

Dr. N.G.P. ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)
Approved by Government of Tamil Nadu and Accredited by NAAC A++ Grade (3rd Cycle- 3.64 CGPA)
Dr. N.G.P.-Kalapatti Road, Coimbatore-641048, Tamil Nadu, India
Web: www.drngpasc.ac.in | Email: info@drngpasc.ac.in | Phone: +91-422-2369100

BoS

21st

Department of Biochemistry

Board of Studies Meeting

The minutes of the 21st meeting of Board of Studies held on 02.04.2026 at 10.00 a.m. at AV Hall, Dr. N.G.P. Arts and Science College, Coimbatore.

Members Present:

S.No.	Name	Category
1.	Dr.Gowri.S Professor and Head, Department of Biochemistry, Dr. N.G.P. ASC	Chairman
2.	Dr. Subramaniam selvakumar Assistant Professor, Department of Biochemistry Bharathiar University, Coimbatore	VC Nominee
3.	Dr. K. Chandrakumar Assistant Professor, Department of Bioenergy Tamilnadu Agricultural University, Coimbatore	Subject Expert
4.	Dr. V. M. Berlin Grace Professor, Department of Biotechnology, Karunya Institute of technology and Sciences, Coimbatore	Subject Expert
5.	Dr. N. Kannikaparameswari, Professor in Biochemistry	Member
6.	Dr. T. Indhumathi, Professor in Biochemistry	Member
7.	Dr. K. Rajathi, Professor in Biochemistry	Member
8.	Dr. D. Pradeepa, Associate Professor in Biochemistry	Member
9.	Mrs. S. Divya Priya, Assistant Professor in Biochemistry	Member
10.	Dr. G. Lalitha, Assistant Professor in Biochemistry	Member
11.	Dr. N. Kuppuchamy, Head, Dept of Tamil	Co-opted member
12.	Dr. A. Hazel Verbina, Head, Dept of English	Co-opted member
13.	Dr.Ravikumar S, Head, Dept of chemistry	Co-opted member
14.	Dr.R.Sowrirajan, Head, Department of Mathematics	Co-opted member
15.	Ms.Shirley Sreena PG - Biochemistry	Student Representative- PG
16.	Ms. Nethra Sree UG – Biochemistry	Student Representative- UG

The HoD and Chairman of the Department of Biochemistry welcomed and introduced all the members and requested them for their support and 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. Mrs.Anbusudha – Alumni Member

2. Dr.Ayyavu Mahesh – Industry expert

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

Item 21.1: *To review and approve the minutes of the previous meeting held on 11.11.2025*

The chairman of the Board presented the minutes of the previous meeting held on 11.11.2025 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 11.11.2025

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

Item 21.2: *To review and approve the scheme, regulations and syllabus for the I Semester for the students admitted in UG and PG from academic year 2026-27 onwards.*

The Chairman presented the detailed scheme and regulations for students admitted to UG and PG programmes for the academic year 2026–2027, along with the syllabus for the first semester. The members discussed in detail the modifications required. The details of the changes made are presented below:

M.Sc. Biochemistry		
Course code	course	Reason
Semester I		
26BCP1CA	Chemistry of Biomolecules	Dr. Selvakumar recommended the inclusion of H and G forms of DNA in Unit IV, and the course has been updated to incorporate AI and IKS components, including Indigenous Methods of Purification (Shodhana) and their scientific basis in polysaccharide extraction, AI-based protein structure prediction (e.g., AlphaFold concept), Ayurvedic classification of fats (Sneha dravyas), traditional knowledge on lipid balance and health (dosha theory), AI-based analysis of DNA structures (A, B, Z forms), correlation of Ayurvedic concepts (Doshas, Dhatus) with biochemical molecules such as porphyrins and alkaloids and AI-based drug discovery involving heterocyclic compounds to enhance biomolecular understanding, enabling advanced analysis, innovation, and real-world applications in biotechnology and healthcare.
26BCP1CB	Biochemical techniques and Instrumentation	Dr.Chandrakumar suggested including Radioisotopes, Advantages and disadvantages and Traditional methods - varna pariksha (color test), flame-based observations (agni pariksha) and purity assessment of metals (e.g., mercury, gold), Artificial

