

# **INDIRA GANDHI UNIVERSITY, MEERPUR- REWARI, HARYANA (122502)**

**(A State University Established under Haryana Act No.29 of 2013)  
(Recognized u/s 12(B) & 2(f) of UGC Act, 1956)**

[www.igu.ac.in](http://www.igu.ac.in)



## **Syllabus and Scheme of Examination**

(in accordance with National Educational Policy 2020)

**for**

**Post Graduate Programme**

**In**

**M.Sc. Biotechnology**

**Scheme P (Framework 2)**

Effective from Academic Session 2026

**Department of Biotechnology**

**Faculty of Life Sciences**

**Indira Gandhi University, Meerpur-Rewari (122502)**

**Haryana, India**

## Details of Approvals

| <b>Council/Board</b>                                  | <b>Date</b>       | <b>Remarks</b> |
|-------------------------------------------------------|-------------------|----------------|
| <b>Staff Council</b>                                  | <b>03.08.2026</b> |                |
| <b>Board of Studies</b>                               | <b>05.08.2026</b> |                |
| <b>Faculty (Life Sciences)</b>                        |                   |                |
| <b>Academic Council</b>                               |                   |                |
| <b>Year of implementation:            2026 - 2027</b> |                   |                |

**Chairperson**  
**(Signature with Stamp)**

# VISION AND MISSION OF THE UNIVERSITY

## VISION

To be a globally renowned university, recognized for excellence in teaching, innovative research, and welfare of the society, imbibing the spirit of “*Vasudhaiv kutumbkam*”.

## MISSION

- To introduce and implement innovation in teaching and learning process matching up the global standards to strengthen academic delivery through curriculum design, teaching pedagogy and usage of ICT.
- To develop a mechanism that attracts talented, qualified and experienced faculty from across the globe for pursuing their academic and research careers at the University.
- To offer academic programs at UG, PG, doctoral, Post-Doctoral levels which are learner- centric, industry focused, and adhere to outcome based international models.
- To create an ambiance that is conducive for undertaking sponsored research, innovation and consultancy services to a wide spectrum of societal and industrial requirements while encouraging interdisciplinary approach of learning, teamwork, and research.
- To establish state of art centres of excellence in frontier areas of research and design innovation through industry collaboration to innovate and incubate the products and services.
- To establish smart campus and promote e-governance activities in the university for the digitally empowered society and knowledge economy.
- To provide a hygienic, modern, environment friendly and vivacious campus attuned to the urgent needs of Green Technology.
- To consider and implement norms, metrics, standards, procedures and benchmarks for assessing and improving the quality in every aspect of the University system and achieve quality certifications by National and International bodies.
- To make society self-reliant by organizing various programmes including literacy, gender sensitization, health awareness, and dissemination of information about livelihood generation.

# **VISION AND MISSION OF THE DEPARTMENT**

## **VISION**

To train the students to be highly effective instructors, researchers, and contributors to Biotechnology based industries and stakeholders globally. Be regarded as a prestigious center of scholarly achievement worldwide.

## **MISSION**

- To advance the Biotechnology based research and education.
- To create skilled manpower for businesses and industries based on Molecular, Microbial, Medicinal, Computational (bioinformatics) experimental methods and methodologies.
- To offer learning environments that are centered on the needs of the students in order to help them develop as people as a whole.
- To introduce summer training and research projects to strengthen academic delivery.
- To establish smart classrooms and well-equipped laboratory for assessing and improving the quality in every aspect of academic and research.
- To make students and researchers self-reliant by organizing various programmes like workshop, seminars, national and international conferences, educational tours and industrial visit.

## About the Programme

### **Master of Science (M.Sc.) in Biotechnology**

The Master of Science (M.Sc.) in Biotechnology is a two-year (four-semester) postgraduate programme offered by the Department of Biotechnology, Faculty of Life Sciences, Indira Gandhi University, Meerpur, Rewari, in accordance with the National Education Policy (NEP) 2020, the UGC Curriculum and Credit Framework for Postgraduate Programmes (CCFPG), and the University Ordinances, as amended from time to time. The programme is designed to impart advanced knowledge, practical skills, research aptitude, and professional competence in modern biotechnology to address challenges in healthcare, agriculture, industry, environmental sustainability, and allied life sciences.

