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Undergraduate Programme in Biochemistry

Curriculum and Syllabus for
B.Sc.Biochemistry
(With effect from the Academic Year 2020-21)

Note: The Board of Studies is designed Learning Outcome Based Curriculum Framework of Under Graduate Biochemistry Programme prescribed by UGC

Content

Curriculum and Syllabus for B.Sc., Biochemistry

(With effect from the Academic Year 2020-21)

1. Preamble

Biochemistry is the cross over scientific discipline that integrates the living world and chemistry. It involves the study of the structure of biomolecules and explores the biological processes at molecular level in the living organisms. It is the laboratory science that has several domains like cell biology, molecular biology, clinical biology, enzymology, immunology, physiology, pharmacology etc., It has enlightened many aspects of health and diseases and paved the way for many interdisciplinary technological innovations like metabolomics, genomics and proteomics. There is a continuous demand for biochemists in public and private health care sectors, agriculture, medical and forensic departments. Almost all food, pharmaceuticals, health and beauty care etc required quality control and safety checks for which experts in the field of Biochemistry are always in need. The syllabi for the three year B.Sc degree programme in Biochemistry was framed in such a way that at the end of the course they could apply the knowledge and expertise in industries, diagnostic laboratories and various research fields

2. Progamme Learning Outcome

2.1 Nature and Extent of the Programme

B.Sc Biochemistry is the first level of college or university degree in the country as in several parts of the world. After successfully completing this undergraduate degree, as a Biochemist they could further pursue post graduation in related fields in life sciences. The critical thinking, computational and analytical skills lead to the development of new diagnostic techniques. After graduation they could observe safety practices in laboratories and could effectively communicate the biochemical concepts. They are empowered to work individually, elucidate and solve diverse problems for future developments. Thus the under graduate level degree in biochemistry must sensitize the students to the mentioned objectives. The LOCF has been developed in such as way the acquired knowledge and problem solving ability at the under graduate level could be contributed to the betterment of the society in various research and health care sectors.

2.2 Aim of the Programme

The aim of the undergraduate degree in Biochemistry is to provide a thorough understanding of the various subjects in the field of biochemistry. Subject Knowledge can be impacted by teaching learning process in the class and analytical skills by practical sessions. The presentation skills can be developed by seminars and group discussions. Research skills can be inculcated by exposure to industry, internships, data collection activity and project writing. Thus a combination of activities like lectures, practical classes, seminars, projects and field trips will enable the students to think critically and familiarise with various experiments in biochemical fields.

2.3 Graduate attributes

The students graduating in this discipline must have sound understanding of the subjects. They should have excellent practical skills, validation and interpretation of results as a laboratory professional. They should be able to link theoretical and practical knowledge. They should posses the ability to clearly communicate the ideas with confidence and execute them. They should be innovative with problem solving ability to cope up with the new problems arising in various life science sectors. They should posses the ability to clearly communicate the scientific ideas and carry out research with ethics. As biochemist they should have self confidence and ability to work with team spirit. They should be well informed and updated about the current developments in the scientific community. Above all they should possess high order of research, social and environmental thinking to make a valuable contribution to the society.

Besides attaining the attributes related to the profession of Biochemistry, the graduates in this discipline should also develop ethical awareness which is mandatory for practicing a scientific discipline including ethics of working in a laboratory and ethics followed for scientific publishing of their research work in future. The students graduating in Biochemistry should also develop excellent communication skills both in the written as well as spoken language which is indispensible for them to pursue higher studies from some of the best and internationally acclaimed universities and research institutions spread across the globe.