		Intelligence of Bioanalysis -Role and its applications which helps to develop practical skills, safety awareness, and technological adaptability which are crucial for careers in biochemical research, healthcare, and industry.
26BCP1CC	Enzymes and Enzyme Technology	Dr. Selvakumar recommended incorporating AI tools for enzyme 3D structure modeling, such as AlphaFold, Colab Fold, and ESMFold. He also suggested including the Arrhenius equation and the King and Altman method. Additionally, the inclusion of Panchagavya and Jeevamrutham as sources of industrially important enzymes was proposed. These additions aim to enhance understanding of enzyme kinetics and structure through both AI-based tools and traditional sources, thereby improving practical skills and applications in industrial and biotechnological processes.
26BCP1DA	Cancer Biology, Diagnosis and Therapy	Dr. Berlin suggested incorporating the IKS conceptual framework for cancer biology, molecular therapies such as CAR T-cell therapy, and the application of AI in cancer diagnosis and therapy to provide a holistic and future-ready understanding of cancer biology, diagnosis, and treatment. These inclusions aim to equip learners with interdisciplinary skills in critical thinking, advanced therapeutic design, and data-driven clinical decision-making, applicable in research, diagnostics, and precision oncology.
B.Sc. Biochemistry		
26BCU1CA	Biomolecules	Dr. Berlin Grace suggested including an overview of the Ramachandran plot and AI tools for predicting 3D protein structures, such as AlphaFold. These additions aim to develop skills in structural interpretation, computational biology, and the use of AI tools for protein modeling, which are essential in drug design, bioinformatics, and molecular research.

New courses introduced

Code	Name of the course	Reason
26BCUSSA	Forensic Biology	The Herbal Technology course has been replaced by Forensic Biology, enhancing practical laboratory skills and analytical thinking while opening diverse career opportunities in forensic science, research, and biotechnology.
26BCUSSB	Scientific Writing in Health Research	Bioentrepreneurship has been replaced by Scientific Writing in Health Research, which strengthens the ability to clearly communicate research findings, enhances critical analysis, and supports effective thesis preparation and high-quality publications.
26BCPSSA	Principles of Downstream Techniques in Bioprocessing	The Bio-nanotechnology course has been replaced by Principles of Downstream Techniques in Bioprocessing, equipping students with purification and processing skills for careers in pharmaceuticals and industrial bioprocessing.

26BCPSSB	Herbal Product Technology and Regulatory Science	Inheritance, Evolution and Behavior has been replaced by Herbal Product Technology and Regulatory Science, equipping students with skills in herbal product development, quality control, and regulatory compliance, and enabling careers in pharmaceuticals, nutraceuticals, and herbal industries.
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Resolution:

Resolved to approve the scheme and syllabus for the first semester for students admitted to UG and PG programmes for the academic year 2026–2027.

Item 21.3: *To review and approve the scheme, regulations, and syllabus for the III semester for students admitted to UG and PG programmes from the academic year 2025–2026 onwards.*

The Chairman presented the detailed scheme and regulations for students admitted in the academic year 2025–2026, along with the syllabus for the III semester. The members deliberated in detail on the modifications required.

Resolution:

Resolved to retain the existing syllabus of 2024-25 batch without any modification for the students admitted during the academic year 2024-25.

Item 21.4: *To consider and approve the changes in the syllabi for the V semester for students admitted from the academic year 2024–2025 onwards.*

The Chairman presented the detailed syllabus for the V semester for students admitted in the academic year 2024–2025.

Resolution:

Resolved to retain the existing syllabus of the 2023–2024 batch without any modification for students admitted for the academic year 2024–2025.

Item 21.5: *To consider and approve the changes in the syllabus for 26BCU1IA: IDC Biochemistry and 26BCU1IP: IDC Biochemistry Practical for B.Sc. Microbiology students admitted during the academic year 2026–2027.*

The Chairman presented the detailed syllabus for 26BCU1IA: IDC Biochemistry and 26BCU1IP: IDC Biochemistry Practical for B.Sc. Microbiology students admitted during the academic year 2026–2027.