The curriculum integrates fundamental and emerging areas of biotechnology, including molecular biology, genetic engineering, microbiology, biochemistry, immunology, cell biology, bioinformatics, genomics, proteomics, plant and animal biotechnology, industrial biotechnology, environmental biotechnology, nanobiotechnology, and Fundamental of Data Analysis. Emphasis is placed on experiential learning through laboratory practicals, seminars, internships, project work, dissertation (where applicable), field visits, and research-based activities, enabling students to apply biotechnological principles for scientific innovation and sustainable development.

The programme follows the Choice Based Credit System (CBCS) and the Learning Outcome-Based Curriculum Framework (LOCF) to promote academic flexibility, multidisciplinary learning, skill development, innovation, entrepreneurship, and lifelong learning. It also incorporates Indian Knowledge Systems (IKS), research ethics, biosafety, bioethics, intellectual property rights (IPR), constitutional and human values, and the Sustainable Development Goals (SDGs) to prepare graduates for responsible scientific practice and societal well-being.

The curriculum is structured to develop scientific reasoning, analytical and critical thinking, technical proficiency, research competence, communication skills, leadership, and entrepreneurial abilities. Graduates of the programme will be well prepared for careers in research and development laboratories, biotechnology and pharmaceutical industries, healthcare and diagnostic laboratories, agricultural and food biotechnology sectors, environmental management, quality control and assurance laboratories, government organizations, regulatory agencies, academic institutions, contract research organizations (CROs), bioinformatics companies, and biotechnology start-ups. The programme also provides a strong foundation for pursuing doctoral research, higher studies, and other professional opportunities in biotechnology and allied disciplines.

## Programme Duration

- **Duration** : Two Years (Four Semesters)
- **Mode of Study** : Full-time
- **Total Credits** :108
- **Total Marks** : 2700
- **Medium of Instruction** : English

## Programme Structure

The M.Sc. Biotechnology programme comprises the following components:

- Core Courses (CC)
- Discipline-Centric Elective Courses (DEC)
- Practical/Practicum Courses (PP)
- Seminar
- Internship
- Open Elective Course (OEC)
- Constitutional, Human and Moral Values & Intellectual Property Rights (CHM)
- Employability and Entrepreneurship Course (EEC)
- Dissertation (where applicable)

The programme offers the flexibility to pursue either:

- **Coursework-based Master's Degree** (without Dissertation), or
- **Research-oriented Master's Degree** (with Dissertation)

in accordance with the University regulations and NEP-2020 guidelines.

### Internship

Every student shall successfully complete a **4-credit Internship** of **4–6 weeks** after Semester II in an industry, research laboratory, government organization, university, environmental consultancy, NGO, or any other institution approved by the University.

### Multiple Entry and Exit

The programme shall follow the Multiple Entry and Exit provisions of NEP-2020 and the University regulations.

- Exit after Year I: Qualification as prescribed by the University under the prevailing NEP regulations.
- Exit after Semester II: Award of Post Graduate Diploma in Biotechnology, subject to the prescribed credit requirements.
- Completion of **all four semesters** and prescribed credits shall lead to the award of the **Master of Science (M.Sc.) in Biotechnology**.

## Evaluation Scheme

The evaluation shall consist of:

- Continuous Internal Assessment
- End Semester Examination
- Practical/Laboratory Examination
- Seminar Evaluation
- Internship Evaluation
- Dissertation Evaluation (where applicable)

The evaluation, grading, promotion, examination, and award of the degree shall be governed by the University Ordinances, Examination Regulations, CBCS/LOCF, CCFPG, and NEP-2020 guidelines, as amended from time to time.

## General Instructions

1. The programme shall be governed by the Academic Ordinances, Examination Regulations, CBCS/LOCF, CCFPG, and NEP-2020 guidelines of Indira Gandhi University, Meerpur, as amended from time to time.
2. The Department reserves the right to revise the curriculum, practicals, field activities, and evaluation methods in accordance with academic advancements and statutory requirements.
3. Field visits, industrial visits, seminars, workshops, expert lectures, and extension activities shall form an integral part of the programme.
4. The list of practical exercises may be modified depending upon the availability of laboratory facilities, field conditions, and emerging technologies.
5. The medium of instruction and examination shall ordinarily be English.
6. Credits shall be awarded only upon successful completion of the prescribed academic requirements.
7. The programme promotes multidisciplinary learning, research, innovation, entrepreneurship, environmental ethics, and sustainable development in alignment with the objectives of **NEP-2020**.

## Passing Criteria

A student shall be declared to have passed a course only if he/she secures:

- **Minimum 40% marks** in the End Semester Examination.
- **Minimum 40% marks in aggregate** (Internal Assessment and End Semester (Examination taken together).
- **Minimum 40% marks** in Practical/Practicum, Seminar, Internship, Dissertation, and Viva-Voce, wherever applicable.

