Department of Clinical Laboratory Technology

Board of Studies Meeting

The minutes of the 20th meeting of Board of Studies held on 10.11.2025 at 10.00 am in the Department of CLT (Room No 1419).

Members Present:

S.No.	Name	Category
1	Dr. S. Kokila	Chairman
2	Dr. S. Selvakumar Assistant Professor, Department of Biochemistry Bharathiar University, Coimbatore	University Nominee
3	Dr. T.M. Kartikeyan Professor and Head, KMCH Institute of Health Sciences & Research, Coimbatore	Subject Expert
4	Ms. S. Shruthi Assistant Professor, SRM Institute of Science and Technology, Trichy	Meritorious Alumni
5	Dr. M.Thiruselvi	Member
6	Dr. S.Sasikala	Member
7	Ms.K.Rasika	Member
8	Dr. A. Hazel Verbina	Co-opted Member
9	Dr. N. Kuppuchamy	Co-opted Member
10	Dr. J. Rengaramanujam	Co-opted Member

The HoD and Chairman of the department of Clinical Laboratory Technology 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.Dr. Meena Mariappan, Manager, Bioline Laboratories, Coimbatore- Industrial Expert 2. Dr. V. Aruna, Professor, Department of Community Medicine

PSGIMSR, Coimbatore - Subject Expert 3. Ms. Manimegalai. G, III B. Sc CLT- Student Representative

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

Item 20.1: *To review and approve the minutes of the previous meeting held on* 28.6.2025.

The Chairman of the Board presented the minutes of the previous meeting held on 28.6.2025 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 28.06.2025.

Item 20.2: *To consider and approve the scheme and syllabi for IV semester for the students admitted during the academic year 2024-2025.*

The chairman presented the syllabi for semester IV for the students admitted during the academic year 2024-25.

Course Code	Course	Changes and Reason
24CLU4CB	Clinical Biochemistry - Functional Tests	• The Board recommended to rename the title as Pancreatic Function for Unit I in accordance with its contents. • Board members recommended the inclusion of Glomerular Filtration rate in kidney Function under Unit IV as it is the principle mechanism. • Clinical Importance of Sample Collection under Thyroid Stimulating Hormone since it interferes with the disease condition and diagnosis. • Incorporation of Clinical Case Studies in Unit V for better understanding and report interpretation
24CLU4CP	Core Practical - IV: Clinical Biochemistry – II	• The Board recommended to specify the methods for each experiment so as to follow standard methods
24CLU4SA	Blood Banking and Blood Transfusion	• The Board recommended to include forward and reverse blood grouping in Unit II for its significance during transfusion and treatment.

After discussion the following resolution was passed.

Resolution:

Resolved to approve the above modification and adopt the revised syllabi for students admitted during the academic year 2024-2025.

Item 20. 3: *To consider and approve the syllabi for VI Semester for the students admitted during the academic year 2023-24.*

The chairman presented the detailed syllabi of VI Semester for the students admitted during the academic year 2023-24. 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	Changes and Reason
233CL1A6DE	Genetic Engineering	The Board recommended to include Vectors-Yeast Artificial Chromosomes and Bacterial Artificial Chromosomes in Unit-1 due its vast application in recombinant DNA Technology
233CL1A6DF	Tumor Markers and Immunohistochemistry	The Board recommended to incorporate the following rearrangement of contents for sequential teaching and learning: • Unit II: The contents of Protein markers from Unit III has been shifted to Unit II and the Title of the unit has been renamed as Protein Tumor Markers. • Unit III: The unit has been titled as Enzyme and Hormone markers and the contents of Enzyme markers from Unit II has been shifted to Unit III. • Unit IV: The title of the unit has been renamed as Carbohydrate and Bladder Cancer Markers. The contents of Carbohydrate markers from Unit III have been shifted to unit IV.

After discussion the following resolution was passed.

Resolution:

Resolved to approve the above modification and adopt the revised syllabi for students admitted during the academic year 2023-2024.

Item 20.4: *To approve the panel of examiners for question paper setting and evaluation of answer scripts for the even semester of the academic year 2025-2026.*

The chairman presented the panel of examiners for question paper setting, question paper scrutiny and conduct of practical and theory examinations are submitted to CoE for exam related work.

