

The board of studies approved the syllabus with effect from the academic year 2017-18 and the distinguished members suggested incorporation of following changes:

Suggestions relevant to B.Sc Biochemistry syllabus - Semester wise:

First Semester:

- ✚ Nutritional Biochemistry is offered as core paper.
- ✚ Health and Nutrition is offered as Non-major elective paper.
- ✚ Chemistry - I is offered as allied paper with practical.
- ✚ In Nutritional Biochemistry paper, the topics, food adulteration and role of fibers in diet are included in unit II.
- ✚ In Nutritional Biochemistry paper, the topics – Pantothenic acid, folic acid, biotin, cyanocobalamin are removed. The minerals – chromium, cobalt, copper, manganese, molybdenum and selenium removed. These removed topics are included in health and nutrition paper.
- ✚ In Health and Nutrition paper the topics, role of protein and carbohydrate in health and deficiency disorders are removed. Integrated Child Development Services (ICDS), role of International Agencies, Health Based Nutrition Programme are included in unit V.

Second Semester:

- ✚ Cell Biology is offered as core paper.
- ✚ Chemistry - II is offered as allied paper with practical.
- ✚ Human Diseases and Preventive Aspects is offered as Non-major elective paper
- ✚ In Cell Biology – Comparison between prokaryotic and eukaryotic cell and structure of ribosome topics are included in unit I and unit II respectively.
- ✚ In Practical – I, Determination of BMI is added in the group experiments. Preparation of cellulose from plant material experiment is removed.

Third Semester:

- ✚ Chemistry of Biomolecules - I is offered as core paper.
- ✚ Microbiology - I is offered as an allied subject with practicals.

- ✚ In Chemistry of biomolecules – I, the topic artificial (or) synthetic sweetener is included in unit I. In unit II – peptide bond and Ramachandran plot topics are included.

Fourth Semester:

- ✚ Chemistry of Biomolecules - II is offered as core paper.
- ✚ Microbiology - II is offered as allied paper with practicals.
- ✚ In Chemistry of biomolecules – II, the topic glycolipids is included in unit II.

Fifth Semester:

- ✚ Enzymes, Metabolism, Analytical Biochemistry and Physiology are offered as core papers.
- ✚ In Enzymes – Proximity and orientation, acid-base catalysis topics are removed.
- ✚ In Metabolism – Unit V is changed as unit I. Nucleic acid metabolism is introduced in unit V.
- ✚ Decarboxylation and transamidation topics are removed from unit IV. High energy compounds, Lippman ATP cycle topics are removed from unit V.
- ✚ In Analytical Biochemistry - High Performance Liquid Chromatography (HPLC) is included in unit III. Isoelectric focusing topic is removed from unit IV.
- ✚ In Physiology - Structure and functions of microvilli is added in unit I. Structure of lungs and alveoli are added in unit IV.

Sixth Semester:

- ✚ Clinical biochemistry, Molecular Biology, Immunology and Biotechnology are offered as core papers.
- ✚ In Clinical biochemistry – Analysis of urine topic is removed from unit III.
- ✚ Inborn errors of amino acid metabolism – Phenylketonuria, Alkaptonuria, Tyrosinemia, Cystinuria topics are included in unit III.
- ✚ In Immunology - lectin pathway is included in unit II. Disorders of B-cell and T-cell is changed as Immunodeficiency diseases – B-cell and T-cell defect in unit V.
- ✚ In Biotechnology, PCR - application in clinical diagnosis and forensic science. Southern blotting, Northern blotting are included in unit II. Agarobacterium mediated gene transfer is added in unit III. Micro injection is included in unit IV.

- ✚ In practical III – the separation of lipids by thin layer chromatography is changed as separation of amino acids by thin layer chromatography.

Allied Biochemistry:

- ✚ Allied Biochemistry - I and Allied Biochemistry - II are offered as allied papers.
- ✚ In Allied Biochemistry - I – Physical properties like stereo isomerism, optical isomerism and mutarotation topics are included.
- ✚ In Allied biochemistry Practical - Estimation of Glycine by formal titration is added instead of estimation of calcium from milk.