The award of SGPA, CGPA, promotion, reappear examinations, improvement, division, and the degree shall be governed by the University Ordinances and NEP-2020 regulations.

A student shall be awarded the **Master of Science (M.Sc.) in Biotechnology** upon successful completion of all prescribed credits and programme requirements.

### **Eligibility for Examination**

A student shall be eligible to appear in the End Semester Examination only if he/she:

- Fulfils the minimum attendance requirement prescribed by the University and UGC.
- Satisfies all other academic requirements prescribed under the University Ordinances and Examination Regulations.

### **Promotion and Award of Degree**

Promotion from one semester to the next and the award of the degree shall be governed by the Academic Ordinances and Examination Regulations of Indira Gandhi University, Meerpur-Rewari. A student shall be awarded the **M.Sc. Biotechnology** upon successful completion of all prescribed credits and other academic requirements in accordance with the University regulations.

## **MINIMUM ELIGIBILITY CRITERIA**

### **Minimum Eligibility Criteria for Admission to M.Sc. Biotechnology**

Admission to the M.Sc. Biotechnology programme shall be made in accordance with the rules and regulations of Indira Gandhi University, Meerpur-Rewari, as amended from time to time.

A candidate seeking admission to the programme must fulfil the following eligibility conditions:

1. The candidate must have passed a Bachelor's degree (B.Sc. or an equivalent examination) of three year's duration, or a four-year B.Sc. (Honours/Research) programme, from a recognized University.
2. The candidate must have secured at least 50% marks in aggregate. A relaxation of 2.5% marks (i.e., 47.5% marks) shall be admissible to candidates belonging to SC/ST/Differently Abled (Blind/Visually Impaired) categories of Haryana, wherever applicable, in accordance with the University/State Government norms.

3. The candidate must have studied any one of the following subjects as a major/core subject at the undergraduate level:
- Botany
  - Life Sciences
  - Agricultural Sciences
  - Biotechnology
  - Pharmacy
  - MBBS
  - Zoology
  - Microbiology
  - Biotechnology
  - Biochemistry
  - Genetics
  - BVSc
  - Medical Laboratory Technology
  - Environmental Sciences
  - BAMS
  - Bioinformatics

Candidates satisfying the above eligibility criteria shall be considered for admission, subject to the admission rules and regulations of the University in force from time to time.

## **PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

|       |                                                                                                                                                                    |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PEO 1 | Develop strong fundamental and advanced knowledge in biotechnology, including molecular biology, biochemistry, microbiology, genetics, and bioanalytical sciences. |
| PEO 2 | Apply scientific principles and modern biotechnological tools to solve biological, environmental, agricultural, and healthcare-related problems.                   |
| PEO 3 | Develop research aptitude, analytical thinking, and experimental skills for higher studies, innovation, and industrial applications.                               |
| PEO 4 | Demonstrate professional ethics, social responsibility, biosafety awareness, and commitment to sustainable development.                                            |
| PEO 5 | Engage in lifelong learning, entrepreneurship, leadership, and interdisciplinary teamwork in biotechnology-related professions.                                    |

