Board of Studies Meeting

Department of Biochemistry

The minutes of the 16th meeting of Board of Studies held on 16.10.2023 at 10.00 am at the FIST lab.

Members Present:

S.No.	Name	Category
1	Dr.Gowri.S	Chairman
2	Dr.A.Vijaya Anand	VC nominee
3	Dr.M.G.Sridhar	Subject Expert
4	Dr. E.Santhini	Industrial Expert
5	Dr.S.Vadivel	Alumni member
4	Dr.N.Kannikaparameswari	Member
5	Dr.T.Indhumathi	Member
6	Dr.K.Rajathi	Member
7	Dr.D.Pradeepa	Member
8	Mrs.G.Lalitha	Member
9	Mrs.K.Swathi	Member
10	Dr.N.Kuppuchamy	Co-opted Member
11	Dr.R.Vithya Prabha	Co-opted Member
12	Dr.K.Girija	Co-opted Member
13	Dr. B. Rosiline Jeetha	Co-opted Member
14	Mr.Arunkumar G.	Student Representative- PG
15	Ms.Sivasakthi.G	Student Representative- UG

The HoD and Chairman of the Department of Biochemistry welcomed and introduced all the members and appreciated them for their continuous support, contribution for the development of academic standard and enrichment of the syllabus.

Further, Chairman informed the inability of the following members to attend the meeting and requested to grant leave of absence.

1. Dr.Kalaiselvi Senthil - Subject Expert

2. Dr.D.Amirtham - Subject Expert

3. Mrs.S.Divyapriya- Member

The items of the agenda were taken one by one for discussion and the following resolutions were passed.

Item 16.1

To review and approve the minutes of the previous meeting held on **14.06.2023.**

The chairman of the Board presented the minutes of the previous meeting held on **14.06.2023** and requested the members to approve. After brief discussion the following resolution was passed

Resolution:

Resolved to approve the minutes of the previous meeting held on 14.06.2023.

Item 16.1(a): To consider and approve the syllabi for II semester for the students admitted during the academic year 2023-24.

The chairman presented the detailed scheme and syllabus for the II semester for the students admitted from the academic year 2023-24 onwards. The details of changes made also presented as follows.

Changes Made:

B.Sc. Biochemistry		
Course	**Code**	**Reason**
Core practical: Enzymes and Microbiology	233BC2A2CP	Dr.Vadivel recommended introducing the Isolation and partial purification of enzymes from microbial/plant sources, since this will aid in fostering entrepreneurial potential.

New Courses Introduced: NIL

Course	Code	Reason

Courses Removed: NIL

Course	Code	Reason
-	-	-

IDC Offered

Course	Code	Department
Drug Biochemistry	233BC2A2EA	Chemistry

After discussion the following resolution was passed with the above changes and modifications.

Resolution:

Resolved to approve the syllabus for the II semester for the students admitted from the academic year 2023-24 onwards.

IDC Offered

Course	Code	Department
IDC: Biochemistry II	223BC1A4IA	Food science and nutrition
Practical: Biochemistry	223BC1A4IP	Food science and Nutrition

After discussion the following resolution was passed with the above changes and modifications.

Resolution:

> **Resolved to approve the syllabus for the IV semester for the students admitted from the academic year 2022-23 onwards.**

Item 16.2: To consider and approve value added courses brought forward by the Chairman and the members of the board.

The following Value-Added Certificate Course are to be offered in the Even semester by internal faculty for interested students belonging to all batches from our department and across disciplines

- **Phytochemical Techniques**
- **Computer aided drug design**

Resolution:

> **Resolved to approve the Value-Added Certificate Course for the even semester of the academic year 2023-2024.**

Item 16.3: To approve the panel of examiners for question paper setting and evaluation of answer scripts for the even semester of the academic year 2023-2024.

The Chairman presented the panel of examiners for question paper setting and evaluation of answer scripts for the even semester of the academic year 2023-2024.

Resolution:

> **Resolved to approve the panel of examiners for question paper setting and evaluation of answer scripts for the even semester of the academic year 2023-2024.**

Item 16.4: To consider and approve any other item brought forward by the Chairman and the members of the board.

