## DEPARTMENT OF BIOCHEMISTRY

**UG :** Programme profile and the syllabi of courses offered in semester V and VI along with III and IV evaluation Components (with effect from 2018-2021 batch onwards)

**PROGRAMME PROFILE OF B.SC BIOCHEMISTRY**

## B.Sc Biochemistry Programme Specific Outcomes (PSO)

**Upon completion of the Programme, the students will be able to**

* Understand the various biological components present in living cells and its functions.
* Develop practical skills and strong speculative foundation in the interdisciplinary area.
* Analyze the applications of Biochemistry in the fields of Clinical Biochemistry, Genetic Engineering, Molecular Biology, Biotechnology etc.
* Expose the students to a wide range of careers that combine Biology, Plants & Medicine.

# PROGRAMME PROFILE B.Sc (Biochemistry)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Semester** | **Part** | **Category** | **Course Code** | **Course Title** | **Previous Course Code** | **Hours Per**  **Week** | **Credit** |
| **Min / Max** |
| I | I | Language | UTAL105/ UTAL106/ UHIL102/  UFRL102 | Basic Tamil I/ Advanced Tamil I/ Hindi I /  French I | UTAL103/ UTAL104/ UHIL101/  UFRL101 | 4 | 2/3 |
| II | English I | UENL107  /UENL108 | General English I/ Advanced English I | - /  UENL106 | 5 | 3/4 |
| III | Core I | UBCM106 | Fundamentals of Biochemistry | -- | 2 | 1 |
| Core II | UBCM105/ | Cell Biology | UBCM201 | 6 | 5 |
| Core Practical I | UBCR101 | Cell Biology Practical | -- | 3 | 3 |
| Allied I | UCHA102 | Allied Chemistry - I | UCHA101 | 5 | 4 |
| Allied Practical | UCHR103/ UCHR403 | Volumetric and Organic Analysis | -- | 3 | 2 |
| IV | Value Education |  |  |  | 2 | 1 |
| **TOTAL** | | | | |  | **30** | **21/23** |
| II | I | Language | UTAL205/ UTAL206/ UHIL202/  UFRL202 | Basic Tamil II/ Advanced Tamil II/ Hindi II/  French II | UTAL203/ UTAL204/ UHIL201/  UFRL201 | 4 | 2/3 |
| II | English II | UENL207/  UENL208 | General English II/ Advanced English  II | - /  UENL206 | 5 | 3/4 |
| III | Core III | UBCM202 | Biomolecules | UBCM102 | 5 | 5 |
| Core Practical II | UBCR201 | Qualitative Analysis of Biomolecules | -- | 3 | 2 |
| Allied II | UMBA201 | Microbiology | -- | 4 | 4 |

