

**Department of Biochemistry**  
**M.Sc Biochemistry(20-21 Regulation)**

**Program Outcomes:**

<b><u>S.No</u></b>	<b><u>OUTCOMES</u></b>
<b>PO1</b>	The students achieved for best computational performance in a specific context
<b>PO2</b>	They cultivate the highest level of learning and technological key
<b>PO3</b>	We were choose social welfare oriented skill based subject and its applications in biology, helps to the students & social welfare
<b>PO4</b>	These competences of a course possess upon achieved for course specific goals
<b>PO5</b>	Able to design and contact scientific experiments and analyzing the data

**Program specific Outcomes:**

<b><u>S.No</u></b>	<b><u>OUTCOMES</u></b>
<b>PSO1</b>	Acquire knowledge and skills to undertake a career in research in an academic setup.
<b>PSO2</b>	Apply the knowledge of experimental approaches to solve problems of a chemical nature & ability to enter that knowledge to the solution
<b>PSO3</b>	Drug development and synthesize the knowledge & apply the same for multitude of laboratory applications
<b>PSO4</b>	Understand and apply the concepts of life sources, empower the technical knowledge know & practical hands-on training in the field
<b>PSO5</b>	Drug development and synthesize the knowledge & apply the same for multitude of laboratory applications

**Course Outcomes:****Sub Name:Advances in cell Biology****Sub Code:DBC1**

Semester	Course Name	Course Credit	Course Outcomes
I (Regulation 2020-2021)	Semester I Core Paper 1 Advances in cell biology	04	<p>CO 1- The student will be able to Get Knowledge on Structure and function of prokaryotic and eukaryotic cells.</p> <p>CO 2 -Understands the structure and functions of cells and transport across membrane.</p> <p>CO 3 -Aware of structure of model membrane Well versed on Extracellular matrix, cell-cell communication.</p> <p>CO 4 -Familiar with Sorting and regulation of intracellular trans.</p> <p>CO 5 -The student will be able to understand of cell signaling process.</p> <p>CO 6 -knowledge on signaling molecules get familiar with cell surface receptors and its function comprehend the pathways of intracellular signal transduction aware of secondary messengers</p>

**Mapping with Programme Outcomes**

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	S
CO2	S	S	S	S	M
CO3	S	S	S	S	S
CO4	S	S	S	S	S
CO5	S	S	S	S	S
CO6	S	S	M	S	S

PO – Programme Outcome, CO – Course outcome S – Strong, M – Medium, L – Low (may be avoided)

**Sub Name: Chemistry of Biomolecules**

**Sub Code:DBC12**

	Core Paper 2 Chemistry of Biomolecules	04	<p>CO 1-The student will be able understand about the properties of water and buffers</p> <p>·</p> <p>CO 2- knowledge on polysaccharides and its types get familiar with structural elucidation of polysaccharides</p> <p>·</p> <p>CO 3- Well versed with proteoglycans, glycoproteins and glycolipids aware of oligosaccharides and its interaction in biochemical process.</p> <p>CO 4- Get an idea about structure and functions of vitamins Well known with sources and Daily requirements of various vitamins.</p> <p>CO 5 -Knowledge of structure and functions of porphyrins Aware of Deficiency of vitamins and porphyrins.</p> <p>CO 6 -Well versed with Biochemical important porphyrins hemoglobin and chlorophyll.</p>
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**Mapping with Programme Outcomes**

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO6</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>

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**Sub Name:Human Physiology**

**Sub Code:DBC13**

	Core Paper 3 Human Physiology	03	<p>CO1 -The student will be able to obtain a deep knowledge regarding blood and its components.</p> <p>CO 2 -Get to know about the haemopoiesis. Get a well versed knowledge on coagulation of blood.</p> <p>CO 3 -Aware of various types of blood groups and its significance Attain information on Blood corpuscles</p> <p>CO 4- Interpret ECG – its principle and significance Infer blood pressure and its complications</p> <p>·</p> <p>CO 5- Understand various sense organs Get familiar with Neurons and gross neuroanatomy of the brain and spinal cord. Get knowledge on Muscle physiology</p> <p>·</p>
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### Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

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**Sub Name:Plant Biochemistry**