3. COURSE STRUCTURE:

I SEMESTER

Course Components/Title of the paper	Ins. Hrs	Credits	Marks		
			CIA	EXT	TOTAL
Part-I-Tamil/Other Language paper-I	6	3	25	75	100
Part-II BP2-ENG01-Communicative English-I	**3**	**3**	**50**	**50**	**100**
Part-III-BBC-DSC01: Nutritional Biochemistry	8	5	25	75	100
Allied Paper- I	6	3	25	75	100
Allied Practical I	3	Examinations Conducted in II Semester			
Part- IV-Basic Tamil/Adv. Tamil/ Non Major Elective - I:*	-	2	25	75	100
BP4-ELSC01-English for Life Sciences-I	**4**	**4**	**50**	**50**	**100**

*NME;I Choose any one paper from the other Department

II SEMESTER

Course Components/ Title of the paper	Ins. Hrs	Credits	Marks		
			CIA	EXT	TOTAL
Part-I-Tamil/Other Language paper-II	6	3	25	75	100
Part-II BP2-ENG02-Communicative English-II	**3**	**3**	**50**	**50**	**100**
Part-III-BBC-DSC02: Cell Biology	5	5	25	75	100
BBC-DSC03: Core Practical-I	3	4	40	60	100
Allied Paper-II	6	3	25	75	100
Allied Practical-I & II	3	4	40	60	100
Part- IV-Basic Tamil/Adv. Tamil/ Non Major Elective - II: *	-	2	25	75	100
BP4-ELSC02-English for Life Sciences-II	**4**	**4**	**50**	**50**	**100**

*NME-II- Choose any one paper from the other Department

III SEMESTER

Course Components/ Title of the paper	Ins. Hrs	Credits	Marks		
			CIA	EXT	TOTAL
Part-I Language paper-III	6	3	25	75	100
Part-II BP2-ENG03 - Language Through Literature - I	**6**	**3**	**50**	**50**	**100**
Part-III-BBC-DSC04: Biomolecules	9	5	25	75	100
Allied Paper-III	9	3	25	75	100
Part- IV Environmental Studies	-	2	Exam in IV semester		
Soft Skills	-	3	50	50	100

IV SEMESTER

Course Components/ Title of the paper	Ins. Hrs	Credit	Marks		
			CIA	EXT	TOTAL
Part- I Language paper-IV	6	3	25	75	100
Part-II BP2-ENG04- Language Through Literature- II	**6**	**3**	**50**	**50**	**100**
Part-III - BBC-DSC05: Biomolecules and Biochemical Techniques	6	5	25	75	100
BBC-DSC06: Core Practical-II	3	4	40	60	100
Allied Paper-IV	6	3	25	75	100
Allied Practical – III & IV	3	4	40	60	100
Part- IV-Environmental Studies	-	2	25	75	100
Soft Skills	-	3	50	50	100

V SEMESTER

Course Components/ Title of the paper	Ins. Hrs	Credits	Marks		
			CIA	EXT	TOTAL
Part-III-BBC-DSC07: Enzymes	6	5	25	75	100
BBC-DSC08: Metabolism	6	5	25	75	100
BBC-DSC09: Analytical Biochemistry	6	5	25	75	100
BBC-DSE01: Human Physiology	5	5	25	75	100
Part- IV-Value Education	2	2	25	75	100

VI SEMESTER

Course Components/ Title of the paper	Ins. Hrs	Credits	Marks		
			CIA	EXT	TOTAL
Part-III-BBC-DSC10: Clinical Biochemistry	6	5	25	75	100
BBC-DSC11: Molecular Biology	6	4	25	75	100
BBC-DSC12: Core Practical III	3	4	40	60	100
BBC-DSC13: Project	5	4	20	80	100
BBC-DSE02 : Immunology	5	5	25	75	100
BBC-DSE03 : Biotechnology	5	5	25	75	100
Part-V-Extension Activity		1			

(Core paper: 60 Credits; Core Elective paper: 15 Credits; Non-major elective: 4 Credits; Part -I: 12 Credits; Part -II: 12 credits; Allied paper: 20 Credits; Soft Skills: 12 Credits; EVS: 2 Credits; Value Education: 2 Credits; Extension Activity: 1 Credit)

Course content: The syllabus consists of theory, practical papers, Internship and a project. The students are expected to present seminars on special topics.

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