Department of Biotechnology
Board of Studies Meeting
Academic Year: 2025-26 (Odd Semester)

The minutes of the 19th meeting of Board of Studies held on 28.06.2025 at 10.00 am at the B1 Block- Room No. 1213. (Department of Biotechnology - Instrumentation Room)

Members Present:

S. No.	Name	Category
1	Dr. P. Chidambara Rajan	Chairman
2	Dr. P. Senthil Kumar, Associate Professor, Department of Biotechnology, Hindusthan College of Arts and Science, Coimbatore	University Nominee
3	Dr. D. Natarajan, Associate Professor, Department of Biotechnology, Periyar University, Salem.	Subject Expert
4	Dr. G. S. Suresha, Senior Scientist, ICAR- Sugarcane Breeding Institute, Coimbatore	Subject Expert
5	Dr. Ranjith Kumar Rajamani, Chief Scientific Officer, Fine Ants Innov Tekhouse, Thudiyalur, Coimbatore	Industrial Expert
6	Prof. Mrs. K. Ramya, Assistant Professor, Department of Biotechnology, CMS College of Science and Commerce, Coimbatore	Alumni Member
7	Dr. R. Suganthi	Member
8	Dr. K. Kalimuthu	Member
9	Dr. K. Arungandhi	Member
10	Dr. Arun P	Member
11	Dr. M.N. Kathiravan	Member
12	Dr. M. Shanmugavadivu	Member
13	Dr. M. Poongothai	Member
14	Dr. Radha Palaniswamy	Member
15	Dr. S. Saranya	Member
16	Mrs. C.R. Aarthi	Member
17	Dr. N. Kuppuchami	Co-opted Member
18	Dr. A. Hazel Verbina	Co-opted Member
19	Dr. R. Ravi Kumar	Co-opted Member
20	Dr. K. Girija	Co-opted Member
21	Dr. R. Sowrirajan	Co-opted Member
22	Dr. S. Uma	Co-opted Member
23	Ms. K.S. Prisha Shri (II M. Sc. Biotechnology)	Student Representative-PG
24	Ms. M. Paveela (III B.Sc. Biotechnology)	Student Representative-UG

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

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

Item 19.1: *To review and approve the minutes of the previous meeting held on 08-11-2024.*

The chairman of the Board presented the minutes of the previous meeting held on **08-11-2024** 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 08-11-2024

Item 19.2: *To consider and approve the syllabi for I semester for UG and PG students admitted during the academic year 2025-2026.*

The chairman presented the detailed scheme and Regulation for the students admitted from the academic year 2025-26 for the I semester. The members deliberated in detail about the modification required.

After brief discussion the following resolution was passed.

Resolution:

Resolved to adopt and resolved to retain the existing syllabus for the courses for UG and PG students admitted for the academic year 2025-26.

Item 19.3: *To consider and approve the syllabi for III semester for the students admitted in UG and PG during the academic year 2024-2025.*

The chairman presented the detailed scheme and Regulation for the students admitted in UG and PG from the academic year 2024-2025 and syllabi for the III semester. The members deliberated in detail about the modification required.

After discussion it is unanimously decided to adopt the following changes.

Changes Made:

Course Code	Course	Reason
24BTP3CE	**Animal Biotechnology**	Dr. Suresha and Dr. Natarajan suggested to include **Unit III: "Role of Artificial intelligence in scale up" Unit IV: "Therapeutic protein, vaccine development, gene therapy, Biopharmaceutical production, Production of industrial enzymes".**

Resolution:

Resolved to approve the above modification and adopt the revised syllabus for students admitted for the academic year 2023-24.

Item 19.4: *To consider and approve the syllabi for V semester for the students admitted in UG during the academic year 2023-2024.*

The chairman presented the detailed scheme and Regulation for the students admitted in UG from the academic year 2023-2024 and syllabus for the V semester. The members deliberated in detail about the modification required.