**Sub Code:DEBC14B**

	Core Elective Paper Plant Biochemistry	03	<p>CO 1- The student will be able to know photosynthesis process.</p> <p>CO 2- Understand the role of photosynthetic pigments aware of The photo systems I and II; cyclic and noncyclic photophosphorylation.</p> <p>CO 3- Enumerate the Pathways of glucose oxidation in plants</p> <p>CO 4 -Know the role of photorespiration in plants. Get familiar with regulation of nif and nod genes of nitrogen fixation Understand the Enzymology of nitrogen fixation.</p> <p>CO -5 Familiar with Nutrient functions in growth and development. Process. Get knowledge on Plant defenses, environmental and genetic control Aware of senescence, aging of plants</p>
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### Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

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**Sub Name:Bioinstrumentation**

**Sub Code:**

	Open elective Bioinstrumentation	03	CO1- It helps students in understanding the basic science in a variety of applications.  CO2- To introduce an fundamentals of transducers as applicable to physiology.  CO3- To explore the human body parameter measurements setups.  CO4- To make the students understand the basic concepts of forensic techniques.  CO5-To Give basic ideas about how Biomolecules are detected by instrumentation.
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Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

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**Sub Name: Analytical Biochemistry****Sub Code:DBC21**

SEME STER II	Core Paper-4 Analytical Biochemistry	04	<p>CO 1 -Gain Practical knowledge, hands on tools and techniques for the characterization of Biomolecules will help the students in advanced research programs</p> <p>CO 2 -Choose and plan the use of suitable electrophoretic techniques for actual analytical problems.</p> <p>CO 3 -Describe the use of nucleic acids as tools in molecular research decides and apply appropriate tools and techniques in molecular biology.</p> <p>CO 4 -Has practical experience in the use of computer software for the construction of genetic maps.</p> <p>CO 5 -gain insight of molecular biology techniques that are instrumental in analysis of genes at DNA level</p> <p>CO 6- knowledge on analytical instruments by visiting laboratories.</p>
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## Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO6</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>

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**Sub Name: Molecular biology**

**Sub Code:DBC22**

	Core Paper – 5 Molecular Biology	04	<p>CO 1- Know about genome organization or living organisms, study of genes genome, chromosome etc.</p> <p>CO 2- Learn structural levels of nucleic acids- DNA and RNA and genome organization in prokaryotes.</p> <p>CO 3- The student can predict how a change in a specific DNA or RNA sequence can result in changes in gene expression.</p> <p>CO 4- Understand the processes of transcription and translation, including how they are both similar and different in prokaryotic and eukaryotic organisms.</p> <p>CO 5- Understanding the principles and applications of Polymerase Chain Reaction. Make students learn mutation and mutagenesis</p> <p>CO 6- Acquire knowledge related to discovery of DNA as genetic material, DNA replication, transcription, DNA repair and translation</p>
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Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO6</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>

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**Sub Name: Metabolic Regulation and Disorders****Sub Code:DBC23**

	<p style="text-align: center;">Core Paper-6 Metabolic Regulation and Disorders</p>	04	<p>CO 1- Get a mechanistic overview of enzyme activity and regulation in cells</p> <p>CO 2 -Understand the metabolic pathways, the energy yielding &amp; energy requiring reactions in biological system.</p> <p>CO 3 -Describe the Cholesterol is kept in balance by homeostatic mechanisms:</p> <p>CO 4 -Understand the metabolic defects in different enzymes of urea biosynthesis, although distinct at the molecular level, present similar clinical signs and symptoms</p> <p>CO 5 -Understand the nucleotide metabolism assess the crucial role of some hormones with regard to the integration of metabolic pathways</p> <p>CO 6- Gain the Knowledge Higher dietary intake leads to reduced synthesis in the body.</p>
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## Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO6</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

PO – Programme Outcome, CO – Course outcome S – Strong, M – Medium, L – Low (may be avoided)

**Sub Name: Bioinformatics**

**Sub Code:DEBC24B**

	Core Elective Paper - 2 Bioinformatics	03	CO-1 Well known on computer system design. CO 2 -Well versed with internet. CO 3 -Aware on World wide Web, Url, HTML CO 4-Well versed with Phylogenetic trees. Aware on DNA microarrays CO 5- Aware on drug designing and Knowledgeable on simulation of ES Complex interaction. Familiar with computer modeling of proteins.
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Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