Resolution:

Resolved to retain the existing syllabus of the 2025–2026 batch without any modification for students admitted during the academic year 2026–2027.

Item 21.6: To consider and approve the changes in the syllabus for 25BCU3IA: IDC Biochemistry I – Basics of Biochemistry (III semester) for B.Sc. Food Science and Nutrition students admitted during the academic year 2025–2026.

The Chairman presented the detailed syllabus for 25BCU3IA: IDC Biochemistry I – Basics of Biochemistry (III semester) for B.Sc. Food Science and Nutrition students admitted during the academic year 2025–2026.

Resolution:

Resolved to retain the existing syllabus of 2024-25 batch without any modification for the students admitted during the academic year 2025-26.

Item 21.7: To consider and approve NPTEL equivalent courses for credit transfer brought forward by the Chairman and the members of the board.

NPTEL course	Equivalent course in curriculum
1. Cell and Molecular biology (12 weeks; 3 credit)	24BCU5CA: Genetics and
2. Molecular Biology (12 weeks; 3 credit)	Molecular Biology (5 credit)

Resolution:

Resolved to approve the suggested NPTEL course for Credit transfer

Item 21.8: To approve the panel of examiners for question paper setting and evaluation of answer scripts for the even semester of the academic year 2026-2027.

The Chairman presented the panel of examiners for QP setting, QP Scrutiny and conduct of practical and theory examinations for the academic year 2026-2027.

Resolution:

Resolved to approve the panel of examinations for QP setting, QP Scrutiny and conduct of practical and theory examinations are submitted to CoE for exam related work.

Item 21.9: To consider and approve any other item brought forward by the Chairman and the members of the board.

The Board members discussed the proposal to offer a Students Skill Development Course (SSDC) on Advanced Analytical Techniques and RT-PCR along with Domain-Specific Skill Courses, which are mandatory for programme completion as per Regulation 6 for the academic year 2026–2027.

UG Skill Courses

- 1.DMLT
- 2.Data analysis for Biologists

PG Skill Courses

- 1.AI in Drug Discovery and Development
2. HACCP certification Course

Resolution:

Resolved to approve and provide the suggested courses for the academic year 2026-2027

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.

02.04.2026


(Dr. S. Gowri)

BoS Chairman/HoD
Department of Biochemistry
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048

**Syllabus Revision
M.Sc. Biochemistry**

**Faculty: Biosciences
Semester: I**

**Board: Biochemistry
Course Code/ Name: 26BCP1CA Chemistry of Biomolecules**

Unit	Existing	Changes
I	Polysaccharides Homo polysaccharides: Structure and biological functions of starch, hemicellulose cellulose, glycogen, chitin, inulin, lignin and peptidoglycans. Hetero polysaccharides: Structure and biological importance of sugar derivatives- glycosaminoglycans, proteoglycans. Glycoprotein – Blood group and bacterial cell wall polysaccharides, O- linked and N- linked oligosaccharides and Lectins. Isolation and Purification of Polysaccharides.	Indigenous Methods of Purification (Shodhana) and Their Scientific Basis in Polysaccharide Extraction.
II	Proteins Primary structure- determination of amino acid sequence of proteins. The peptide bond, Peptides of biological importance. Chemical synthesis of peptides- Solid phase peptides synthesis. Denaturation and Renaturation of Proteins. Ramachandran plot. Secondary structure- weak interactions involved, alpha helix, beta sheet and beta turn's. Collagen triple helix. Super secondary structures- helix-loop-helix, zinc finger and leucine zipper. Tertiary structure- alpha and beta domains. Quaternary structure- structure of haemoglobin and myoglobin. Protein folding. Outline of various biological functions of proteins.	AI-based protein structure prediction (e.g., AlphaFold concept).
III	Lipids Classification, structure, function, physical and chemical properties of lipids. Fatty acids-Saturated, Hydroxy and Unsaturated Fattyacids-Triacylglycerol. Phospholipids classification, structure and functions. Ceramides and sphingomyelins. Eicosanoids: Structure and functions of prostaglandins, thromboxanes, leukotrienes. Types and functions of plasma lipoproteins. Amphipathic lipids membranes, micelles, emulsions and liposomes. Steroids structure and biological role of cholesterol, bile acids, bile salts. Lipid Peroxidation and antioxidants. Growth Factor receptors. Free radicals and antioxidants in cancer. Diet and cancer.	Ayurvedic classification of fats (Sneha dravyas). Traditional knowledge on lipid balance and health (dosha theory)
IV	Nucleic Acids Bases, Nucleosides, Nucleotides, Nucleotides as energy carriers. DNA double helical structure. A, B and Z forms of DNA. Triple and quadruple structures. Physical properties of DNA. Chemicals that react with DNA. Renaturation and denaturation. DNA super coiling and linking number. DNA bending-Protein induced bending. Cruciform DNA, Left-handed DNA. Types of RNA, Secondary and tertiary structure of RNA.	AI-based analysis of DNA structure (A, B, Z forms) H and G forms of DNA
V	Heterocyclic Compounds Hetero cyclic rings of biologically important compounds. Structure and biological importance of pyridine, pyrrole, quinoline, pyrimidine, purine, pteridine, thiazole, imidazole and indole ring containing compounds. Porphyrin – structure and biologically important compounds containing porphyrin ring.	Correlation of Ayurvedic Concepts (Doshas, Dhatus) with Biochemical Molecules like Porphyrins and Alkaloids. AI-based drug discovery involving heterocyclic compounds