No other item was brought forward. Finally, the Chairman thanked all the members for their cooperation and contribution in enriching the syllabus with active participation in the meeting and sought the same spirit in the future also. The meeting was closed with formal vote of thanks proposed by Dr. S.Gowri, Head and Chairman – Biochemistry BoS.

Item 16.1(b) : To consider and approve the changes in the syllabi for IV semester for the students admitted during the academic year 2022-23.

The Chairman presented the detailed syllabus for the IV semester for the students admitted from the academic year 2022-23 onwards. The details of changes made also presented as follows:

Changes Made:

B.Sc. Biochemistry

Course	Code	Reason
Nutritional Biochemistry	223BC1A4CB	Prof.M.G. Sridhar suggested to include the topics Respiratory quotient to learn in detail a in Unit II and importance of Iodine in human metabolism in Unit V.
Intermediary Metabolism	223BC1A4CA	Prof.Sridhar suggested to include the topics Biosynthesis of deoxy ribonucleotides in Unit V; Cori cycle in Unit II .

M.Sc. Biochemistry

Course	Code	Reason
Bioethics and Biosafety	223BC2A4CA	Prof.Sridhar suggested introducing the topics Four main principles of bioethics; Animal Right to life, Animal research, Case studies in human and animal research, (Three R's in research), Case studies in patent, trademark, trade secret, copyright, Traditional Knowledge in biotechnological areas which will offer insights into how IP works in the real world, and how its successful exploitation can contribute to development.
Endocrinology and developmental Biology	223BC2A3CB	Prof.Vijaya Anand suggested to include MAPK pathway in unit I to learn important mediators in signaling pathway
Neurobiology	223BC2A4DA	Prof Vijaya Anand suggested to include nitric oxide and other novel neurotransmitters in unit III and Prof. Sridhar suggested to include Biochemical principles in the management of Neurological diseases in unit V

New Courses Introduced:

Course	Code	Reason
Bioinformatics	223BC1A4EP	Embedded course
Metabolism and Nutritional Biochemistry	223BC1A4CP	DBT Star status recommended experiments were introduced

Courses Removed: NIL

Course	Code	Reason
-	-	-

Syllabus Revision

B.Sc. Biochemistry

Board: Biochemistry

Faculty: Biosciences

Semester: IV

Course Code/ Name: 223BC1A4CP: Core practical: Enzymes and Microbiology

S.No	Course Content	Changes
1		Isolation and Partial purification of the following enzymes from plant/Microbial sources a). Acid phosphatase b). Amylase c). Urease
2	Effect of pH on the activity of any one of the following enzymes: a). Acid phosphatase b). Amylase c). Urease	
3	Effect of temperature on the activity of any one of the following enzymes: a). Acid phosphatase b). Amylase c). Urease	
4	Effect of substrate concentration on the activity of any one of the following enzymes: a). Acid phosphatase b). Amylase c). Urease	
5	Separation of isoenzymes by Native PAGE and SDS PAGE (Demonstration)	
6	Enzyme immobilization by sodium alginate method (DBT Star Practical	
7	Preparation and Inoculation of Culture Media-Solid and Liquid	
8	Culture transfer techniques: Slid to solid (Streaking), Liquid to solid (spreading), Liquid to liquid, solid to liquid and determination of CFU/ml. (DBT Star Practical)	
9	Staining techniques- Simple staining, Gram Staining, Negative, spore and Acid-Fast Staining	
10	Antibiotic sensitivity of bacterial pure culture	
11	Tests for identification of Bacteria- IMViC, Bacterial Sugar Fermentation, Oxidase, catalase, urease and H2S Production	
12	Study and plot the growth curve of E. coli by turbidimetric and standard plate count methods (DBT Star Practical)	

PERCENTAGE OF SYLLABUS REVISED: 07 %

Course Focus On:

- [x] Skill Development
- [x] Employability
- [x] Intellectual Property Rights
- [x] Social Awareness/ Environment
- [x] Entrepreneurial Development
- [x] Innovations
- [ ] Gender Sensitization
- [ ] Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