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Allied II  Practical | UMBR201 | Microbiology Practical | -- | 3 | 3 |
| IV | Non Major  Elective |  |  |  | 4 | 2 |
| Soft Skill |  |  |  | 2 | 1 |
| V | Extension Activity/  Physical Education/NCC |  |  |  | - | 1/2 |
| **TOTAL** | | | | |  | **30** | **23/26** |
| III | I | Language | UTAL307/ UTAL308/ UHIL302/  UFRL302 | Basic Tamil III/ Advanced Tamil III/ Hindi III/  French III | UTAL303/ UTAL304/ UHIL301/  UFRL301 | 4 | 2/3 |
| II | English III | UENL307/  UENL308 | General English III/ Advanced English  III | - /  UENL306 | 5 | ¾ |
| III | Core IV | UBCM304 | Biochemical Techniques | -- | 6 | 6 |
| Core Practical  III | UBCR301 | Biochemical Techniques practical I | -- | 5 | 5 |
| Allied III | UMAA305 | Biostatistics | UMAA405 | 5 | 4 |
| IV | Online Course |  | NPTEL/Spoken Tutorial |  | 3 | ½ |
| Value  Education |  |  |  | 2 | 1 |
| **TOTAL** | | | | |  | **30** | **22/25** |
| IV | I | Language | UTAL405/ UTAL406/ UHIL402/  UFRL402 | Basic Tamil IV/ Advanced Tamil IV/ Hindi IV/  French IV | UTAL403/ UTAL404/ UHIL401/  UFRL401 | 4 | 2/3 |
| II | English IV | UENL407/ UENL408 | General English IV/ Advanced English IV | -- / UENL406 | 5 | ¾ |
| III | Core V | UBCM403 | Immunology | UBCO603 | 6 | 6 |
| Core VI | UIDM401 | Pharmaceutical Chemistry | UIDM401 | 6 | 6 |
| Core Practical  IV | UBCR401 | Biochemical Techniques Practical II | UBCR401 | 5 | 5 |
| Core X | UBCP501 | Project | UBCP601 | 2 | - |
| IV | Soft skill |  |  |  | 2 | 1 |
| V | Extension Activity/ Physical  Education/NCC |  |  |  | - | - /2 |
| **TOTAL** | | | | |  | **30** | **23/27** |
| V | III | Core VII | UBCM504 | Enzymes & Intermediary Metabolism | UBCM501 | 6 | 6 |
| Core VIII | UBCM505 | Human Physiology | UBCM502 | 6 | 6 |
| Core IX | UBCM506 | Basics of Bioinformatics | UBCM503 | 6 | 6 |
| Core Practical  V | UBCR501 | Enzymology Practical | UBCM501 | 6 | 3 |
| Core X | UBCP501 | Project | UBCP601 | 4 | 4 |
| Value Education |  |  |  | 2 | 1 |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **TOTAL** | | | | |  | **30** | **26** |
| VI | III | Core XI | UBCM605 | Introduction to Biotechnology | UBCM601 | 5 | 4 |
| Core XII | UBCM606 | Clinical Biochemistry | UBCM602 | 5 | 5 |
| Core XIII | UBCM607 | Molecular Biology | UBCM603 | 5 | 5 |
| Core XIV | UBCM604 | Comprehensive Viva voce | -- | - | 1 |
| Core Practical  VI | UBCR601 | Clinical Biochemistry Practical | -- | 5 | 3 |
| Core Practical  VII | UBCR602 | Hematology & Urine Analysis | -- | 3 | 2 |
| Major Elective | UBCO604 | Stem Cell Biology | -- | 5 | 4 |
| UBCO607 | Molecular Endocrinology | UBCO605 |
| UBCO606 | Pathobiology of Human Diseases and  Disorders | -- |
| UIDM601 | Nanotechnology in Medicine | -- |
| IV | Soft Skill |  |  |  | 2 | 1 |
| V | Extension Activity/  Physical Education/NCC |  |  |  | - | -/2 |
| **TOTAL** | | | | |  | **30** | **25/27** |
| **GRAND TOTAL** | | | | |  | **180** | **140/154** |

## Experiential Learning for Clinical Biochemistry and Biotechnology Offered in Semester VI

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Course Mapping** | | | | **Collaborating Agency –MSME & E.S. Hospital** | | |
| **Semester** | **Course Code** | **Course Title** | **Assessment** | **Course Title** | **Hours/Days**  **/ Month** | **Mode of Evaluation** |
| VI | UBCM606 | Clinical Biochemistry | Component III | Clinical Biochemistry | 5 days | Reflection |
| VI | UBCM605 | Introduction to Biotechnology | Component IV | Organic Farming | 2 days | Reflection |

**PROGRAMME OFFERED TO OTHER DEPARTMENTS**

**NON MAJOR ELECTIVES**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Semester** | **Part** | **Category** | **Course code** | **Course Title** | **Contact Hour/ Week** | **Credit** | |
| **Min** | **Max** |
| II | IV | Non Major Elective | UBCE202 | Biomedical Techniques | 4 | 2 | 2 |
| UBCE401/UBCE203 | Nutrition & Health |
| UBCE502/UBCE204 | Women’s Health, Nutrition & Disorders |
| UBCE304/UBCE208 | Mushroom Cultivation |
| UBCE209 | Clinical Diagnostics |
| UBCE210 | Reproductive Biology |

**EXTRA CREDIT EARNING PROVISION (Only for Interested Students)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Category** | **Course Code** | **Course Title** | **Credit** |
| II | Internship | UBCI201 | Summer Internship | 1 |
| IV | Internship | UBCI401 | Summer Internship | 1 |

**PROGRAMME PROFILE M.Sc. (Bio Chemistry)**

**PSO1:** Acquire the scientific basis of life process and orientation towards the application of knowledge in solving clinical problem.

