

**BHARATI VIDYAPEETH (DEEMED TO BE UNIVERSITY)
RAJIV GANDHI INSTITUTE OF IT AND
BIOTECHNOLOGY**



**REVISED SYLLABUS BASED ON
GUIDELINES OF NATIONAL EDUCATION POLICY**

**BACHELOR OF SCIENCE IN
BIOTECHNOLOGY
UNDER
FACULTY OF SCIENCE
SYLLABUS OF SEM **III** & SEM **IV** UNDER
CHOICE BASED CREDIT SYSTEM**

**To be implemented from Academic Year
2024-25**

| SEMESTER I | | | | | |
|---------------------------|------------------|--|----------------|-----------|-------------------|
| Course Description | Course no | Title | Credits | IA | Univ. Exam |
| Major (T) | BBT23-101 | Animal Science | 2 | 50 | 50 |
| Major (T) | BBT23-102 | Plant Science | 2 | 50 | 50 |
| Major (T) | BBT23-103 | Fundamentals in Chemistry & Biochemistry | 2 | 50 | 50 |
| VSC I (P) | BBT23-104 | Animal Science Lab | 1 | 25 | 25 |
| SEC I (P) | BBT23-105 | Plant Science Lab | 1 | 25 | 25 |
| SEC II (P) | BBT23-106 | Fundamentals in Chemistry & Biochemistry Lab | 2 | 50 | 50 |
| VEC-I | BBT23-107 | Water Resources and Conservation | 2 | 100 | CA |
| AEC-I | BBT23-108 | English and communication skills | 2 | 100 | |
| OE-I | BBT23-109 | Select One | 2 | 100 | |
| OE-II | BBT23-110 | Select One | 2 | 100 | |
| CC-I | BBT23-111 | Yoga and meditation | 2 | 100 | |
| IKS-I | BBT23-112 | Indian Medicinal Systems | 2 | 100 | |
| Total Credits | | | 22 | | |

***VSC: Vocational Skill Course, AEC: Ability Enhancement Course, OE: Open elective, CC: Co-Curricular Course, IKS: Indian Knowledge system, VEC- Value Education Course, SEC: Skill enhancement course, CA- Continuous Assessment, IA- Internal Assessment, *- Industry linked course**

Open elective Courses (OE):

| OE-I | OE-II |
|--|--------------------------------|
| Working with MS office (Word, Excel and Power Point) | Basics of Financial management |
| OE course offered by other Departments of BVDU | Digital Marketing* |

| SEMESTER II | | | | | |
|---------------------------|------------------|-------------------------------------|----------------|-----------|-------------------|
| Course Description | Course no | Title | Credits | IA | Univ. Exam |
| Major (T) | BBT23-201 | Introduction to Microbiology | 2 | 50 | 50 |
| Major (T) | BBT23-202 | Basics of Biomolecules | 2 | 50 | 50 |
| Major (T) | BBT23-203 | Cell Biology | 2 | 50 | 50 |
| Minor I (T) | BBT23-204 | Basic Bioinformatics | 2 | 50 | 50 |
| SEC II (P) | BBT23-205 | Microbiology Lab | 1 | 25 | 25 |
| VSC III (P) | BBT23-206 | Biomolecules and Cell biology Lab | 2 | 50 | 50 |
| VSC IV (P) | BBT23-207 | Basic Bioinformatics Lab | 1 | 25 | 25 |
| VEC II | BBT 23-208 | Promotion of Indian Art and Culture | 2 | 100 | C A |
| AEC II | BBT23-209 | Physics for Biologists | 2 | 100 | |
| OE-III | BBT23-210 | Select one | 2 | 100 | |
| OE-IV | BBT23-211 | Select one | 2 | 100 | |
| CC-II | BBT23-212 | Sports and Fitness | 2 | 100 | |
| Total Credits | | | 22 | | |

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Open elective Courses (OE)

| OE- III | OE-IV |
|-----------------------------------|--|
| Botanicals and Bioprospecting | Fresh water and Brackish Water Aquaculture |
| Sustainable Packaging Technology* | Culinary skills for Vegan Diet |