PERCENTAGE OF SYLLABUS REVISED: 22 %

COURSE FOCUS ON:

<input checked="" type="checkbox"/>	Skill Development	Entrepreneurial Development
<input checked="" type="checkbox"/>	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: I Course Code/ Name: 26BCP1CQ: Biochemical Techniques and Instrumentation

Unit	Existing	Changes
I	Spectroscopic techniques Principle, instrumentation and applications of Colorimetry, UV-Visible, FTIR, IR, Fluorescence spectrophotometry, Turbidimetry, Luminometry and Flame emission spectrometry, Electron Spin Resonance, Nuclear Magnetic Resonance, Mass and Raman Spectroscopy	Traditional methods - varna pariksha (color test), flame-based observations (agni pariksha) and purity assessment of metals (e.g., mercury, gold)
II	Centrifugation techniques and Microscopy Tissue homogenization. Disruption of tissues and cells, Centrifuges – Principle, applications, and types. Differential centrifugation, density gradient centrifugation of tissues and cells, Preparative and analytical ultracentrifugation. Basic principles, instrumentation, and applications of Microscopes: Light and Compound, Fluorescence, Phase contrast, Scanning electron microscopy (SEM), Transmission electron microscopy (TEM) and Confocal	
III	Chromatographic techniques Definition – Principle, technique and applications of paper, TLC, HPTLC, column, affinity, ion-exchange, gel filtration, hydrophobic interaction, and adsorption chromatography. Principle, components, limitations and applications of GC, GC-MS, HPLC, RP- HPLC, LCMS	
IV	Electrophoresis and Blotting techniques Principle, technique and applications of paper, Gels Electrophoresis: Agarose, Native and SDS-PAGE, Isoelectric focusing, 2D PAGE, Denaturing gels, 3D Electrophoresis and applications. Electrophoresis in DNA sequencing, Peptide mapping, N-terminal sequencing of proteins, Next generation sequencing. Principle, technique, and applications of western, southern and northern blotting. Chemiluminescence and Phosphorimaging	
V	Biophysical, Radio-isotopic methods and AI Principles and applications of X-ray diffraction, ORD and circular dichroism, Types of radiation, half-life and units of radioactivity, Applications of radioisotopes in disease and diagnosis. Detection and measurement of radioactivity– Principle, instrumentation and applications of Liquid scintillation - counter and Geiger-Muller counter. Autoradiography and its applications.	Radioisotopes – Advantages and disadvantages Artificial Intelligence of Bioanalysis: Role and its applications

PERCENTAGE OF SYLLABUS REVISED: 3 %

Course Focus On:

<input checked="" type="checkbox"/>	Skill Development	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	Innovations
	Intellectual Property Rights	Gender Sensitization
	Social Awareness/ Environment	Constitutional Rights/ Human Values/ Ethics

**Syllabus revision
M.Sc. Biochemistry**

Faculty: Biosciences
Semester: I

Board: Biochemistry
Course Code/ Name: 26BCP1CC-Enzymes and Enzyme Technology

Unit	Existing	Changes
I	Classification, Purification and Active Site] Classification of enzymes, isolation and purification of enzymes, criteria of purity- specific activity, molecular weight determination. Active site: structure, determination of active site amino acids, Investigation of 3D-Structure of Active site. Models of enzyme substrate binding: Lock and key model and Induced Fit model. Coenzymes and cofactors in enzyme catalysed reaction. Multi-enzyme complex- Pyruvate dehydrogenase, fatty acid synthase. Measurement of enzyme activity: two-point assay, kinetic assay, using radio-labelled substrates	Included AI tools for enzyme 3D structure modeling: AlphaFold, ColabFold. ESMFold. Removed pyruvate dehydrogenase because it repeats in Msetabolism paper
II	[Enzyme Kinetics and Inhibition] Kinetics of single substrate enzyme catalysed reactions: Derivation and Significance of MM Equation, LineweaverBurk plot, Eadie- Hofstee plot, Hanes-Woolf plot and Eisenthal and Cornish-Bowden plot. Kinetics of Allosteric enzymes: MWC and KNF models, Hill' equation coefficient. Sequential and non-sequential bisubstrate and multi-substrate reactions. Enzyme inhibition- types and kinetics. Simple problems related to enzyme kinetics.	Include Arrhenius equation and King and Altman method
III	Mechanism of Enzyme Action and Regulation] [Enzyme specificity, Significance and Evaluation of activation energy. Mechanism of enzyme action: general acid-base catalysis, covalent catalysis, proximity and orientation effects, Strain and Distortion theory, mechanism of serine proteases - chymotrypsin, lysozyme, and ribonuclease. Metal activated enzymes and metalloenzymes. Role of metal ions in carbonic anhydrase, superoxide dismutase, carboxy peptidase. Regulation of enzyme activity-covalently modified regulated enzymes, allosteric enzymes, isozymes]	
IV	Applications of Enzymes in Industry and Clinical Diagnosis] Enzyme applications in food and allied industries: sources of industrial enzymes, thermophilic enzymes, amylases, glucose isomerases, cellulose degrading enzymes, lipases, proteolytic enzymes in meat and leather industry, detergents and cheese production. Clinical enzymology: Enzymes as thrombolytic agents, antiinflammatory agents and digestive aids. Therapeutic use of asparaginase, streptokinase. Enzymes and isoenzymes in diagnosis: LDH, CK and cholinesterase.	Included Panchagavya and Jeevamrutham as a Source of Industrially Important Enzymes.
V	Immobilized Enzymes and Biosensors [Immobilized enzymes: various methods of immobilization, kinetics and applications of immobilized enzyme. Biosensors: Principle, technique and mechanism of Biosensors - Calorimetric biosensors, potentiometric biosensors, Amperometric biosensors, optic biosensors, and immunesensors. Enzyme engineering: Artificial enzymes. Abzymes and synzymes, Antioxidant enzymes. Strategies and Challenges for the Development of Engineered Enzymes in the Food Industry.]	

PERCENTAGE OF SYLLABUS REVISED: 5 %

COURSE FOCUS ON:

<input checked="" type="checkbox"/>	Skill Development	<input checked="" type="checkbox"/>	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	<input checked="" type="checkbox"/>	Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision
M.Sc. Biochemistry