Changes Made

Course Code	Course	Reason
233BT1A5CA	**Plant and Animal Biotechnology**	Dr. Suresha and Dr. Natarajan suggested to include **Unit I: "To address the challenges of endangered medicinal plants based on IKS using PTC."** Dr. Senthil Kumar suggested to include **Unit III: "Significance of Indian knowledge System (IKS) in Agriculture."**
233BT1A5CB	**Environmental Biotechnology**	Dr. Senthil Kumar suggested to shift the content from **Unit V to Unit III.** Dr. Ranjith Kumar suggested to Change Unit V as **Unit V: "Integration with Indian Knowledge Systems"** The whole Unit V is changed based on the Unit topic
233BT1A5CC	**Entrepreneurial Biotechnology**	Mrs. Ramya suggested to include **Unit I: "Empowering Women: Entrepreneurship in the Indian Knowledge System."** **Unit IV: "Artificial Intelligence and Entrepreneurship: Implications for Venture Creation in Fourth Industrial Revolution"**
233BT1A5DA	**Clinical Trials**	Dr. Senthil Kumar suggested to include **Unit II: "IKS interventions in Clinical Trials Design. Impact of AI in Clinical Trials."**
233BT1A5DC	**Molecular Signaling**	Dr. Suresha and Dr. Natarajan suggested to Modify the syllabus and also to include **Unit V: "Role of Artificial Intelligence in Molecular Signaling."**

After discussion it is unanimously decided to adopt the following changes and Generic Elective "Mushroom Technology".

Resolution:

Resolved to approve the above modification and adopt the revised syllabus for students admitted for the academic year 2024-25.

Item 19.5: *To consider and approve the syllabi for PG Diploma, Certificate, SSDC course to be offered during the academic year 2025-26.*

The chairman presented the detailed scheme for Post Graduate Diploma and SSDC course (Molecular Docking and Extraction Techniques) to be offered the students admitted from the academic year 2025-26 onwards. The members deliberated in detail about the modification required. After discussion it is unanimously decided to adopt the following changes.

Resolution:

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

Item 19.6: *To consider and approve the panel of examiners for conducting of End Semester Practical's examination, Central Valuation and Question Paper Setting.*

The chairman presented the detailed the panel of examiners for conducting of End Semester Practical's examination, Central Valuation and Question Paper Setting. The members deliberated in detail about the modification required. After discussion it is unanimously decided to adopt the following changes.

Resolution:

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

Item 19.7: *To consider and approve the syllabi of Self-study paper offered in III semester for the students admitted during 2025-26.*

The chairman presented the detailed scheme and Self-study syllabi for the students admitted in UG and PG from the academic year 2025-2026. The members deliberated in detail about the modification required.

After discussion the following resolution was passed.

Resolution:

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

Item 19.8: *To consider and approve the syllabi of NPTEL course and get exemption for the courses offered in III semester for the PG students admitted during 2025-26 and V semester for the UG students admitted during 2024-25.*

The chairman presented the detailed syllabus of Environmental Biotechnology for V semester of UG students admitted during 2024-25and Genomics and Proteomics for III semester of PG students admitted during 2025-26.

After discussion the following resolution was passed.

Resolution:

Resolved to approve the syllabi of NPTEL course and get exemption for the courses offered in III semester for the PG students admitted during 2025-26 and V semester for the UG students admitted during 2024-25.

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. P. Chidambara Rajan, Head and Chairman- Biotechnology.

28.6.25

Date: 28.06.2025

(Dr. P. Chidambara Rajan)
BoS Chairman/HoD
Department of Biotechnology
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048

ATTENDANCE OF THE NINETEENTH BOARD OF STUDIES MEETING

Faculty: Biosciences **Board: Biotechnology**

Date : 28/06/2025
Time : 10.00 a.m.
Venue : Department of Biotechnology (Room. No: 1213)