B.Sc. Biochemistry

Faculty: Biosciences   Board: Biochemistry

Semester: IV

Course Code/ Name: 223BC1A4CA: Intermediary Metabolism

Unit	Existing	Changes
I	**Bioenergetics** Bioenergetics: - Free energy and the laws of thermodynamics; Role of high-energy compounds as energy currency of the cell; free energy of hydrolysis of ATP and other organophosphates. The basic metabolic pathways - anabolic, catabolic and amphibolic pathways.	Electron transport chain: - Role of respiratory chain in mitochondria; in energy capture; respiratory control. Oxidative phosphorylation: - Mechanism of oxidative phosphorylation; Chemiosmotic theory; uncouplers of oxidative phosphorylation (Shifted from second unit)
II	**Carbohydrate Metabolism** Fate of absorbed carbohydrates. Glycolysis: - Pathways and energetics; Oxidation of pyruvate to acetyl CoA. TCA Cycle: Pathway and energetics; Gluconeogenesis; Glycogenesis and glycogenolysis. Pentose Phosphate Pathway (HMP shunt). Glucuronic Acid Cycle. Metabolism of other hexoses:- Fructose and galactose. Case studies. Electron transport chain: - Role of respiratory chain in mitochondria; in energy capture; respiratory control. Oxidative phosphorylation: - Mechanism of oxidative phosphorylation; Chemiosmotic theory; uncouplers of oxidative phosphorylation.	Cori cycle
III	**Lipid Metabolism** Blood lipids and fate of dietary lipids. Oxidation of fatty acids: - Carnitine cycle; beta oxidation, alpha oxidation and omega oxidation. Biosynthesis of propionyl CoA. Biosynthesis of saturated fatty acids. Biosynthesis of unsaturated fatty acids: - Monounsaturated and polyunsaturated fatty acids. Biosynthesis and degradation:- Lecithin, cephalin, inositol, phosphatidyl serine, cholesterol. Case studies.	
IV	**Unit IV Protein Metabolism** Fate of dietary proteins, metabolic nitrogen pool, Detoxification of Ammonia- Urea Cycle. Catabolism of amino acid: Oxidative deamination, non–oxidative deamination, transamination, amino acid decarboxylation, Metabolism ketogenic and glucogenic aminoacids. Metabolic disorders; Maple syrup Disease, Phenylketouria, tyrosinemia, homocystinuria.	Amino acid metabolism (title) Alkaptonuria Metabolism of amino acid : Glycine. methionine, phenyl alanine, tyrosine, Leucine, lysine Interrelation between carbohydrates, fat and protein metabolism.
V	**Unit V Nucleic Acid Metabolism** Interrelation between carbohydrates, fat and protein metabolism. Nucleic acid: Metabolism of purines: de-novo synthesis, salvage pathways; catabolism. Metabolism of pyramidines - de novo synthesis, salvage pathways; catabolism. Metabolism of micronutrients - Thiamine, Riboflavin, Niacin, Pantothenic Acid.	Biosynthesis of deoxy ribonucleotides

PERCENTAGE OF SYLLABUS REVISED: 34 %

COURSE FOCUS ON:

☑	Skill Development	Entrepreneurial Development
☑	Employability	Innovations
	Intellectual Property Rights	Gender Sensitization
	Social Awareness/ Environment	Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