Suggestions relevant to M.Sc Biochemistry syllabus - Semester wise:

First Semester:

- ✚ Biomolecules, Biochemical Techniques, Physiology and Cell Biology are offered as core papers.
- ✚ Microbiology is offered as elective paper.
- ✚ In Biochemical Techniques – Low pressure column chromatography, capillary electro chromatography and perfusion chromatography topics are removed from unit II
- ✚ Blotting techniques (Southern, Northern and Western) are included in unit V.
- ✚ In Physiology and Cell Biology - Neuromuscular junction, Types and role of neurotransmitters in nerve impulse transmission topic are included in unit V.

Second Semester:

- ✚ Enzymes and Enzyme Technology, Intermediary Metabolism – I, Intermediary Metabolism – II and Energy and Drug Metabolism are offered as core papers.
- ✚ Essential Biochemistry is offered as elective paper.
- ✚ In Enzymes and Enzyme Technology – IUB classification of enzymes is included in unit I. Lock and key theory and induced fit model are included in unit IV.
- ✚ In Intermediary Metabolism – I – Synthesis and degradation of starch topic is removed from unit I.

- ✚ Oxidation and reduction of inorganic sulphur compounds by microbes and plants, sulphur enzymes topics are removed and Metabolism of minerals (Na, K, Ca, P, Fe) are included in unit V
- ✚ In Energy and Drug Metabolism - Synthesis and degradation of starch in unit III and Energetics of pyruvate oxidation in unit IV are included.
- ✚ In practical I - Estimation of total carbohydrate by anthrone method is added.
- ✚ In practical II – Assay of LDH, Separation of amino acid by TLC and assay of antioxidant activity by DPPH method are included.
- ✚ In practical II – Assay of SOD and Catalase are removed.

Third Semester:

- ✚ Biotechnology, Clinical biochemistry – I and Molecular Biology are offered as core papers.
- ✚ Life Style - Diseases Prevention is offered as extra disciplinary paper.
- ✚ In Biotechnology - Expression of foreign DNA in transgenic mice topic is added in unit III.
- ✚ In Clinical Biochemistry I - Sources of error and Interpretation of results topics are removed from unit I.
- ✚ In unit II - Management- diet and life-style modifications for diabetes are removed.
- ✚ In unit III - Porphyrias is removed. Instead hemoglobinopathies is added.
- ✚ In unit V - Disorders of calcium and phosphorous metabolism. Role in bone formation. Blood calcium homeostasis is removed. Instead of this Clinical Enzymology topic is included.
- ✚ In Life Style - Diseases Prevention – Alzheimer’s disease is included in unit IV and ulcer – causes and prevention is removed from unit V.
- ✚ In Molecular Biology - Recombination mapping and restriction mapping topics are removed from unit I.

Fourth Semester:

- ✚ Hormones, Clinical biochemistry – II, Project and Practical - IV are offered as core papers.
- ✚ Signal transduction and Immunochemistry are offered as elective papers.
- ✚ In Hormones – Structure and functions of adrenergic receptors topic is included in unit IV.
- ✚ In Clinical biochemistry II – Unit II is changed as unit I.

- ✚ Gastric function tests are given in unit II.
- ✚ Pathology of parathyroid disorders (Rickets, osteomalacia, hyperparathyroidism, hypoparathyroidism, pseudohypoparathyroidism) topic is included in unit IV.
- ✚ In Immunochemistry – Cross reaction with example topic is removed from unit III and included in unit II.
- ✚ In practical III – Estimation of super oxide dismutase and catalase is changed as Determination of activity of super oxide dismutase and catalase.
- ✚ Estimation of Nitrite, Thymol turbidity test, Chemical analysis of kidney and gall stones and estimation of ketone bodies experiments are removed.