The following members were present for the Board of Studies meeting

S. No	Name	Designation	Signature
1.	Dr. P. Chidambara Rajan Professor and Head	Chairman	PRESENT
2.	Dr. P. Senthil Kumar, Associate Professor, Department of Biotechnology, Hindusthan College of Arts and Science, Coimbatore	University Nominee	PRESENT
3.	Dr. D. Natarajan, Associate Professor, Department of Biotechnology, Periyar University, Salem.	Subject Expert	PRESENT
4.	Dr. G. S. Suresha, Senior Scientist, ICAR- Sugarcane Breeding Institute, Coimbatore	Subject Expert	PRESENT
5.	Dr. Ranjith Kumar Rajamani, Chief Scientific Officer, Fine Ants Innov Tekhouse, Thudiyalur, Coimbatore	Industrial expert	PRESENT
6.	Prof. Mrs. K. Ramya, Assistant Professor, Department of Biotechnology, CMS College of Science and Commerce, Coimbatore	Alumni	PRESENT
7.	Ms. K.S. Prisha Shri (II M.Sc. Biotechnology)	Student Representatives	PRESENT
	Ms. M. Paveela (III B.Sc. Biotechnology)		PRESENT
8.	Part I (Language I) Dr. N. Kuppuchamy Associate Professor and Head Department of Tamil	Co-opted member	PRESENT
9.	Part II (Language II) Dr. A. Hazel Verbina Professor and Head Department of English	Co-opted member	PRESENT
10.	Allied - IDC- Chemistry Dr. R. Ravikumar Associate Professor and Head (i/c) Department of Chemistry	Co-opted member	PRESENT
11.	Allied - IDC- Biophysics Dr. K. Girija Associate Professor and Head (i/c) Department of Physics	Co-opted member	PRESENT
12	Allied -IDC- Mathematics Dr. R. Sowrirajan Assistant Professor and Head Department of Mathematics	Co-opted member	PRESENT

13	Allied-IDC- Computer Science Dr. S. Uma Professor and Head (i/c) Department of Computer Science	Co-opted member	PRESENT
11.	Dr. K. Kalimuthu Professor	Internal Member	PRESENT
12.	Dr. R. Suganthi Professor	Internal Member	PRESENT
13.	Dr. K. Arungandhi Professor	Internal Member	PRESENT
14.	Dr. Arun. P Professor	Internal Member	PRESENT
15.	Dr. M.N. Kathiravan Professor	Internal Member	PRESENT
16.	Dr. M. Shanmugavadivu Associate Professor	Internal Member	PRESENT
17.	Dr. M. Poongothai Associate Professor	Internal Member	PRESENT
19.	Dr. Radha Palaniswamy Assistant Professor	Internal Member	PRESENT
19.	Dr. S. Saranya Assistant Professor	Internal Member	PRESENT
20.	Mrs. C.R. Aarthi Assistant Professor	Internal Member	PRESENT

Date: 28.06.2025

28.6.25

(Dr. P. Chidambara Rajan)
BoS Chairman/HoD
Department of Biotechnology
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048

Department of Biotechnology
B.Sc. Biotechnology
Syllabus Revision

Faculty: Biosciences **Board: Biotechnology**

Semester: V

Course Code/Name: 233BT1A5CA (Plant and Animal Biotechnology)

Unit	Existing	Revised
I	Design and Layout of PTC lab - Tissue culture media - Composition and its preparation. Plant Tissue Culture applications- Micropropagation, Callus culture, somatic embryogenesis, suspension culture, embryo culture, haploid culture, protoplast culture and fusion, Somoclonal variation, artificial seeds and hardening.	To address the challenges of endangered medicinal plants based on IKS using PTC.
II	Plant transformation technology- Ti and Ri plasmids, binary & co-integrated vector systems; viral vectors and their applications; CaMV and 35S promoters; genetic markers-reporter genes- Cloning Strategies- Gene transfer methods in plants -Direct DNA transfer methods (electroporation, gene gun, microinjection), *Agrobacterium* mediated nuclear transformation.	--
III	Applications of Plant Genetic Engineering – crop improvement, herbicide resistance, insect resistance, virus resistance, plants as bioreactors, Genetic modification in Agriculture - transgenic plants, genetically modified foods (rice, pineapple, soybean), ecological impact of transgenic plants.	Significance of Indian knowledge System (IKS) in Agriculture.
IV	Facilities for animal cell culture- infrastructure. Culture media; Physical, chemical and metabolic functions of different constituents of culture medium; Balanced salt solutions, Role of carbon dioxide, serum, growth factors, glutamine in cell culture; Serum and protein free defined media and their applications. Risks in a tissue culture laboratory and safety, biohazards. Equipment, culture vessels.	--
V	Primary cell culture techniques - mechanical disaggregation, enzymatic disaggregation, separation of viable and non-viable cells, FACS. Mass culture of cells - manipulation of cell line selection - types of cell lines -maintenance of cell lines - immobilization of cells and its application - synchronization of cell cultures- Cryopreservation. Medical/pharmaceutical products of animal cell culture.	--