## PROGRAMME LEARNING OUTCOMES (PLOs)

|        |                           |                                                                                                                                                                                                                                                     |
|--------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PLO 1  | Knowledge                 | Acquire comprehensive knowledge of Cell and Molecular Biology, Biomolecules and Metabolism, Microbiology, Genetics, Immunology, Biochemistry, Bioinformatics, Environmental Biotechnology, and other core areas of biotechnology.                   |
| PLO 2  | Research Aptitude         | Develop the ability to design, perform, analyze, and interpret laboratory experiments and research projects using scientific methods in molecular biology, microbiology, biochemistry, and biotechnology.                                           |
| PLO 3  | Communication             | Communicate scientific concepts, laboratory findings, project reports, seminar presentations, and research outcomes effectively through oral and written communication.                                                                             |
| PLO 4  | Problem-Solving           | Apply principles of molecular biology, microbiology, genetics, biochemistry, and biotechnology to identify and solve biological, industrial, environmental, and healthcare-related problems.                                                        |
| PLO 5  | Individual and Team Work  | Work effectively as an individual and as a member or leader of multidisciplinary teams during laboratory work, seminars, internships, research projects, and industrial training.                                                                   |
| PLO 6  | Investigation of Problems | Investigate biological problems through literature survey, laboratory experimentation, data analysis, molecular techniques, microbial studies, and interpretation of scientific results.                                                            |
| PLO 7  | Modern Tool Usage         | Use modern biotechnology tools and techniques including microscopy, centrifugation, chromatography, electrophoresis, spectroscopy, PCR, molecular biology techniques, bioinformatics software, flow cytometry, and advanced analytical instruments. |
| PLO 8  | Scientific Temperament    | Develop scientific attitude, critical thinking, innovation, ethical research practices, biosafety awareness, and evidence-based decision-making in biotechnology.                                                                                   |
| PLO 9  | Life-Long Learning        | Pursue continuous learning and professional development by keeping pace with emerging areas such as genomics, proteomics, bioinformatics, synthetic biology, nanobiotechnology, and molecular diagnostics.                                          |
| PLO 10 | Ethics                    | Apply professional ethics, biosafety, biosecurity, environmental sustainability, laboratory safety, intellectual property rights, and regulatory guidelines in biotechnology research and industrial applications.                                  |
| PLO 11 | Project Management        | Plan, organize, execute, monitor, and manage biotechnology research projects, laboratory activities, entrepreneurship initiatives, and industrial assignments using appropriate scientific and managerial skills.                                   |

## **PROGRAMME SPECIFIC OUTCOMES (PSOs)**

|       |                                                                                                                                                                                      |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PSO 1 | Apply concepts of molecular biology, genetics, biochemistry, microbiology, and cell biology for understanding biological systems and biotechnology applications                      |
| PSO 2 | Demonstrate proficiency in modern biotechnological techniques such as PCR, electrophoresis, chromatography, spectroscopy, microscopy, bioinformatics, and microbial culture methods. |
| PSO 3 | Design, conduct, analyze, and interpret laboratory experiments and research projects in biotechnology, healthcare, agriculture, and environmental sciences.                          |
| PSO 4 | Apply biotechnology knowledge for innovation, entrepreneurship, industrial applications, biosafety, and societal welfare while adhering to professional ethics                       |

| <b>Scheme of Examination for Postgraduate Programme</b> |                                |
|---------------------------------------------------------|--------------------------------|
| <b>Subject</b>                                          | <b>Biotechnology</b>           |
| <b>Total number of Semesters</b>                        | <b>IV</b>                      |
| <b>Total Marks</b>                                      | <b>2700</b>                    |
| <b>Total Credit</b>                                     | <b>108</b>                     |
| <b>Framework</b>                                        | <b>2</b>                       |
| <b>Scheme</b>                                           | <b>P (as per PG ordinance)</b> |