Faculty: Biosciences

Board: Biochemistry

Semester: I

Course Code/ Name: 26BCP1DA Cancer Biology, Diagnosis and Therapy

Unit	Existing	Changes
I	Introduction: Cancer cell-morphology and growth characteristics. Metastasis and cytoskeleton. Apoptosis. Types and prevalence of cancer. Nomenclature of neoplasms, classification based on origin/organ. Differences between benign and malignant tumors.	IKS Conceptual Framework for Cancer Biology
II	Carcinogenesis: Cancer epidemiology and endocrinology. Cancer causing agents-radiation, viruses, chemicals. Multistep carcinogenesis: Initiation, Promotion, Progression. Para-neoplastic syndromes. Mutation-definition, significance, rates and frequency. Mutagenic agents. Molecular basis of mutagenesis: induced and spontaneous mutations, crossing over and segregation. Cancer genetics. Chemical carcinogenesis- genetic and epigenetic carcinogens, pro- carcinogens and co- carcinogens, promoters and initiators, testing for carcinogenicity, Ames test. Aberrant metabolism during cancer development.	
III	Tumor Markers and Signal Transduction Oncogenes - RNA and DNA tumor viruses, retroviruses and viral oncogenes and abrupt activation. Src and Ras gene, mechanism and characteristic of cell transformation. Molecular mechanism of oncogenesis-protooncogenesis, oncoproteins, tumor suppressor genes involved in cancer. Radiation- effect of ionizing radiations on DNA, chromosomal aberrations. Cancer Markers: Genetic basis of cancer, use of tumor markers in detection and monitoring of cancer. Signal transduction in cancer: cell-cell interactions, cell adhesion, invasion and metastasis, VEGF signaling and angiogenesis; role of transcription factors. Growth factors- EGF, TNF- α and TGF- β and growth factor receptors. Free radicals and antioxidants in cancer. Diet and cancer	
IV	Cell Cycle, Cell Death and Cancer Cell Cycle Regulation cancer: control of the cell cycle - cyclins and CDKs, and tumor suppressor genes p53, p21Rb, BRAC1 and BRAC2. Telomeres, and Immortality; Epigenetics- role of DNA methylation in gene silencing- epigenetic silencing of tumor - suppressor genes.	Apoptosis
V	Cancer Diagnosis and Cancer Therapy, Stem Cells and Cancer Principles and methods of cancer diagnosis - biochemical, genetic, cytotoxic, cell growth and viability tests. Diagnosis of cancer by histopathology, MRI scans, PET scan, cytogenetics test, karyotype, FISH. Strategies of anticancer drug therapy- chemotherapy, gene therapy, immuno therapy, radiotherapy and surgical therapy. Principles of cancer biomarkers and their applications.	Molecular therapy- CAR T- cell therapy. AI in Cancer Diagnosis & Cancer Therapy

PERCENTAGE OF SYLLABUS REVISED: 6%

COURSE FOCUS ON:

<input checked="" type="checkbox"/>	Skill Development	Entrepreneurial Development
<input checked="" type="checkbox"/>	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: I Course Code/ Name:

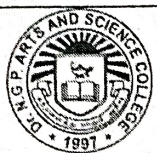
: 26BCU1CA - Biomolecules

Unit	Existing	Changes
I	<p>Carbohydrates Introduction to biological macromolecules. Carbohydrate - Definition, classification, physical properties and biological significance. Monosaccharides: Linear and cyclic structure, reactions of monosaccharides due to the presence of hydroxyl, aldehyde and keto groups. Structure and Properties of disaccharides – Maltose, Lactose and Sucrose. Polysaccharides – structure & biological functions of Homopolysaccharides (Starch, glycogen and Cellulose) & Heteropolysaccharides (Hyaluronic acid, Chondroitin sulphate and Heparin). Occurrence, importance and the structure of sugar derivatives - amino sugars, bacterial cell wall polysaccharides - peptidoglycan.</p>	
II	<p>Lipids Definition, classification and physico-chemical properties of lipids. Storage lipids: Fatty acids - types, nomenclature, structure & properties. Simple and mixed triglycerides. Characterization of fats – iodine value, saponification value, acid number, acetyl number, Polenske number, Reichert-Meissl number. Structural lipids – phospholipids and glycolipids. Structure and functions of steroids - cholesterol. Eicosanoids - an overview</p>	
III	<p>Amino acids and Proteins Classification and general properties of amino acids. Chemical reactions of amino acids due to carboxyl groups and amino groups, colour reactions of amino acids. Peptide bond – structure and properties. Protein - classification and physico-chemical properties. Organization of protein Structure – Primary (Insulin), Secondary (Keratin, Collagen), Tertiary (Myoglobin) & Quaternary structure (Hemoglobin). Denaturation and renaturation of proteins.</p>	Ramachandran plot – an overview. AI tools in predicting 3D protein structures (e.g., AlphaFold).
IV	<p>Nucleic Acids Structures of Purines, Pyrimidines, Nucleosides and Nucleotides. Structure and biological significance of DNA double helical structure. A, B & Z forms of DNA, superhelicity. Denaturation & renaturation of DNA. Properties of DNA – Hypochromic effect, melting temperature, viscosity. Structure and functions of mRNA, tRNA, rRNA, snRNA, miRNA, siRNA. Chemical reactions of DNA and RNA.</p>	
V	<p>Minerals, Vitamins, Water, pH & Buffers Micro and Macro Minerals - Clinical Significance. Vitamins – Definition, classification. Fat soluble (Vitamin A, D, E, K) and Water-soluble vitamins (Vitamin B Complex & Vitamin C) - sources, functions and deficiencies, hypervitaminosis. Water: Structure, Physical properties of water, weak interaction in aqueous solutions. pH – Introduction, buffers, Henderson-Hasselbalch equation, biological buffer system.</p>	

