**B. Sc. Biochemistry**

Syllabus

AFFILIATED COLLEGES

**Program Code:22H**

**2020 – 2021 onwards**



**BHARATHIAR UNIVERSITY**

**(A State University, Accredited with “A” Grade by NAAC, Ranked 13th among Indian Universities by MHRD-NIRF,**

**World Ranking: Times -801-1000,Shanghai -901-1000, URAP - 982)**

**Coimbatore - 641 046, Tamil Nadu, India**



|  |  |
| --- | --- |
| **Program Educational Objectives (PEOs)** | |
| The **B.Sc Biochemistry** program describe accomplishments that graduates are expected to  attain within five to seven years after graduation | |
| **PEO1** | An ability to apply fundamental knowledge related to sciences in an  interdisciplinary manner for providing innovative solutions to need based problems for global impact |
| **PEO2** | An ability to critically analyze scientific data, draw objective conclusions and apply this knowledge for human welfare. Students should be able to demonstrate  expertise and ethical perspective on areas related to Biochemistry |
| **PEO3** | An ability to gain domain knowledge and know-how for successful career in academia, industry and research. Promoting lifelong learning to meet the ever evolving professional demands by developing ethical, inter personal and team skills. |



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| **Program Specific Outcomes (PSOs)** | |
| After the successful completion of Bsc.Biochemistry program, the students are expected to | |
| **PSO1** | Ability to understand the technical aspects of existing technologies that help in  addressing the biological and medical challenges faced by humankind. |
| **PSO2** | Ability to contribute effectively in the development of the ethical practices,  societal contributions, and leading to responsible and competent professionals |
| **PSO3** | Acquiring the ability of leadership skills to manage projects in multidisciplinary  environments |



# Program Outcomes (POs)

On successful completion of the B.Sc program, the graduates will be able to acquire :

|  |  |
| --- | --- |
| **PO1** | Broad based knowledge in biochemistry |
| **PO2** | Transforming meaningful applications for better healthcare and economic development |
| **PO3** | Constant updation of knowledge |
| **PO4** | Empowering skills |
| **PO5** | Sole responsibility of contributing the public to lead better life through extension activities |
| **PO6** | Development of critical thinking and problem-solving skills |
| **PO7** | The provision of an inspiring, exciting and collaborative scientific environment |
| **PO8** | To inculcate the values of professionalism and dedication |
| **PO9** | Develop intelligent strategies and biochemical approaches in problem solving methods |
| **PO10** | To compete globally with confidence in all the sectors of life science |