- **Exit option: Award of UG Certificate in Biotechnology after completion of semester II with 44 credits and after completion of internship/NSQF course of 4 credits.**
- **Additional credits will be awarded to the students who will complete Swayam NPTEL course and receive the certificate**

| SEMESTER III | | | | | |
|---------------------------|------------------|------------------------------------|----------------|-----------|-------------------|
| Course Description | Course no | Title | Credits | IA | Univ. Exam |
| Major (T) | BBT23-301 | Concepts in Microbiology | 2 | 50 | 50 |
| Major (T) | BBT23-302 | Biochemistry of Proteins | 2 | 50 | 50 |
| Major (T) | BBT23-303 | Basics of Molecular Biology | 2 | 50 | 50 |
| Major (T) | BBT23-304 | Fundamentals of Immunology | 2 | 50 | 50 |
| Minor-II | BBT23-305 | C programming | 2 | 50 | 50 |
| Minor- III | BBT23-306 | Biodiversity | 2 | 50 | 50 |
| VSC-V (P) | BBT23-307 | Immunology & Molecular Biology Lab | 2 | 50 | 50 |
| VSC-VI (P) | BBT23-308 | Biochemistry & Microbiology Lab | 2 | 50 | 50 |
| AEC-III | BBT23-309 | Mathematics for Biologists-I | 1 | 50 | C A |
| OE- V | BBT23-310 | Select One | 2 | 100 | |
| FP-I | BBT23-311 | Community Based Learning | 1 | 50 | |
| CC-III | BBT23-312 | Community Services (NSS) | 2 | 100 | |
| Total Credits | | | 22 | | |

***VSC: Vocational Skill Course, AEC: Ability Enhancement Course, OE: Open elective, CC: Co-Curricular Courses, FP- Field Project, CA- Continuous assessment, IA- Internal Assessment, *- Industry linked course**

Open elective Courses (OE):

| |
|---------------------------|
| OE-V |
| Organic Farming |
| Biofertilizer Technology* |

| SEMESTER IV | | | | | |
|---------------------------|------------------|---|----------------|-----------|-------------------|
| Course Description | Course no | Title | Credits | IA | Univ. Exam |
| Major (T) | BBT23-401 | Introduction to Environmental Biotechnology | 2 | 50 | 50 |
| Major (T) | BBT23-402 | Essentials of Molecular Biology | 2 | 50 | 50 |
| Major (T) | BBT23-403 | Basics of Developmental Biology | 2 | 50 | 50 |
| Major (T) | BBT23-404 | Analytical Techniques | 2 | 50 | 50 |
| Minor-IV | BBT23-405 | Human Activities & Climate Change | 2 | 50 | 50 |
| Minor-V | BBT23-406 | JAVA programing | 2 | 50 | 50 |
| SEC-III (P) | BBT23-407 | Analytical Techniques Lab | 1 | 25 | 25 |
| SEC- IV (P) | BBT23-408 | Environment Biotech and Developmental Biology Lab | 2 | 50 | 50 |
| AEC- IV | BBT23-409 | Mathematics for Biologists- II | 1 | 50 | CA |
| OE- VI | BBT23-410 | Select One | 2 | 100 | |
| CEP | BBT23-411 | Community Services (NSS) | 2 | 100 | |
| CC-IV | BBT23-412 | Indian Agricultural Practices | 2 | 100 | |
| Total Credit | | | 22 | | |

SEC: Skill Enhancement Course, AEC: Ability Enhancement Course, OE: Open elective,

CC: Co-Curricular Courses, CEP: Community Engagement Services FP- Field Project, CA- Continuous assessment, IA- Internal Assessment

Additional credits will be awarded to the students who will complete Swayam NPTEL course and receive the certificate

Open elective Courses (OE):

| OE- VI |
|-----------------------------------|
| Data Structure |
| Entrepreneurship in Biotechnology |

*** Exit option: Award of UG Diploma in Biotechnology after completion of semester II with 88 credits and after completion of internship/ NSQF course of 4 credits.**