B.Sc. Biochemistry

Board: Biochemistry

Faculty : Biosciences

Semester: IV

Course Code/ Name:223BC1A4CB/ Nutritional Biochemistry

Unit	Existing	Changes
I	**Unit I Introduction to Food and nutrition** Function of foods and its relation to nutrition and health, essential nutrients, analysis of food composition, food habits and food groups. Antioxidants in Foods. Required dietary allowance (RDA) for different age groups. Carcinogens and Food additives, Fetal origin of Adulthood Diseases (FOAD). Microbiomes- Gut microbiota, Prebiotics, Probiotics.	---
II	**Unit II Energy Metabolism** Measurement of energy expenditure: Direct & Indirect calorimetry. Definition of BMR and BMI, factors affecting BMR and BMI. Thermogenic effects of foods and factors affecting thermogenic effect. Energy requirements of men and women and factors affecting energy requirements. Role of dietary fibers in nutrition.	Definition of Respiratory Quotient (RQ) Health
III	**Unit III Dietary carbohydrates, Lipids and Health** Physiological role and nutritional significance of carbohydrates and lipids. Carbohydrates - Chemical composition and importance, Glycemic index of foods and its uses, Artificial sweeteners. Sources and physiological functions of Essential fatty acids, Saturated fatty acids, Monounsaturated fatty acids and Polyunsaturated fatty acids, Omega – fatty acids. Omega 3/ omega 6 ratio, Phospholipids, Cholesterol in the body.	Tiacylglycerols
IV	**Unit IV Dietary Proteins, Vitamins, Minerals and Health** **Primary nutritional diseases:** Essential and non-essential amino acids – their role in growth and development. Protein energy malnutrition (Marasmus and Kwashiorkar), Starvation, Techniques for the study of starvation. Protein metabolism in prolonged fasting. Protein sparing treatments during fasting. Basic concept of high protein low caloric weight reduction diets. Calcium, Phosphorus and Iron - Distribution in the body digestion, Absorption, Utilization ,Transport, Excretion, Balance, Deficiency, Toxicity, Sources, RDA. Calcium: Phosphorus ratio, Role of iron in prevention of anemia. Iodine and iodine cycle.	Importance of Iodine in human metabolism. -------
V	**Unit V Clinical Nutrition** Role of diet and nutrition in prevention and treatment of diseases: Dental Caries, Lactose Intolerance, Galactosemia and Glycogen Storage Diseases, Fluorosis, Atherosclerosis and Rheumatic disorders. Inherited metabolic disorders: Phenylketonuria, Maple Syrup disease, Homocystinuria & Alkaptonuria. Obesity, Vitamin deficiency disorders, Hypervitaminosis, Nutritional anaemias. Conditional nutritional disorders: Disorders of gastrointestinal tract, liver, biliary tract, pancreas, heart and Diabetes.	

PERCENTAGE OF SYLLABUS REVISED: 10 %

COURSE FOCUS ON:

☑ Skill Development	Entrepreneurial Development
☑ Employability	Innovations
Intellectual Property Rights	Gender Sensitization
Social Awareness/ Environment	Constitutional Rights/ Human Values/ Ethics

Syllabus Revision (New Course)
B.Sc. Biochemistry

Faculty: Biosciences

Board: Biochemistry

Semester: IV

Course Code/ Name: 223BC1A4EP: Bioinformatics

Unit	Course Content
I	Introduction to Computational Biology and Bioinformatics, Definition, history, emerging areas, scope and application of Bioinformatics, Human Genome Project- Science, applications and ELSI. Useful Bioinformatics sites on www. Search Engines, Boolean search ("BUT", "NOT", "AND"). Data retrieval tool – NCBI, Entrez, DBGET and SRS • Data retrieval tools and methods- NCBI, PubMed, PMC, ENTREZ and SRS
II	Nucleic acid sequence databases- EMBL, GEN BANK, DDBJ. Protein databases- SWISS PROT, TrEMBL, PIR, UniProt and Structure databases-PDB. • Sequence Database- GEN BANK, SWISSPROT • Structure Databases-PDB
III	Sequence Alignment based on Matrices (BLOSUM and PAM), tools for sequence alignment – BLAST, FASTA, Clustal W, Phylogenetic analysis– WPGMA, UPGMA methods. Tools for screening gene mutations – Pmut, Sist • Sequence similarity searching (NCBI, BLAST and FASTA • Multiple sequence alignment (Clustal W) • Molecular phylogeny (PHYLIP) • Sequence analysis using EMBOSS or GCG Wisconsin Package
IV	Gene identification and prediction-pattern recognition. Protein primary structure analyses and prediction: identification and characterization. • Gene structure and function prediction (using Gen Scan, GeneMark) • Protein sequence analysis (ExPASy proteomics tools)
V	Introduction to drug discovery, Structure based drug design- Pharmacophore identification and Mapping, target identification, lead optimization, methods to identify lead compounds, high throughput screening, validation, Molecular Docking – Lipinski's rule • Homology Modeling using SPDBV