PERCENTAGE OF SYLLABUS REVISED: 3 %

Course Focus On:

<input checked="" type="checkbox"/>	Skill Development	Entrepreneurial Development
<input checked="" type="checkbox"/>	Employability	Innovations
	Intellectual Property Rights	Gender Sensitization
	Social Awareness/ Environment	Constitutional Rights/ Human Values/ Ethics



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BoS

21st

ATTENDANCE OF THE TWENTY FIRST BOARD OF STUDIES MEETING

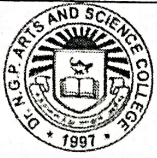
Faculty: Bioscience
Venue: AV Hall

Name of Board: Biochemistry
Date:02/04/2026, 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. Arts and Science College, Coimbatore.	Chairman	
2	Dr. Subramaniam Selvakumar, Assistant Professor, Department of Biochemistry, Bharathiar University, Coimbatore.	VC nominee	
3	Dr. K. Chandrakumar, Associate Professor, Department of Plant Molecular Biology and Bioinformatics, Tamil Nadu Agricultural University, Coimbatore.	Subject Expert	
4	Dr. V. M. Berlin Grace, Professor, Department of Biotechnology, Karunya Institute of technology and Sciences, Coimbatore	Subject Expert	
6	Dr. Ayyavu Mahesh, Director, Centre for Stem Cell and Cancer Genomics, AMI BioScience, Coimbatore-641004.	Industrial Expert	ABSENT
7	Mrs. Anbusudha, Vice Principal Chandrakanthi Public school, Coimbatore	Alumni	ABSENT
8	Dr. N. Kannikaparameswari Professor in Biochemistry, Dr. N.G.P. ASC	Member	
9	Dr. T. Indhumathi Professor in Biochemistry, Dr. N.G.P. ASC	Member	
10	Dr. K. Rajathi Professor in Biochemistry, Dr. N.G.P. ASC	Member	
11	Dr. D. Pradeepa, Associate Professor in Biochemistry, Dr. N.G.P. ASC	Member	



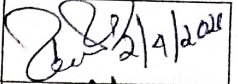

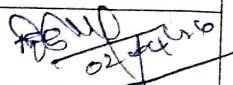
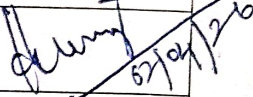
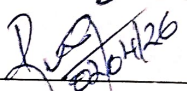
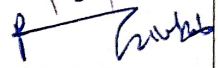
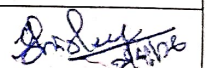
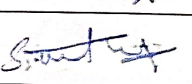


Dr. N.G.P. ARTS AND SCIENCE COLLEGE

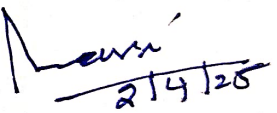
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Date: 02/04/2026



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