PERCENTAGE OF SYLLABUS REVISION: 9.3%

COURSE FOCUS ON:

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

Department of Biotechnology
B.Sc. Biotechnology
Syllabus Revision

Faculty: Biosciences **Board: Biotechnology**

Semester: V

Course Code/Name: 233BT1A5CB/Environmental Biotechnology

Unit	Existing	Revised
I	Introduction to ecology - ~~Definition, Objective of ecological Studies~~, Classification of ecology, Ecology Levels. Ecosystem-Definition, Structure of an ecosystem (Abiotic and Biotic components). Energy flow in ecosystem- Trophic levels, Food chain, Food web and Ecological succession. ~~Ecological pyramids (Numbers, Biomass and Energy)~~.Biogeochemical cycle-Nitrogen and Phosphorous.	-
II	Environmental pollution- Types, Causes, Effects and Controls measures, Human health risks (Air, Water, Soil, Noise and Nuclear hazards). Global environmental problems- Ozone depletion, Greenhouse effect, Global warming and Acid rain.	-
III	~~Chemistry of water- Alkalinity and acidity of water, Hardness of water, Concept of BOD, COD and TDS. Bio-Indicators of water quality. Waste water treatment- Primary, Secondary, Tertiary. Solid waste management- Types of waste, Disposal methods.~~	Bioremediation –Types and techniques (In Situ and Ex Situ Bioremediation), Microorganisms involved in bioremediation, Factors affecting bioremediation, Advantages and disadvantages of bioremediation, Super bugs. Bioleaching. Solid waste management: composting, vermicomposting, and landfill bioreactors. Liquid waste treatment: aerobic and anaerobic digestion. Hazardous waste management: detoxification of heavy metals and xenobiotics.
IV	Environment laws- Environment Protection Act; Air (Prevention & control of Pollution) act, Water (Prevention and control of Pollution) act. International agreements- Montreal and Kyoto protocols, Convention on Biological Diversity (CBD).	Sustainability and Circular Economy. Principles of sustainable development. Reducing, reusing, and recycling waste for resource recovery.
V	~~Bioremediation- Types and techniques (In-Situ And Ex-Situ Bioremediation), Microorganisms involved in bioremediation, Factors affecting bioremediation, Advantages and disadvantages of bioremediation, Super bugs. Bioleaching of ore-Chemistry of bioleaching (Direct and Indirect mechanisms), Methods of leaching, Examplesof bioleaching of metals (Copper and Iron). Biogas production (Anaerobic digestion), Microbial biofuels.~~	Environmental conservation: Vedic and Ayurvedic principles of nature conservation, Sacred groves and their ecological significance, Traditional water harvesting systems: stepwells, tanks, and johads. Ethnomedicine and Biodiversity: Indigenous knowledge of medicinal plants and their conservation, Role of tribal communities in biodiversity preservation. Modern Relevance of Indian Knowledge Systems: Integrating traditional practices with modern biotechnology. Preserving traditional knowledge in the face of globalization

PERCENTAGE OF SYLLABUS REVISION : 66%

COURSE FOCUS ON :