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 2025-2026.

Item 20.5: *To consider and approve any other item brought forward by the Chairman and the members of the board.*

To enhance placement opportunities, the board suggested to provide skill-based training and internship in Quality control, RT -PCR and advanced Molecular Diagnostics, Animal Cell culture during III to VI semesters in addition to the existing Internship programme.

After discussion the following resolution was passed.

Resolution:

Resolved to approve the above suggestion to offer skill-based training and internship for students admitted during the academic year 2023-2024 and 2045-25.

Finally, the chairman thanked all the members for their co-operation 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. Kokila, Head and Chairman - Clinical Laboratory Technology.

Date: 10.11.2025

(Dr. S. Kokila)
BoS Chairman/HoD
Department of Clinical Laboratory Technology
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048

Syllabus Revision

Faculty: Bio Sciences **Board: Clinical Laboratory Technology**
Semester: IV
Course Code/ Name: 24CLU4CB, Core: Clinical Biochemistry -Functional Tests

Unit	Existing	Changes
I	Gastric Function Introduction, Tests for gastric function - The Insulin Stimulation test, determination of Gastrin in serum and Tubeless gastric analysis. Pancreatic function: Introduction, pancreatic function tests, serum amylase and lipase; direct stimulation test, indirect stimulation test.	Pancreatic Function
II	Intestinal function Introduction, Intestinal function, Test used in the diagnosis of malabsorption, determination of total fecal fat (fat balance test), test of monosaccharide absorption (Xylose excretion test).	
III	Liver function Introduction, bilirubin metabolism and jaundice, Types of Jaundice, Liver function tests: Estimation of conjugated Unconjugated and total bilirubin in serum (Diazo method), total protein- Albumin globulin ratio, detection of bilirubin and bile salts in urine (Fouchet's test and Hay's sulphur test), Prothrombin time. Serum enzymes in liver disease – Alkaline Phosphatase, SGPT, SGOT, Gamma GT and Lactate dehydrogenase (LDH).	
IV	Kidney Function Introduction, Urine collection and Preservation, physical examination of urine, elimination tests, Clearance tests - Clearance formulas, Creatinine clearance and Urea clearance tests, Blood urea, serum creatinine and electrolytes – sodium, potassium, calcium and phosphorus, Micro albumin, protein creatinine ratio, renal blood flow and filtration fraction.	Glomerular Filtration rate in kidney Function.
V	Hormone function Endocrine function tests- Thyroid stimulating hormone (TSH), T3 and T4, Diagnostic importance of TSH, vitamin D, Pancreatic hormone – Insulin and its clinical significance. Follicle Stimulating hormone, Luteinizing hormone, Growth hormone, Adrenal hormones-cortisol, Gonadal Hormone Testosterone and estradiol- Clinical significance.	TSH-Clinical Importance of Sample Collection in Diagnosis, and Clinical Case Studies

PERCENTAGE OF SYLLABUS REVISED: 6%
COURSE FOCUS ON:

✓	Skill Development	✓	Entrepreneurial Development

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

Syllabus Revision

Faculty: Bio Sciences **Board: Clinical Laboratory Technology**

Semester: IV

Course Code/ Name: 24CLU4CP, Practical: CLINICAL BIOCHEMISTRY - II

Existing	Changes
1 Blood Collection, Serum Separation and Storage.	
2 Estimation of Urea in Serum.	DAM TSC method
3 Estimation of Uric acid in Serum	Caraway method
4 Estimation of Creatinine in Serum.	Jaffe's method
5 Estimation of Phosphorus in Serum.	Fiske and Subbarow method
6 Estimation of Protein in Serum.	Lowry's Method
7 Estimation of Glucose in Serum.	Ortho toluene method
8 Estimation of Cholesterol in Serum	Zak's method
9 Estimation of Sodium and potassium in Serum.	Flame Photometry
10 Assay of Alkaline phosphatase in Serum.	Colorimetric method
11 Assay of Alpha- Amylase in Serum.	Colorimetric method
12 Assay of SGPT & SGOT in Serum.	Reitman-Frankel method

PERCENTAGE OF SYLLABUS REVISED: 90%

COURSE FOCUS ON:

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

Syllabus Revision

Faculty: Bio Sciences **Board: Clinical Laboratory Technology**

Semester: IV

Course Code/ Name: 24CLU4SA, Blood Banking and Blood Transfusion

Unit	Existing	Changes
I	Blood Grouping System Blood Grouping System; ABO Blood group system, Rh typing and weaker variants in Rh system, Subgroup and weaker variants of A and B and Bombay phenotype.	
II	Antibodies and Cross matching Antibodies and Cross matching: Coomb's cross matching - Direct and Indirect method, Warm and cold cross matching. Preparation and standardization of anti-human globulin reagent, Auto and allo antibodies, Major and Minor Cross matching – Tube method, Slide method and Gel method. Preservation and storage of sample. Documentation of blood bank.	Forward Grouping and Reverse Grouping methods
III	Donors and blood donation Donors and blood donation: Donor selection – donor eligibility criteria, Importance of Donor consent. Phlebotomy- Blood collection methods, Storage of whole blood, Serological screening test on donor's blood sample. Autologous donation and specialized donation. Apheresis and plasmapheresis. Role of irradiation, Discarding of positive and expired blood.	
IV	Transfusion Reaction Transfusion Reaction: Reporting system, Transfusion reaction analysis, Storage of whole blood, Preparation of blood components, Anticoagulants, Preservation and storage. Hemolytic disease of newborn, blood transfusion reaction-acute transfusion reactions and delayed transfusion reactions, Transfusion related complications- Transfusion-related acute lung injury (TRALI), Transfusion associated circulatory overload and investigation of transfusion reaction, Documentation in blood bank.	
V	Organization of blood bank Organization of blood bank: Area for whole blood and components, staff requirement, equipment requirement for whole and component blood preparation, process of	

	licensing. Blood bank and its regulatory requirements. Reference sop of blood banking and discarding of blood bank wastes.	

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

Faculty: Bio Sciences **Board: Clinical Laboratory Technology**

Semester: VI

Course Code/ Name: 233CL1A6DE, Genetic Engineering

Unit	Existing	Changes
I	Basics of gene cloning Gene cloning operations. Restriction endonucleases – Types and Features; Ligations- Linkers and Adaptors. Vectors of gene cloning: - Plasmid Vectors – Basic feature, pBR332. Bacteriophage vectors; Cosmids. Cloning hosts. Preparation of Plasmid DNA from bacteria.	Vector-Yeast and Bacterial artificial Chromosomes
II	Transformation Introduction of DNA into bacterial cells: Transformation of E. coli, selection of transformed cells, Identification of recombinants. Introduction of phage DNA into bacterial cell, Identification of recombinant phage. Genomic library and cDNA library	
III	Sequencing Methods DNA sequencing: Maxam Gilbert's method, Outline of Sanger's method – Applications, Computers for sequencing and analysis of DNA sequences. Genetic Finger Printing – Oligonucleotide directed	

	mutagenesis; Protein engineering. PCR – Technique and Applications.	
IV	Gene Expression Expression vectors for E. coli - Constituents; Examples of promoters – Expression cassettes – Problems caused in expression of eukaryotic genes: Fusion proteins: - Applications of gene technology: Recombinant insulin; Cloning HBV surface antigen in yeast. Safety aspects and hazards of genetic engineering.	
V	Bioprocess technology Fermentation Design of a commercial fermenter; Solid substrate fermentation: Media for industrial fermentations; Batch culture and fed – batch culture. Down – stream processing. Production of amino acids; Single cell protein; Penicillin and alcohol.	

PERCENTAGE OF SYLLABUS REVISED: 3%

COURSE FOCUS ON:

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

Syllabus Revision

Faculty: Bio Sciences **Board: Clinical Laboratory Technology**

Semester: VI

Course Code/ Name: 233CL1A6DF, Tumor Markers and Immunohistochemistry

Unit	Existing	Changes
I	Carcinogens and Oncogenes Introduction to cancer. Carcinogens - definition. Oncogene – definition. Hereditary Oncogenes. General mechanism of Oncogenes. Characteristics of growing tumor cells- general and morphological changes, biochemical changes.	
II	Tumor Markers Tumor Markers- Introduction, Clinical applications of tumor markers. Enzymes as tumor markers, Alkaline Phosphatase (ALP), Creatine kinase (CK), Lactate dehydrogenase (LDH), Prostate specific antigens (PSA).	Protein Tumor Markers. Hormones as tumor markers- Structure and mechanism. Oncofetal antigens. Alpha feto protein (AFP), Beta Human Chorionic Antigen (β HCG), Carcino embryonic antigen (CEA) Squamous cell carcinoma (SCC) antigen. Carbohydrate markers - CA 15-3, CA 125.
III	Hormone tumor markers Hormones as tumor markers- Structure and mechanism. Oncofetal antigens. Alpha feto protein (AFP), Beta Human Chorionic Antigen (β HCG), Carcino embryonic antigen (CEA) Squamous cell carcinoma (SCC) antigen. Carbohydrate markers - CA 15-3, CA 125.	Enzyme and Hormone markers - Introduction, Clinical applications of tumor markers. Enzymes as tumor markers, Alkaline Phosphatase (ALP), Creatine kinase (CK), Lactate dehydrogenase (LDH), Prostate specific antigens (PSA).
IV	Bladder cancer markers Blood group antigen (brief introduction of each type) CA 19-9, CA 50, CA 72-4, CA 242. Bladder cancer markers (introduction in brief) - Bladder tumor antigen (BTA), D-Dimer. Nuclear matrix protein (NMP22). TRAP assay, hyaluronic acid and Hyaluronidase.	Carbohydrate and Bladder Cancer Markers Carbohydrate markers - CA 15-3, CA 125.
V	Immunological techniques Immunological techniques - immunofixation, Antigen retrieval, immunochemistry, turbimetry Immunohistochemistry – Polyclonal and monoclonal antibodies, Direct and Indirect immunohistochemistry, labels, detection, tissue preparation, antigen retrieval, blocking, rinsing, controls. Tumour markers – AFP, B2M, Beta hCG.	

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

Department of Clinical Laboratory Technology

ATTENDANCE OF THE TWENTIETH BOARD OF STUDIES MEETING

Faculty: Biosciences **Board: Clinical Laboratory Technology**

S. No.	Name	Position	Attendance Status
1	Dr.S.Kokila Associate Professor & Head Department of Clinical Lab Technology Dr. N. G. P. Arts and Science College, Coimbatore	Chairman	Present
2	Dr. S.Selvakumar Assistant Professor Department of Biochemistry Bharathiar University, Coimbatore.	Member (Subject Expert) VC Nominee	Present
3	Dr. T.M. Kartikeyan Professor and Head, Department of Pathology KMCH Institute of Health Sciences & Research, Coimbatore - 641 014.	Member (Subject Expert)	Present
4	Dr. Aruna Associate Professor Department of Community Medicine PSGIMSR, Coimbatore	Member (Subject Expert)	Absent
5	Dr. Meena Mariappan Quality Control Manager Bioline Laboratories Coimbatore.	Member (Industry Expert)	Absent
6	Ms. S. Shruthi Assistant Professor, SRM Institute of Science and Technology, Trichy	Alumni	Present

7	Dr. N. Kuppuchamy Associate Professor & Head Department of Tamil Dr. N. G. P. Arts and Science College, Coimbatore	Co-opted Member	Present
8	Dr. A.Hazel Verbina Professor & Head i/c Department of English Dr.N.G.P.Arts and Science College Coimbatore	Co-opted Member	Present
9	Dr.J. Rengaramanujam Professor and Head Department of Microbiology Dr.N.G.P.Arts and Science College Coimbatore	Co-opted Member	Present
10	Dr.M.Thiruselvi Professor, Dept of CLT Dr.N.G.P.Arts and Science College Coimbatore	Member	Present
11	Dr.S.Sasikala Associate Professor, Dept of CLT Dr.N.G.P.Arts and Science College Coimbatore	Member	Present
12	Ms. Rasika.K Assistant Professor Dept of CLT Dr.N.G.P.Arts and Science College Coimbatore	Member	Present
13	Ms. Manimegalai. G III B.Sc CLT Dr.N.G.P.Arts and Science College Coimbatore	Student Representative	Absent

Date: 10/11/2025

10/11/2025

Board Chairman
(Dr.S.Kokila)
BoS Chairman/HoD
Department of Clinical Laboratory Technology
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048