COURSE FOCUS ON:

☑	Skill Development	☑	Entrepreneurial Development
☑	Employability		Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

B.Sc. Biochemistry

Faculty: Biosciences

Board: Biochemistry

Semester: IV

Course Code/ Name: 223BC1A4CP: Metabolism and Nutritional Biochemistry (New course)

S.No	Course Content
1	Uric acid by Phosphotungstate method
2	Phosphorus by ANSA method
3	Glucose by O-Toluidine Method
4	Hemoglobin by Cyanmethhemoglobin method
5	Calcium by permanganate method
6	Protein by Biuret method
7	Computation of energy needs in males, females and special categories
8	BMI calculation and Waist-hip ratio
9	Detection of Adulteration in Milk by lactometer
10	Estimation of lactose in milk
11	Estimation of ascorbic acid in fruit
12	Estimation of calcium and Total phenolic content in black tea and fruits
13	Detection of Adulteration in food
14	Estimation of calcium in Ragi and Iron in Drumstick
15	Methylene Blue dye Reduction Test (MBRT) for milk
16	Alkaline phosphatase test and lactometer analysis for milk
17	Effect of inhibitor on protein synthesis

Course Focus On:

☑ Skill Development

☑ Employability

☐ Intellectual Property Rights

☐ Social Awareness/ Environment

☑ Entrepreneurial Development

☑ Innovations

☐ Gender Sensitization

☐ Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

M.Sc. Biochemistry

Faculty: Biosciences

Board: Biochemistry

Semester: IV

Course Code/ Name : BioEthics and BioSafety

Unit	Existing	Changes
I	**Introduction to Biosafety 12 h** Introduction to Bio-safety; Different levels of Bio-safety; Basic Laboratory and Maximum Containment Laboratory; Containments-Types; Biological weapons; The Cartagena Bio-safety protocol (CAB); Role of IBSC; Guidelines for rDNA research activities; General guidelines for research in transgenic plants; Role of RCGM; Assessment of risks associated with GMO; General issues related to environmental release of transgenic plants, animals and microorganisms; Role of GEAC; Good Laboratory Practices (GLP) and Good Manufacturing Practices (GMP)	–
II	**Bioethics Principles and Practices** Introduction to Bioethics; Animal Rights; Ethical, Legal and Social Implications (ELSI) of Human Genome Project; Ethical issues related to research in embryonic stem cell research and cloning	Four main principles of bioethics Right to life Animal research; Case studies in human and animal research. (Three R's in research)
III	**Introduction to IPR** Definitions: Physical and Intellectual Property, Tangible and Intangible Property; General Agreement on Trade and Tariff (GATT); TRIPS; World Trade Organizations (WTO); Establishment and functions of GATT, WTO and WIPO; WTO-Guidelines and Summits	Intellectual Property Rights (IPR) – Global concepts
IV	Intellectual Property Rights Different types of intellectual property rights (IPR): Patents, Trade mark, Trade secret, Copy right and Geographical Indications; Requirement of patentability; Compulsory licenses; Biotechnological examples of patent, trademark, trade secret,copyright; Traditional Knowledge	IPR applications Case studies. biotechnological areas.
V	Patent application Patent application; Rules governing patents; Patent related cases: Licensing of Flavr Savr™ tomato as a model case; Bio-piracy case studies on patents (Basmati rice, Turmeric, and Neem); Indian Patent Act, 1970; Recent amendments, Biodiversity act of 2002	-

PERCENTAGE OF SYLLABUS REVISED: 10 %

COURSE FOCUS ON:

☑	Skill Development	☑	Entrepreneurial Development
☑	Employability	☑	Innovations
☑	Intellectual Property Rights		Gender Sensitization
☑	Social Awareness/ Environment	☑	Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