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

Department of Biotechnology
B.Sc. Biotechnology
Syllabus Revision

Faculty: Biosciences **Board: Biotechnology**

Semester: V

Course Code/Name: 233BT1A5CC - CORE: ENTREPRENEURIAL bIOTECHNOLOGY

Unit	Existing	Revised
I	Introduction, Biotechnology in India and global skills, the Significance of the Biotechnology Entrepreneur, Biotechnology Entrepreneurship Versus General Entrepreneurship, Entrepreneurship and Intrapreneurship. The Biotechnology Entrepreneur, Essential Biotechnology Entrepreneurial Characteristics, Four Backgrounds of Biotechnology Entrepreneurs, Driving Forces Behind a Biotech Entrepreneur's Decisions, Learning from "Failure". Case study: Innovation in Today's world in the field of Biotechnology	Empowering Women: Entrepreneurship in the Indian Knowledge System.
II	Types and sources of Innovation. Search for a business idea, concept of project and classification, project identification, project formulation, project design, project report, project appraisal, SWOT analysis. Budget and planning process. Sources of financial assistance, approaching loan from bank and other financial institutions, production and marketing Case study: How Small Tech fits into the Larger Plan	
III	Knowledge centres - Universities, innovation centre, research institutions and business incubators. R&D - technology development and up gradation, assessment of technology development, managing technology transfer, industry visits to successful bio-enterprises, quality control, technology transfer agencies, Understanding of regulatory compliances and procedures (CDSCO, NBA, GLP, GCP & GMP) Case study: Science to Technology - and, what's worthwhile	
IV	Funding of biotech businesses- Financing alternatives, Venture Capital funding, funding for biotech in India. Support mechanisms for entrepreneurship - Bioentrepreneurship efforts in India, difficulties in India experienced, areas of scope, biotech policy initiatives. Case study: Building, sustaining or exiting a successful novel company	Artificial Intelligence and Entrepreneurship: Implications for Venture Creation in the Fourth Industrial Revolution
V	Desirables in start-up, setting up Small, Medium & Large-scale industry, Quality control in Biotech industries, incentives and subsidies, exploring export possibilities. Government schemes and development programs for commercialization of technology (Biotech Consortium India Limited, MSME, DBT, DST, BIRAC, Startup and Make in India).Intellectual Property Protection Strategies for Biotechnology Innovations - Introduction to Copyrights, Trademarks, Patents, Collaborative Research Projects. Case study: Bioentrepreneurs Profile in Biotechnology	

PERCENTAGE OF SYLLABUS REVISION: 7.7%

COURSE FOCUS ON:

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

Department of Biotechnology
B.Sc. Biotechnology
Syllabus Revision

Faculty: Biosciences **Board: Biotechnology**

Semester: V

Course Code/Name: 233BT1A5DA DSE : Clinical Trials

Unit	Existing	Revised
I	Introduction to Pharmaceutical Industry, Drug development process, Preclinical testing. Clinical Trials - Phase I, Phase II A and B, Phase III A and B, Phase IV and Types of Post marketing surveillance.	
II	Sponsor's responsibilities, Essential documentation and investigator's Brochure, Protocol design, CRF design, Informed Consent Documents - Subject Information Sheet and Informed Consent Form, Ethics Committee Approvals.	IKS interventions in Clinical Trials Design. Impact of AI in Clinical Trials.
III	DCGI – roles and responsibilities - Clinical research regulation of DCGI. FDA Regulations for Clinical Trials, FDA Guidelines and Information Sheets, FDA Compliance Program Guidance Manuals, FDA Bioresearch Monitoring Program (BIMO), ICMR Guidelines for clinical trials, Limitations and drawbacks in clinical trials.	
IV	Ethical Guidelines for Biomedical Research in Human and animal Subjects, Central Ethics committee on Human Research (CECHR), Ethics in Clinical Research for Communicable and Non Communicable Diseases. Ethics concerned with microbiology and serology studies.	
V	History of GCP, ICH Guidelines for Good Clinical Practice, Central Drugs Standardization and Control Organization, Protected Health Information (PHI), Obtaining Informed Consent under HIPAA. The declaration of Helsinki, The Belmont Report (1979), Schedule Y and Schedule H.	

