   |
| BT 442: Immunology                                                                | x   | x   | -   | -   | -   |
| BT 444: Developmental Biology                                                     | x   | x   | -   | -   | -   |
| BT 448: Genomics and Proteomics                                                   | x   | x   | x   | x   | -   |
| BT 450: Lab-III Molecular Biology                                                 | x   | x   | x   | x   | x   |
| BT 452: Lab-IV Immunology                                                         | x   | x   | x   | x   | x   |
| BT 446: Bioinformatics                                                            | x   | x   | -   | -   | -   |
| BT 454: Biophysical methods and emerging technologies                             | x   | x   | x   | x   | -   |
| BT 457: Genetic Engineering                                                       | x   | x   | x   | x   | -   |
| BT 461: Bioprocess Engineering and Technology                                     | x   | x   | x   | x   | x   |
| BT 471: Lab-V Genetic Engineering                                                 | x   | x   | x   | x   | x   |
| BT 473: Lab-VI Bioprocess Engineering and Technology                              | x   | x   | x   | x   | x   |
| BT 459: Molecular Diagnostics                                                     | x   | x   | x   | x   | -   |
| BT 469: Intellectual Property Rights, Biosafety and Bioethics                     | x   | x   | x   | x   | -   |
| BT 475: Critical analysis of classical papers and scientific communication skills | x   | x   | x   | x   | -   |
| BT 463: Plant Biotechnology                                                       | x   | x   | x   | x   | x   |
| BT 465: Animal Biotechnology                                                      | x   | x   | x   | x   | x   |
| BT 467: Microbial Biotechnology                                                   | x   | x   | x   | x   | x   |
| BT 477: Computational Biology                                                     | x   | x   | x   | x   | x   |
| BT 479: Nanobiotechnology                                                         | x   | x   | x   | x   | x   |
| BT 499: Environmental Biotechnology                                               | x   | x   | x   | x   | x   |
| BT 462: Project                                                                   | -   | -   | x   | x   | x   |
| BT 466: Bioentrepreneurship                                                       | x   | x   | x   | x   | x   |

### 1. Evaluation plan:

- Understanding of subject is constantly evaluated through discussion and cross questioning.
- Examinations of specific duration (1 Hr/2 Hr)
- Assignment on critical problems related to specific subject.
- Constant assessment during laboratory courses and practical records.
- Individual and group oral presentations.
- Research paper presentation in seminar.
- Project work and report writing.
- Presentation (oral/poster) of project work.
- Research ability and research findings through project work
- Viva voce