# BHARATHIAR UNIVERSITY : : COIMBATORE 641 046

**B. Sc Biochemistry Curriculum (Affiliated Colleges)**

*(For the students admitted during the academic year 2020 – 2021 onwards)*

# REVISED SCHEME OF EXAMINATION - CBCS PATTERN

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Part | Study Components | Course title | Ins. hrs/ week | Examinations | | | | Credit |
| Dur.Hrs | CIA | Marks | Total Marks |
|  | **Semester I** | |  |  |  |  |  |  |
| I | Language – I | | 6 | 3 | 25 | 75 | 100 | 4 |
| II | English – I | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core Paper I – Biomolecules | | 3 | 3 | 25 | 75 | 100 | 4 |
|  | Core Paper II - Cell Biology | | 3 | 3 | 25 | 75 | 100 | 4 |
|  | Core Biochemistry Practical – I | | 2 | - | - | - | - | - |
|  | Allied A : Paper I – Chemistry | | 6 | 3 | 20 | 55 | 75 | 3 |
|  | Allied Chemistry Practical | | 2 | 3 | - | - | - | - |
| IV | Environmental Studies # | | 2 | 3 | - | 50 | 50 | 2 |
|  |  | |  |  |  |  |  |  |
|  | **Semester II** | |  |  |  |  |  |  |
| I | Language – II | | 6 | 3 | 25 | 75 | 100 | 4 |
| II | English – II | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core Paper III - Biomedical Instrumentations | | 5 | 3 | 25 | 75 | 100 | 4 |
|  | Core Biochemistry Practical – I | | 3 | 3 | 40 | 60 | 100 | 4 |
|  | Allied A : Paper II – Chemistry | | 6 | 3 | 20 | 55 | 75 | 3 |
|  | Allied Practical – Chemistry | | 2 | 3 | 20 | 30 | 50 | 2 |
| IV | Value Education – Human Rights # | | 2 | 3 | - | 50 | 50 | 2 |
|  | Swatch Bharat- Summer internship \* | | - | - | - | - | - | - |
|  |  | |  |  |  |  |  |  |
|  | **Semester III** | |  |  |  |  |  |  |
| I | Language – III | | 6 | 3 | 25 | 75 | 100 | 4 |
| II | English – III | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core Paper IV - Enzyme and Enzyme  Technology | | 3 | 3 | 25 | 75 | 100 | 4 |
|  | Core Paper V – Microbiology | | 3 | 3 | 25 | 75 | 100 | 4 |
|  | Core Biochemistry Practical – II | | 2 | - | - | - | - | - |
|  | Allied B: Paper I – Basic Mathematics | | 6 | 3 | 20 | 55 | 75 | 3 |
| IV | Skill based Subject I – Bioinformatics and  Medical coding | | 2 | 3 | 20 | 55 | 75 | 3 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Tamil @ / Advanced Tamil# (OR)  Non-major elective - I (Yoga for Human Excellence)# / Women’s Rights# | 2 | 3 | 50 | | 50 | 2 |
|  | **Semester IV** |  |  |  |  |  |  |
| I | Language – IV | 6 | 3 | 25 | 75 | 100 | 4 |
| II | English – IV | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core Paper VI – Intermediary Metabolism | 4 | 3 | 25 | 75 | 100 | 4 |
|  | Core Biochemistry Practical – II | 3 | 6 | 30 | 45 | 75 | 3 |
|  | Allied B : Paper II – Computer | 4 | 3 | 20 | 55 | 75 | 3 |
|  | Practical – Computer | 2 | 3 | 20 | 30 | 50 | 2 |
| IV | Skill based Subject 2 - Basics of Information  Technology | 3 | 3 | 20 | 55 | 75 | 3 |
|  | Tamil @ /Advanced Tamil # (OR)  Non-major elective -II (General Awareness #) | 2 | 3 | 50 | | 50 | 2 |
|  | **Semester V** |  |  |  |  |  |  |
| III | Core Paper VII – Human Physiology | 4 | 3 | 25 | 75 | 100 | 4 |
|  | Core Paper VIII – Clinical Biochemistry | 4 | 3 | 25 | 75 | 100 | 4 |
|  | Core Paper IX – Molecular Biology | 4 | 3 | 25 | 75 | 100 | 4 |
|  | Core Paper X – Genetic Engineering and  Bioprocess Technology | 4 | 3 | 25 | 75 | 100 | 4 |
|  | Biochemistry Practical – III | 4 | - | - | - | - | - |
|  | Biochemistry Practical – IV | 4 | - | - | - | - | - |
|  | Elective – I | 3 | 3 | 20 | 55 | 75 | 3 |
| IV | Skill based Subject 3 – Basics of Patent and  Bioethics | 3 | 3 | 20 | 55 | 75 | 3 |
|  | **Semester VI** |  |  |  |  |  |  |
| III | Core Paper XI – Plant Biochemistry and Plant  Therapeutics | 4 | 3 | 25 | 75 | 100 | 4 |
|  | Core Paper XII – Medicinal Chemistry | 4 | 3 | 25 | 75 | 100 | 4 |
|  | Biochemistry Practical – III | 4 | 6 | 30 | 45 | 75 | 3 |
|  | Biochemistry Practical – IV | 4 | 6 | 30 | 45 | 75 | 3 |
|  | Elective – II | 4 | 3 | 20 | 55 | 75 | 3 |
|  | Elective – III | 4 | 3 | 20 | 55 | 75 | 3 |
| IV | Skill Based Subject 4 - Practical – Bioinformatics | 6 | 6 | 30 | 45 | 75 | 3 |
| V | Extension Activities @ | - | - | 50 | - | 50 | 2 |
| IV | **Naan Mudhalvan -Employability Readiness** | **-** | **-** | **-** | **-** | **-** | **-** |
|  | Total |  |  |  |  | 3500 | 140 |



@ No University Examinations. Only Continuous Internal Assessment (CIA) # No Continuous Internal Assessment (CIA). Only University Examinations.

\* Swatch Bharat Summer internship- extra 2 credits would be given. It is mandatory