**PSO2:** Enhance student’s skills & employability through academic, research and internship opportunities (PG service learning).

**PSO3:** Exposure to basic research through the provision of PG research project.

**PSO4:** Development of analytical and Cognitive skills in Biochemistry that allow independent exploration of biological science through research methods.

**PSO5:** Explore the impact of life science in society.

**PSO6:** Analyse & interpret the investigation data in life science.

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| --- | --- | --- | --- | --- | --- | --- |
| **Semester** | **Category** | **Course code** | **Course title** | **Contact Hours /**  **Week** | **Credit** | |
| **Min** | **Max** |
| I | Core I | PBCM101 | Biomolecular Chemistry | 6 | 4 | 4 |
| Core II | PBCM102 | Cell Biology | 6 | 4 | 4 |
| Core III | PBCM203/105 | Microbiology | 6 | 5 | 5 |
| Core IV | PBCM204/106 | Molecular Biology | 6 | 4 | 4 |
| Core Practical I | PBCR201/102 | Microbiology and Molecular Biology Practical | 6 | 5 | 5 |
| **TOTAL** | | | | **30** | **22** | **22** |
| II | Core V | PBCM201 | Metabolism & Regulation | 5 | 4 | 4 |
| Core VI | PBCM202 | Human Physiology | 5 | 4 | 4 |
| Core VII | PBCM103/205 | Analytical Biochemistry | 5 | 4 | 4 |
| Core VIII | PBCM104/206 | Endocrinology | 4 | 4 | 4 |
| Core Practical II | PBCR101/202 | Analytical Biochemistry Practical | 6 | 5 | 5 |
| Core IX | PBCX201 | Mushroom cultivation (Service Learning) | - | 1 | 1 |
| NME |  |  | 5 | 4 | 4 |
| **TOTAL** | | | | **30** | **26** | **26** |
| III | Core X | PBCM301 | Enzymology and Enzyme Technology | 6 | 5 | 5 |
| Core XI | PBCM303 | Immunology | 6 | 5 | 5 |
| Core XII | PBCM304 | Research Methodology in Biochemistry | 5 | 4 | 4 |
| Core Practical III | PBCR301 | Enzymology & Clinical Diagnostics | 6 | 5 | 5 |
| Core XVI | PBCP401 | Project | 2 | - | - |
| Core XIII | PBCI301 | Plant Biochemistry& Pharmaceutical chemistry | 5 | 4 | 4 |
| **TOTAL** | | | | **30** | **23** | **23** |
| IV | Core XIV | PBCM401 | Genetics & Genetic Engineering | 6 | 5 | 5 |
| Core XV | PBCM402 | Clinical Biochemistry | 6 | 5 | 5 |
| Core XVI | PBCP401 | Project | 18 | 9 | 9 |
| **TOTAL** | | | | **30** | **19** | **19** |
| **GRAND TOTAL** | | | | **120** | **90** | **90** |

**PROGRAMME OFFERED TO OTHER DEPARTMENTS**

**NON MAJOR ELECTIVES**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Semester** | **Category** | **Course code** | **Course Title** | **Contact Hours/ Week** | **Credit** | |
| **Min.** | **Max.** |
| II | Non major elective | PBCE101/201 | Pharmaceutical Biochemistry | 5 | 4 | 4 |
| PBCE102/202 | Reproductive Biology & Disorders |
| PBCE103/203 | Modern Life style associated diseases |