## Scheme P (Framework 2)

| Semester | Course Type | Course Code*   | Nomenclature of Course                                                                                                                                                                                                                               | Theory(T) / Practical (P) | Credits |    | Contact hours per week<br>L: Lecture<br>P: Practical<br>T: Tutorial<br>To: Total |   |   |    | Internal Assessment Marks | End Term Examination Marks | Total Marks | Examination Hours                |
|----------|-------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------|----|----------------------------------------------------------------------------------|---|---|----|---------------------------|----------------------------|-------------|----------------------------------|
|          |             |                |                                                                                                                                                                                                                                                      |                           |         | To | L                                                                                | T | P | To |                           |                            |             |                                  |
| 1        | CC-1        | 26L6.0-BTY-101 | Cell and Molecular Biology                                                                                                                                                                                                                           | T                         | 4       | 26 | 4                                                                                | 0 | 0 | 4  | 30                        | 70                         | 100         | 3                                |
|          | CC-2        | 26L6.0-BTY-102 | Biomolecules and Metabolism                                                                                                                                                                                                                          | T                         | 4       |    | 4                                                                                | 0 | 0 | 4  | 30                        | 70                         | 100         | 3                                |
|          | CC-3        | 26L6.0-BTY-103 | Tools and Techniques in Biotechnology                                                                                                                                                                                                                | T                         | 4       |    | 4                                                                                | 0 | 0 | 4  | 30                        | 70                         | 100         | 3                                |
|          | CC-4        | 26L6.0-BTY-104 | Microbiology                                                                                                                                                                                                                                         | T                         | 4       |    | 4                                                                                | 0 | 0 | 4  | 30                        | 70                         | 100         | 3                                |
|          | PC-1        | 26L6.0-BTY-105 | Lab Course-I (Based on CC1 & CC2)                                                                                                                                                                                                                    | P                         | 4       |    | 0                                                                                | 0 | 8 | 8  | 30                        | 70                         | 100         | 3                                |
|          | PC-2        | 26L6.0-BTY-106 | Lab Course-II (Based on CC3 & CC4)                                                                                                                                                                                                                   | P                         | 4       |    | 0                                                                                | 0 | 8 | 8  | 30                        | 70                         | 100         | 3                                |
|          | SEMINAR     | 26L6.0-BTY-107 | Seminar (as per university's guidelines)                                                                                                                                                                                                             | S                         | 2       |    | 0                                                                                | 0 | 0 | 2  | 0                         | 50                         | 50          | (as per university's guidelines) |
| II       | CC-5        | 26L6.0-BTY-202 | Immunology                                                                                                                                                                                                                                           | T                         | 4       | 26 | 4                                                                                | 0 | 0 | 4  | 30                        | 70                         | 100         | 3                                |
|          | CC-6        | 26L6.0-BTY-203 | Fundamental of Data Analysis                                                                                                                                                                                                                         | T                         | 4       |    | 4                                                                                | 0 | 0 | 4  | 30                        | 70                         | 100         | 3                                |
|          | CC-7        | 26L6.0-BTY-204 | Genetic Engineering                                                                                                                                                                                                                                  | T                         | 4       |    | 4                                                                                | 0 | 0 | 4  | 30                        | 70                         | 100         | 3                                |
|          | CC-8        | 26L6.0-BTY-205 | Virology                                                                                                                                                                                                                                             | T                         | 4       |    | 4                                                                                | 0 | 0 | 4  | 30                        | 70                         | 100         | 3                                |
|          | PC-3        | 26L6.0-BTY-206 | Lab Course-III (Based on CC5 & CC8)                                                                                                                                                                                                                  | P                         | 4       |    | 0                                                                                | 0 | 8 | 8  | 30                        | 70                         | 100         | 3                                |
|          | PC-4        | 26L6.0-BTY-208 | Lab Course-IV (Based on CC6 & CC7)                                                                                                                                                                                                                   | P                         | 4       |    | 0                                                                                | 0 | 8 | 8  | 30                        | 70                         | 100         | 3                                |
|          | CHM         | 26L6.0-CHM-201 | Constitutional, Human and Moral Values and IPR                                                                                                                                                                                                       | T                         | 2       |    | 2                                                                                | 0 | 0 | 2  | 15                        | 35                         | 50          | 2                                |
|          | Internship  | 26L6.0-BTY-207 | An internship course of 4 Credits of 4-6 weeks duration during summer vacation after 2 <sup>nd</sup> semester is to be completed by every student. Internship can be either for enhancing the employability or for developing the research aptitude. |                           |         |    |                                                                                  |   |   |    | 50                        | 50                         | 100         | (as per university's guidelines) |