M.Sc. Biochemistry

Faculty : Biosciences

Board: Biochemistry

Semester: IV

Course Code/ Name: 223BC2A4CB/Endocrinology and Developmental Biology

Unit	Existing	Changes
I	**Unit I Homeostasis and Signal Transduction** Hormones and homeostasis: Neuroendocrine Integration in homeostasis. Classes of chemical messengers. Hormone secretion. Transport and clearance. Feedback control of secretion. Signal transduction: Plasma membrane receptors, Adenylate kinase, Role of G Proteins, protein kinases, tyrosine kinases, inositol phosphates, calcium and Calmodulin. Steroid hormone receptors.	Neuroendocrine regulation MAPK, Diaceyl glycerol, thyroid hormone receptors.
II	**Unit II Hypothalamic, Pituitary, pineal and pancreatic hormones** The endocrine hypothalamus- Hypophysiotropic hormones- Chemistry & biochemical functions Pituitary gland- Hormones of the pituitary gland, Chemistry & biochemical functions. Growth Factors-PGDF, EGF, IGF-II and erythropoietin; Pineal gland- Hormones of the pineal gland- Chemistry& biochemical functions; Thyroid gland- Thyroid hormones- Chemistry and Biochemical functions; Pancreas- Insulin/glucagon, Somatostatin– chemistry and biochemical functions. Hormones involved in calcium metabolism	
III	**Unit III Adrenal, Neuro and Reproductive hormones** Adrenal gland- Hormones of Adrenal gland-Chemistry and biochemical functions; Gastrointestinal hormones- cholecystokinin, substance P, summary of the neuroendocrine control of GI Neurohormones- The brain- Renin- Angiotensin, and Urotensin, Opioid peptides – endorphins & enkephalins Hormones of female reproductive system: ovarian steroid hormones- Chemistry & biochemical functions, Hormonal changes during pregnancy and lactation Hormones of Male reproductive system: Source, synthesis, chemistry and metabolism of Androgens Endocrine dysfunction--Hypophyseal, Thyroid, parathyroid adrenal, & pancreas-Clinical evaluation of endocrine functions over-view	
IV	**Unit IV Fertilization, Embryonic development in plants and animals** Developmental Biology - an overview: Introduction of animal development: Development among unicellular eukaryotes – Acetabularis, Naegleria. The origins of sexual reproduction; Fertilization: structure of gametes, recognition of sperm and egg –action at distance and contact of gametes Early Embryonic Development in animals: Blastula formation, Types of Cleavage, Gastrulation and formation of germ layers in animals. Embryonic developments in plants; Early Embryonic Development in plants: Gametogenesis, Fertilization, Embryo sac development and double fertilization in plants	
V	**Unit V Organogenesis and Cell death and regeneration** Organogenesis in animals – an overview: Tissue organization and stem cells; development of nervous system, mesodermal and endodermal organs. Organogenesis –vulva formation in Caenorhabditis elegans; Cell death and regeneration: Concept of regeneration; programmed cell death; aging and senescence	Necrosis

PERCENTAGE OF SYLLABUS REVISED: 07 %

COURSE FOCUS ON:

☑ Skill Development	Entrepreneurial Development	
☑ Employability	Innovations	
Intellectual Property Rights	Gender Sensitization	
Social Awareness/ Environment	Constitutional Rights/ Human Values/ Ethics	