PERCENTAGE OF SYLLABUS REVISION: 2.89%

COURSE FOCUS ON :

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

Department of Biotechnology
B.Sc. Biotechnology
Syllabus Revision

Faculty: Biosciences **Board: Biotechnology**
Semester: V
Course Code/Name: 233BT1A5DC DSE: Molecular Signaling

Unit	Existing	Revised
I	Introduction to molecular aspects of cell signaling, Paracrine, Autocrine, Endocrine, Synaptic signaling, and juxtracrine signaling. Signaling Molecules, Ligands and Receptors. ~~first messenger~~ - hormone or neurotransmitter, Second messengers -cyclic nucleotides (e.g., cAMP, and cGMP), ions (e.g., Ca2+), phospholipid-derived molecules (e.g., inositol triphosphate), ~~and gas (e.g., nitric oxide NO).~~	Diacylglycerol, Cytokines, Pheromones and Lipid-Derived Molecules
II	Signaling Receptors: types of receptors, Intracellular receptors, cell surface receptors, Ligand-gated ion channel receptors, Enzyme linked receptors, G protein- coupled receptors (GPCRs) Receptor tyrosine kinases (RTKs), Cytokine receptors, Chemokine receptors and Phosphatase receptors.	Steroid Harmone receptor
III	~~Molecular Mechanism, Regulation, Role and Clinical Implications of Akt/PKB signaling, 5'AMP activated protein kinase, cAMP dependent pathway, Ubiquitin Proteasome Pathway, Hedgehog signaling pathway, Hippo signaling pathway and CaMKII protein family, Insulin signal transduction pathway and calcium signaling.~~	Introduction to Intracellular Signaling Pathways- Types of Intracellular Signaling Pathways- Receptor Tyrosine Kinase (RTK) Pathway- G-Protein Coupled Receptor (GPCR) Pathway- JAK-STAT Pathway- Wnt/β-catenin Pathway-Calcium Signaling Pathway- NF-κB Pathway.
IV	~~Molecular Mechanism, Regulation, Role and Clinical Implications of STAT signaling pathway,~~ MAPK/ERK pathway, ~~PI3K/AKT/mTOR pathway, transforming growth factor beta (TGFB) signaling pathway, VEGF signaling pathway, Nodal signaling pathway and Wnt signaling pathway.~~	Specific Signaling Pathways- PI3K/Akt Pathway (Phosphoinositide 3-Kinase/Akt)- TGF-β pathway- Notch signaling- Hippo Pathway
V	~~Molecular Signaling Pathways as therapeutic targets- Cancer, Chordoma, allergic diseases, cardiac failure, Sickle cell disease (SCD), Autism Spectrum Disorder, hepatitis B, immunodeficiencies, Fatty Acid Oxidation Disorders, Respiratory Chain Disorders and Mitochondrial Genetic Disorders.~~	Role of Molecular signaling in diseases- Cancer, Autoimmune Disorder, Metabolic Disorder, Neurogenerative Disease and Cardiovascular disease. Molecular signaling applications- Molecular therapies, Diagnostic tool, Immunotherapy and Regenerative medicine- Role of Artificial Intelligence in Molecular Signaling

PERCENTAGE OF SYLLABUS REVISION: 55 %

COURSE FOCUS ON:

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

Department of Biotechnology
M.Sc., Biotechnology
Syllabus Revision

Faculty: Biosciences **Board: Biotechnology**

Semester: III

Course Code/Name: 24BTP3CE CORE: ANIMAL BIOTECHNOLOGY

Unit	Existing	Revised
I	Basics of Animal Tissue Culture Lab Planning and Construction of ATC lab – infrastructure, equipment, culture vessels. Dos and Don't's of ATC labs. Culture media, Balanced Salt Solution and simple growth medium, functions of difference constituents of culture medium. Role of carbon dioxide, serum, growth factors, glutamine in cell culture, Serum and protein free defined media and applications.	--
II	Cell Culture techniques and Cryopreservation Primary cell culture and its establishment – mechanical disaggregation, enzymatic disaggregation, identification of viable and non viable cells. Secondary cell lines – passages - Risks in a tissue culture laboratory and safety – biohazards. Cryopreservation – protocol – ATCC the global bioresource.	--
III	Animal cell culture scale up Scaleup in suspension stirrer culture, continuous flow culture, air lift fermentor, scaleup in monolayer – roller bottle culture, multisurface culture, multiarray disks, spiral sand tubes – monitoring of cell growth - measurement of cell death.	Role of Artificial intelligence in scale up
IV	Tissue and organ culture Organ culture- whole embryo culture – specialized culture techniques – Advantages and limitations of Tissue and organ culture – ~~medical/pharmaceutical products of animal cell culture~~ – genetic engineering of animal cells and their applications.	Therapeutic protein, vaccine development, gene therapy, Biopharmaceutical production, Production of industrial enzymes.
V	Tissue engineering Design and engineering of tissues – tissue modeling – 3D bioprinting – characteristics - requirements - types – advantages and limitations. Embryonic stem cell engineering –ES cell culture to produce differential cells – Human embryonic stem cell research.	--