|     |                  |                |                                                                                                                                                                                                |   |   |    |   |   |   |   |    |    |     |   |
|-----|------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|----|---|---|---|---|----|----|-----|---|
| III | CC-9             | 26L6.5-BTY-301 | Animal Biotechnology                                                                                                                                                                           | T | 4 | 26 | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     | CC-10            | 26L6.5-BTY-302 | Molecular Diagnostics                                                                                                                                                                          | T | 4 |    | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     | DEC-1<br>Any one | 26L6.5-BTY-303 | Plant Cell and Tissue Culture                                                                                                                                                                  | T | 4 |    | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     |                  | 26L6.5-BTY-304 | Bioinformatics                                                                                                                                                                                 | T | 4 |    | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     | DEC-2<br>Any one | 26L6.5-BTY-305 | Bioprocess Technology                                                                                                                                                                          | T | 4 |    | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     |                  | 26L6.5-BTY-306 | Food Biotechnology                                                                                                                                                                             | T | 4 |    | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     | PC-5             | 26L6.5-BTY-307 | Lab Course-V<br>(Based on CC-9 & CC-10)                                                                                                                                                        | P | 4 |    | 0 | 0 | 8 | 8 | 30 | 70 | 100 | 3 |
|     | PC-6             | 26L6.5-BTY-308 | Lab Course-VI<br>(Based on DEC-1 & DEC-2)                                                                                                                                                      | P | 4 | 26 | 0 | 0 | 8 | 8 | 30 | 70 | 100 | 3 |
|     | OEC              | 26L6.5-BTY-309 | Biology of Infectious Disease<br>(*To be opted by other than<br>PG Biotechnology students)<br>*PG Biotechnology students<br>will choose from the pool of<br>OECs offered by the<br>university. | T | 2 |    | 2 | 0 | 0 | 2 | 15 | 35 | 50  | 2 |
| IV  | CC-11            | 26L6.5-BTY-409 | Plant Biotechnology I                                                                                                                                                                          | T | 4 | 26 | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     | CC-12            | 26L6.5-BTY-410 | Nano & Environmental<br>Biotechnology                                                                                                                                                          | T | 4 |    | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     | DEC-3*<br>Anyone | 26L6.5-BTY-401 | Molecular Genetics                                                                                                                                                                             | T | 4 |    | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     |                  | 26L6.5-BTY-402 | Biosafety, Bioethics and IPR<br>in Biotechnology                                                                                                                                               | T | 4 |    | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     | DEC-4*<br>Anyone | 26L6.5-BTY-403 | Drug Designing and<br>Pharmacogenomics                                                                                                                                                         | T | 4 |    | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     |                  | 26L6.5-BTY-404 | Stem Cells and Regenerative<br>Medicine                                                                                                                                                        | T | 4 |    | 4 | 0 | 0 | 4 | 30 | 70 | 100 | 3 |
|     | PC-7             | 26L6.5-BTY-411 | Lab Course-VII<br>(Based on CC-11 & CC-12)                                                                                                                                                     | P | 4 |    | 0 | 0 | 8 | 8 | 30 | 70 | 100 | 3 |
|     | PC-8             | 26L6.5-BTY-412 | Lab Course-VIII<br>(Based on DEC-3 & DEC-4)                                                                                                                                                    | P | 4 |    | 0 | 0 | 8 | 8 | 30 | 70 | 100 | 3 |
|     | EEC              | 26L6.5-BTY-407 | Research Ethics                                                                                                                                                                                | T | 2 |    | 2 | 0 | 0 | 2 | 15 | 35 | 50  | 2 |

| Scheme of Semester IV when a student opts for Dissertation Work or Project Work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             |                |                                               |               |    |    |   |   |   |   |              |     |     |   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------|-----------------------------------------------|---------------|----|----|---|---|---|---|--------------|-----|-----|---|
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | DEC-3                       | 26L6.5-BTY-401 | Molecular Genetics                            | T             | 4  | 26 | 4 | 0 | 0 | 4 | 30           | 70  | 100 | 3 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             | 26L6.5-BTY-402 | Biosafety, Bioethics and IPR in Biotechnology | T             | 4  |    | 4 | 0 | 0 | 4 | 30           | 70  | 100 | 3 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DEC-4                       | 26L6.5-BTY-403 | Drug Designing and Pharmacogenomics           | T             | 4  |    | 4 | 0 | 0 | 4 | 30           | 70  | 100 | 3 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             | 26L6.5-BTY-404 | Stem Cells and Regenerative Medicine          | T             | 4  |    | 4 | 0 | 0 | 4 | 30           | 70  | 100 | 3 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DEC- 5                      | 26L6.5-BTY-405 | Enzyme Technology                             | T             | 4  |    | 4 | 0 | 0 | 4 | 30           | 70  | 100 | 3 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             | 26L6.5-BTY-406 | Plant Biotechnology II                        | T             | 4  |    | 4 | 0 | 0 | 4 | 30           | 70  | 100 | 3 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | EEC                         | 26L6.5-BTY-407 | Research Ethics                               | T             | 2  |    | 2 | 0 | 0 | 2 | 15           | 35  | 50  | 2 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Dissertation / Project Work | 26L6.5-BTY-408 | Dissertation                                  | D             | 12 |    | 0 | 0 | 0 | - | 100          | 200 | 300 | - |
| Grand Total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                             |                |                                               | Credits - 108 |    |    |   |   |   |   | Marks - 2700 |     |     |   |
| <b>Note:</b><br>1. *Students can opt up to 40% of total elective courses ( <b>up to 3 any courses available at that time</b> ) mentioned in the Scheme (relevant to Biotechnology with four credit) available on SWAYAM/NPTEL/MOOCs Portal, or other online portal recognized by the UGC and the University.<br>2. A student will be awarded with <b>Master Degree in the Subject</b> after successful completion of 2 year PG Programme by earning 108 Credits.<br><b>OR</b><br>3. A student will be awarded with <b>Master Degree in the Subject</b> after successful completion of 1 year PG Programme by earning 52 Credits, in the case of lateral entry after 4 year UG Programme with Honours/ Honours with Research/ one year PG Diploma in the Subject |                             |                |                                               |               |    |    |   |   |   |   |              |     |     |   |