Syllabus Revision

M.Sc. Biochemistry

Faculty: Biosciences

Board: Biochemistry

Semester: IV

Course Code/ Name: 193BC2A4DA: Neurobiology

Unit	Existing	Changes
I	**Morphogenesis of central nervous system and Histology of the Nervous System** Morphogenesis of central nervous system:Early aspects of development, The spinal cord, The brain (Myelencephalon, Metencephalon, Mesencephalon, Prosencephalon, Diencephalon, Telencephalon, Basal Ganglia, Commissures). Histology of the Nervous System: The neuron: nerve cell body, nucleus, cytoplasm, dendrites, axon. Axonal Transport:fast anterograde, slow anterograde and fast retrograde transport.Types of neurons:multipolar, bipolar, pseudo-unipolar, and unipolar. Neuroglia: astrocytes, oligodendrocytes, microglia, and ependymal cells. Myelinated axons.	–
II	**Design and functioning of the Nervous System** System Function: spinal cord level, lower brain level and higher brain level. Structure and permeability of neuronal membrane: membrane transport proteins, mode of transport, synapse: types (chemical and electrical), Physiologic Anatomy of the Synapse: Presynaptic Terminals, ActionPotential and propagation, equilibrium membrane potential, resting membrane potential, Receptor Proteins, Ion Channels (properties and classification), Second Messenger system, Excitation/inhibition in post synaptic membrane.	-
III	**Neurotransmitters** Neurotransmitters: definition, properties, classes, mechanism of neurotransmitter release. Synthesis, release, physiological and clinical considerations of acetyl choline, GABA, dopamine, norepinephrine, epinephrine, serotonin, histamine, nitric oxide. Receptors: nicotinic acetyl choline, NMDA and opioid receptors.Mechanisms of Regulation of Receptors: Desensitization and Down- Regulation.	And other novel neurotransmitters
IV	**Visual, Olfaction and Taste system** Visual system: components of eye, different layers of retina, photoreceptors, phototransduction, processing of signals by retinal cells,color vision, visual and retinal fields, visual pathways, visual reflex. Olfaction and Taste: organisation, receptors, sensory transduction, central pathways for olfaction and taste	-
V	**Neurological diseases** Description, neurochemistry, pathology and clinical intervention of neurological diseases: Parkinson's disease, schizophrenia, Huntington's disease, Alzheimer's disease, epilepsy and depression disorder	And biochemical principles of management

PERCENTAGE OF SYLLABUS REVISED: 2 %

COURSE FOCUS ON:

☑ Skill Development		Entrepreneurial Development
☑ Employability		Innovations
Intellectual Property Rights		Gender Sensitization
Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

B.Sc. Food Science and Nutrition

Faculty: Biosciences

Board: Biochemistry

Semester: IV

Course Code/ Name: 223BC1A4IA: BIOCHEMISTRY-II

Unit	Existing	Changes
I	Buffers and Chromatography Buffers: Concept of acid base indicators, buffer systems of blood and body fluids, Components of the pH meter and the concept of pH Chromatography: Paper, TLC, molecular sieve and affinity chromatography - their applications.	Buffers and Separation techniques: Centrifugation techniques –Types. working principles and applications. Electrophoresis: Paper and Gel electrophoresis - working principles and applications.
II	Electrophoresis: Paper and Gel electrophoresis Principles and applications of colorimetry and spectrophotometry. Isotopes: Definition, and units of radioactivity: examples of natural and heavy isotopes in biological investigations.	Quantitative measurement techniques. Definition, types and units of radioactivity.
III	Bioenergetics Basic principles of thermodynamics– entropy, enthalpy and free energy; high energy phosphates, oxidation-reduction reactions. Mitochondria:-Respiratory chain and oxidative ephosphorylation.	--
IV	Metabolic pathways Carbohydrate metabolism: Glycolysis, TCAcycle, HMPshunt, Glycogenesis and glycogenolysis. Lipid metabolism:Beta-oxidation,biosynthesis of saturated fatty acids-Palmitic acid.	--
V	Protein metabolism General pathway of amino acid metabolism – deamination, transamination and decarboxylation. Urea cycle. Glycine and phenylalamine metabolism (structures not required). Inter-relationship of carbohydrate, fat and protein metabolism (Flow chart only).	--

PERCENTAGE OF SYLLABUS REVISED: 24 %

COURSE FOCUS ON:

☑	Skill Development		Entrepreneurial Development
☑	Employability	☑	Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