PO – Programme Outcome, CO – Course outcome S – Strong, M – Medium, L – Low (may be avoided)

**Sub Name:Herbal Medicine**

**Sub Code:**

	Open elective Herbal medicine	03	CO1-Gain knowledge on importance of Medicinal plants.  CO2-can understand importants of medicinal plants human health care.  CO3-Acquire knowledge on role of proteins lipids carbohydrates and vitamins in balanced diet.  CO4- To understand the methods of Disease diagnosis and treatment.  CO5- Traditional knowledge and utility of some medicinal Plants in Tamilnadu
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Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

PO – Programme Outcome, CO – Course outcome S – Strong, M – Medium, L – Low (may be avoided)

**Sub Name:Advanced Endocrinology**

**Sub Code:DBC31**

SEME STER III	Paper -7 Advanced Endocrinology	05	CO 1 -Knowledgeable on cyclic hormone cascade system. CO 2- Aware of Hormone regulations and Insulin. CO 3 -Well versed on pituitary hormones and its roles. CO 4- Familiar with thyroid hormones. CO 5- Well versed with signal transduction. Knowledgeable on G protein. CO 6- Aware of protein kinase enzyme regulations. Well versed on light and dark cycle. CO 7 -Aware of multiple endocrine neoplasias. Well versed on hormone response.
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Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO6</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO7</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

PO – Programme Outcome, CO – Course outcome S – Strong, M – Medium, L – Low (may be avoided)

**Sub Name:Core Practical**

**Sub Code:**

	Core Practical – I -	03	CO 1- Students understand the preparation of buffers and ph measurements. CO 2 -Students understand and practical knowledge of techniques of PCR CO 3 - Students understand and practical knowledge of techniques of column chromatography CO 4- Gain the Knowledge of Determination of tryptophan. CO 5- Gain the Knowledge of Estimation of Iron.
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Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

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**SUBJECT NAME: CORE PRACTICAL II****SUB CODE:**

	Core Practical – II	03	CO 1-students understand the blood grouping and Rh typing CO2- Students make understanding the techniques ELISA. CO3 -Students get practical knowledge on basic microbiological techniques like pure culture techniques and staining techniques. CO4 -Acquire knowledge related to turbidity method CO5 -Gain the Knowledge of membrane filtration technique.
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## Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

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**SUBJECT NAME: RESEARCH METHODOLOGY****SUB CODE:**

	Core Paper – 8 Research Methodology	05	<p>CO 1- Identify a research problem by searching relevant literature. Write an effective research articles</p> <p>CO 2 -familiar with search engines. Aware on standard deviation</p> <p>CO3- Well known on ANOVA Aware of BLAST and FASTA</p> <p>CO4 -identify the protein structure using bioinformatics tools.</p> <p>CO5-Aware of ethics in food and drug safety. Well known on patenting and fundamental research.</p> <p>CO 6-Well known on importance of NET examination</p> <p>CO7 -To develop sound Knowledge on Preparation of research reports</p>
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## Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO6</b>	<b>S</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>
<b>CO7</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

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**SUBJECT NAME: BIOTECHNOLOGY****SUB CODE:**

	Paper - 9 Biotechnology	05	CO -1 familiar with gene transfer system. CO2 -Knowledgeable on plasmids and cosmids .Aware of PCR and blotting techniques. CO 3 Well versed on xenografting. Aware of GM foods. CO4 -Well versed on industrial uses of enzymes. CO 5- Aware of IPR.  CO 6- Well versed on patenting. CO7 -Well versed with restriction enzymes
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## Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO6</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO7</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

PO – Programme Outcome, CO – Course outcome S – Strong, M – Medium, L – Low (may be avoided)



**Sub Name: Immunology**

**Sub Code:**

	Elective - 3 Immunology	03	CO1- A wide knowledge on the immunity, cells and organs of immune system. CO 2 -Illustrate the structure and classification of antibodies CO -3 Enlightenment of antigen and antibody interaction during infection. CO -4 Acquire knowledge on the principles, methodology CO -5Gain the Knowledge of immunological techniques. CO 6 -Exposure to mechanisms involved during allergic reactions.
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Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO6</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

PO – Programme Outcome, CO – Course outcome S – Strong, M – Medium, L – Low (may be avoided)