PERCENTAGE OF SYLLABUS REVISION: 12 %

COURSE FOCUS 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

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)
Approved by Government of Tamil Nadu and Accredited by NAAC with 'A++' Grade (3rd Cycle-3.64 CGPA)
Dr. N.G.P. - Kalapatti Road, Coimbatore-641048, Tamil Nadu, India
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BoS

19th

ATTENDANCE OF THE NINETEENTH BOARD OF STUDIES MEETING

Faculty: Biosciences **Board: Biotechnology**

Date : 28/06/2025
Time : 09.30 a.m.
Venue : Department of Biotechnology (Room. No: 1213)

The following members were present for the Board of Studies meeting

S. No	Name	Designation	Signature
1.	Dr. P. Chidambara Rajan Professor and Head	Chairman	28.6.25
2.	Dr. Senthil Kumar P Associate Professor Department of Biotechnology Hindusthan College of Arts & Science Coimbatore.	University Nominee	
3.	Dr. Natarajan D Associate Professor Department of Biotechnology Periyar University, Salem.	Subject Expert	28/6/25
4.	Dr. Suresha G S Senior Scientist Division of Crop Production Sugarcane Breeding Institute, Coimbatore.	Subject Expert	
5.	Dr. Ranjithkumar Rajamani Chief Scientific Officer Fire Ants Innov Tekhouse, Thudiyalur, Coimbatore.	Industrial expert	28/6/25
6.	Prof. Ms. Ramya K Assistant Professor of Biotechnology CMS College of Science & Commerce Coimbatore.	Alumni	28/06/25
7.	Ms. Pirisha Shri K S (II M.Sc. Biotechnology) Ms. Paveela M (III B.Sc. Biotechnology)	Student Representatives	28/6/25 28/6/25
8.	Part I (Language I) Dr. N. Kuppuswamy Professor and Head Department of Tamil	Co-opted member	28/06/25
9.	Part II (Language II) Dr. A. Hazel Verbina Professor and Head (i/c) Department of English	Co-opted member	28/06/25

	Department of English		
10.	Allied - IDC- Chemistry Dr. R. Ravikumar Associate Professor and Head (i/c) Department of Chemistry	Co-opted member	28/6/25
11.	Allied - IDC- Mathematics Dr. R. Sowrirajan Assistant Professor and Head Department of Mathematics	Co-opted member	
12.	Allied - IDC- Physics Dr. K. Girija Associate Professor and Head (i/c) Department of Physics	Co-opted member	28/6/2025
13.	Aliied - IDC- Computer Science Dr. S. Uma Professor and Head(i/c) Department of Computer Science	Co-opted member	28/6/25
14.	Dr. K. Kalimuthu Dean and Professor	Internal Member	28/6/25
15.	Dr. R. Suganthi Professor	Internal Member	28/6/25
16.	Dr. K. Arungandhi Professor	Internal Member	28/6/25
17.	Dr. M.N. Kathiravan Professor	Internal Member	28/6/25
18.	Dr. Arun. P Professor	Internal Member	28/6/25
19.	Dr. M. Shanmugavadivu Professor	Internal Member	28/6/25
20.	Dr. M. Poongothai Professor	Internal Member	28/6/25
21.	Dr. Radha Palaniswamy Associate Professor	Internal Member	28/6/25
22.	Dr. S. Saranya Assistant Professor	Internal Member	28/6/25
23.	Mrs. C.R. Aarthi Assistant Professor	Internal Member	28/6/25

Date: 28/06/2025

28/6/25

(Dr. P. Chidambara Rajan)
BoS Chairman/HoD
Department of Biotechnology
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048