B.Sc. Food Science and Nutrition

Faculty: Biosciences   Board: Biochemistry

Semester: IV

Course Code/ Name: 223BC1A4IP: BIOCHEMISTRY-II

Unit	Existing
I	**Analysis of Carbohydrates** 1. Monosaccharide-Pentose-Arabinose. 2. Hexoses-Glucose and Fructose 3. Disaccharides-Sucrose, Maltose and Lactose 4. Polysaccharide-Starch
II	**Analysis of Aminoacids** 1. Histidine 2. Tyrosine. 3. Tryptophan 4. Arginine
III	**Characterization of lipids** 1. Determination of acid number 2. Determination of iodine number
IV	**Quantification technique** 1. Quantification of Protein by Lowry et al method 2. Quantification of Carbohydrate by DNSA method

Course focuses on

☑	Skill Development	☑	Entrepreneurial Development
☑	Employability	☑	Innovations
☐	Intellectual Property Rights	☐	Gender Sensitization
☐	Social Awareness/ Environment	☐	Constitutional Rights/ Human Values/ Ethics

	Dr. N.G.P. ARTS AND SCIENCE COLLEGE	BoS
	(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore) Approved by Government of Tamil Nadu & Accredited by NAAC with 'A++' Grade (3rd Cycle-3.64 CGPA) Dr. N.G.P.-Kalapatti Road, Coimbatore-641 048, Tamil Nadu, India. Website: www.drngpasc.ac.in | Email: info@drngpasc.ac.in. | Phone: +91-422-2369100	16th

ATTENDANCE OF THE SIXTEENTH BOARD OF STUDIES MEETING

Faculty: Bioscience
Venue: FIST LAB

Name of Board: Biochemistry
Date:16/10/2023, Time: 10.00 a.m

The following members were present for the board of studies meeting

S. NO.	NAME	DESIGNATION	SIGNATURE
1	Dr.Gowri.S Professor and Head, Department of Biochemistry, Dr. N.G.P. ASC	Chairman	
2	Dr.A. Vijaya Anand Professor,Dept. of Human Genetics and Molecular Biology, Bharathiar University, Coimbatore- 641046	VC nominee	16/10/23
3	Dr.Kalaiselvi Senthil Associate Professor Department of Biochemistry, Biotechnology and Bioinformatics Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore -641043	Subject Expert	Absent
4	Dr.D.Amirtham Assistant Professor (SG) Department of Agriculture &Allied Sciences Agricultural Engineering College and Research Institute, Kudumianmalai, Pudukottai-600124	Subject Expert	Absent
5	Dr.M.G.Sridhar Professor and Head, Dept of Biochemistry and Vice Principal, KMCH Institute of Health Sciences and Research, Coimbatore-641014.	Subject Expert& Special Invitee	16(10/23.
6	Dr. E.Santhini Senior Scientific Officer- B/ Technical Manager Centre of Excellence for Medical Textiles The South India Textile Research Association Coimbatore-641014	Industrial Expert	
7	Dr.S.Vadivel HOD of Clinical Biochemistry and Quality Control System K.G.Hospital ,Coimbatore- 641018	Alumni	
8	Dr.N.Kuppuchamy Department of Tamil, Dr. N.G.P. ASC	Co-opted Member	14/10/23
9	Dr.R.Vithya Prabha Department of English, Dr. N.G.P. ASC	Co-opted Member	16/10/23

10	Dr. K. Girija Department of Physics, Dr. N.G.P. ASC	Co-opted Member	
11	Dr. B. Rosiline Jeetha Department of Computer science, Dr.N.G.P. ASC	Co-opted Member	
12	Dr.N.Kannikaparameswari Department of Biochemistry, Dr. N.G.P. ASC	Member	
13	Dr.T.Indhumathi Department of Biochemistry, Dr. N.G.P. ASC	Member	
14	Dr.K.Rajathi Department of Biochemistry, Dr. N.G.P. ASC	Member	
15	Mr.Arun Kumar.G II M.Sc Biochemistry	Student Representative	
16	Ms.Sivasakthi.G III B.Sc Biochemistry	Student Representative	

Date : 16/10/2023

(Dr.S.Gowri)
Chairman, BoS Biochemistry

BoS Chairman/Hod
Department of Biochemistry
Arts and Science College
Coimbatore - 641 048