**SUBJECT NAME: MOLECULAR BIOLOGY****SUB CODE:**

Semester IV	Core Paper 10 Molecular Biology	05	<p>CO 1 -Know about genome organization or living organisms.</p> <p>CO 2 -study of genes genome, chromosome etc.</p> <p>CO 3 -Learn structural levels of nucleic acids- DNA and RNA and genome organization in prokaryotes.</p> <p>CO 4 -Learn structural levels of transcription, posttranscriptional processing in prokaryotes.</p> <p>CO 5 -The student can predict how a change in a specific DNA or RNA sequence can result in changes in gene expression.</p> <p>CO 6- Understanding the principles and applications of Molecular Biology techniques</p> <p>CO7 -Applications of Polymerase chain reaction.</p>
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## Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO6</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO7</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

PO – Programme Outcome, CO – Course outcome S – Strong, M – Medium, L – Low (may be avoided)

**SUBJECT NAME: ADVANCED CLINICAL BIOLOGY**  
**SUB CODE:**

	<p style="text-align: center;">Core Paper – 11 Advanced Clinical Biochemistry</p>	05	<p>CO 1- Understand the blood glucose regulation</p> <p>CO2-Describe the pathophysiology and molecular basis of Diabetes mellitus.</p> <p>CO3 -Analyze the genetic diseases like phenyl ketonuria, cystinuria, and albinism</p> <p>CO4 -Assess the diagnostic performance of renal function tests</p> <p>CO5 -Examine the gastric contents.</p> <p>CO 6 -Practical knowledge on FTM analysis.</p> <p>CO7- Acquire the Knowledge of hypo and hyperuricemias, obesity and fatty liver.</p>
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Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO6</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO7</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

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**Sub Name: Genetic engineering**

**Sub Code:**

	Core Elective Paper -3 Genetic Engineering	03	CO 1 -Familiar with gene cloning. CO 2 -Well versed with tools and techniques. CO 3 -Knowledgeable on isolation and purification of enzymes. Aware of isolation of plant cell DNA. CO 4- Knowledgeable on Ti plasmids. Well versed on papilloma viruses Knowledgeable on nick translation. CO 5 -Well versed on DNA ligation. Aware of DNA foot printing. Well versed on DNA analysis
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Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

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**SUBJECT NAME: PRACTICAL III****SUB CODE:**

	<p style="text-align: center;">Practical – III zymology and Clinical Diagnostics (Biochemical Analysis of Blood)</p>	05	<p>CO 1 students able to Understand the hands on training of purification and kinetics analysis of enzymes</p> <p>CO 2 And also make practical training of biochemical techniques and biochemical analysis</p> <p>CO3 Purification of acid Phosphatase from Potato.</p> <p>CO4 Effect of substrate Concentration and acid phosphates Activity by EDTA.</p> <p>CO 5 Determination of Optimum Temperature.</p> <p>CO 6 Determination of optimum PH.</p> <p>CO 7 Effect of Activator and Inhibitor of Acid Phosphates' activity by EDTA.</p>
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## Mapping with Programme Outcomes

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	S
CO2	S	S	S	S	M
CO3	S	S	S	S	S
CO4	S	S	S	S	M
CO5	S	S	S	S	S
CO6	S	S	S	S	S
CO7	S	S	S	S	S

PO – Programme Outcome, CO – Course outcome S – Strong, M – Medium, L – Low (may be avoided)

**SUBJECT NAME: PRACTICAL IV****SUB CODE:**

	<p style="text-align: center;">Practical – IV Hematological Methods and Urine Analysis.</p>	05	<p>CO 1 Identify and enumerate the total count of erythrocytes and leukocytes.</p> <p>CO 2 Differentiate leukocytes and calculate their total count.</p> <p>CO 3 Define and determine the erythrocyte sedimentation rate.</p> <p>CO 4 Determine the packed cell volume and mean corpuscular volume.</p> <p>CO 5 Hematological clinical implications.</p> <p>CO 6 Utilize sphygmomanometer to determine the blood pressure</p> <p>CO 7 Qualitatively analyze the normal and abnormal constituents of urine sample</p>
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## Mapping with Programme Outcomes

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>
<b>CO1</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO2</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>
<b>CO5</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO6</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>
<b>CO7</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

PO – Programme Outcome, CO – Course outcome S – Strong, M – Medium, L – Low (may be avoided)