



PRINCE SHRI VENKATESHWARA ARTS AND SCIENCE COLLEGE

Gowrivakkam, Chennai-600073.

Affiliated to University of Madras, ISO 9001:2015 Certified Institution

DEPARTMENT OF BIOCHEMISTRY

2020-2021

COURSE OUTCOMES

YEAR/ SEM: I/ I – LA11A - TAMIL I

NO.	COURSE OUTCOME
C101.1	மரபு மற்றும் புதுக்கவிதைகளின் வாயிலாக அக்காலச் சூழல் மற்றும் சமூகச் சிக்கல்களை அறிகின்றனர்.
C101.2	நாட்டுப்புறப்பாடல்களின் வாயிலாக சமூகஅமைப்பு, வேளாண் செய்திகள் மற்றும் நீர்ப்பாசனம் போன்ற செய்திகளை அறிகின்றனர்.
C101.3	சிறுகதை மற்றும் உரைநடையின் வாயிலாகப் பல்வேறுகாலச் சூழல்களை அறிகின்றனர்.
C101.4	நாற்காலிக்காரர் நாடகத்தின் வாயிலாக தேர்தல் களம் பற்றி அறிகின்றனர்.
C101.5	மொழிப்பயிற்சியின் வாயிலாக வாக்கியங்கள், இருவழக்குகள், சொல்வகைகள் ஆகியவற்றை அறிகின்றனர்.

YEAR/ SEM: I/ I – CLE1E - HINDI I

NO.	COURSE OUTCOME
C102.1	Develop Communicating, Reading and Writing skills in Hindi.
C102.2	Understand the vision of Premchand about the poor people
C102.3	Learn the literary work on the basis of foundation laid by the Scholars'
C102.4	Develop the approach of Hindi language.
C102.5	Understand the various forms of Functional Hindi according to its area of application.

YEAR/ SEM: I/ I – LZ11A – COMMUNICATIVE ENGLISH

NO.	COURSE OUTCOME
C103.1	To develop the knowledge of skillful learning
C103.2	Ability to write coherent paragraphs with wide range of vocabulary



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C103.3	To teach the aspects of grammar
C103.4	To learn word power and vocabulary skills other aspects of Communicative skill
C103.5	Ability to participate in short group conversations. Ability to use collocations, fixed and semifixed expressions.

YEAR/ SEM: I/I – SB21A – NUTRITIONAL BIOCHEMISTRY

NO.	COURSE OUTCOME
C104.1	To create awareness about the role of nutrients in maintaining proper health to study effect of nutrients in the biochemical process
C104.2	To understand the nutritional significance of carbohydrates, lipids and proteins
C104.3	To learn about balanced diet
C104.4	To analyse the cellular effects of food energy and macronutrients
C104.5	To gain knowledge about human rights and relations, national commission for women and minorities

YEAR/ SEM: I/I – SD3AA – CHEMISTRY I

NO.	COURSE OUTCOME
C105.1	To understand the basic knowledge of radioactive element and applications of isotopes
C105.2	To understand the importance of chemistry in various industries, fertilizers and fuel classification
C105.3	To impart the knowledge about the basic concept of organic chemistry, types of reagents and classification of organic reactions
C105.4	To analyse the preparation and uses of the halogenated hydrocarbon and inter halogen compounds
C105.5	To understand the applications of photo chemistry in daily life



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YEAR/ SEM: I/I – SC5AC – GOOD LABORATORY PRACTICES

NO.	COURSE OUTCOME
C106.1	To create student' s knowledge on essential practices that need to be followed inside a laboratory / industry, awareness on types of reagents
C106.2	To comprehend about ethics followed in lab
C106.3	To impart knowledge of instrument calibration and safety regulation
C106.4	To evaluate the standard laboratory operating procedures quality control and quality assurance
C106.5	To understand about waste and its disposal methods

YEAR/ SEM: I/I – NLT1C – BASIC TAMIL

NO.	COURSE OUTCOME
C107.1	தமிழ் எழுத்துகளைத் தெரிந்து கொள்ளுதல்
C107.2	தமிழ் ஒலியன்களை உச்சரிக்கக் கற்றுக்கொள்ளுதல்
C107.3	எழுத்துக்களைக் கொண்டு சொற்களை உருவாக்குதல்
C107.4	அன்றாடப் பயன்பட்டு சொற்களைப் பயிற்றுவித்தல்
C107.5	தமிழ் மொழியை அறிந்து கொள்ளுதல்.

YEAR/ SEM: I/I – PZ1SB – ENGLISH FOR LIFE SCIENCE

NO.	COURSE OUTCOME
C108.1	Recognize their own ability to improve their own competence in using the language
C108.2	Use language for speaking with confidence in an intelligible and acceptable manner understand the importance of reading for life.
C108.3	To read independently unfamiliar texts with comprehension
C108.4	To understand the importance of writing in academic life



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C108.5	To Write simple sentences without committing errors of spelling or grammar.
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YEAR/ SEM: I/II – LA12A – TAMIL II

NO.	COURSE OUTCOME
C109.1	சங்க இலக்கியங்களின் வாயிலாக அக்கால மக்களின் வாழ்வியலை அறிகின்றனர்
C109.2	புறநானூற்றின் வாயிலாக மன்னர்களின் போர்ச்சமூக அமைப்பை அறிகின்றனர்
C109.3	முல்லைப்பாட்டின் வாயிலாக முல்லைநில மக்களின் வாழ்வியல், பண்பாடு ஆகியவற்றை அறிகின்றனர்
C109.4	திருக்குறள் மற்றும் நாலடியார் வாயிலாக ஈகை மற்றும் ஒழுக்கத்தை அறிகின்றனர்
C109.5	மொழிப்பயிற்சி வாயிலாக தமிழைப் பிழையில்லாமல் எழுதவும் பேசவும் அறிகின்றனர்

YEAR/ SEM: I/II — CLE2G – HINDI II

NO.	COURSE OUTCOME
C110.1	To understand the Drama and the stories based on social problems.
C110.2	Understand the change in content and style of expression in short stories in modern period
C110.3	Develop the skills of Translation from Hindi to English by using high technical words
C110.4	Analyse the development of one act play.
C110.5	Understand the meaning concept of Functional Hindi

YEAR/ SEM: I/II — LZ12A – COMMUNICATIVE ENGLISH II

NO.	COURSE OUTCOME
C111.1	Ability to comprehend both the written and spoken texts. Ability to frame questions and answer them. Ability to write/speak grammatically correct sentences.
C111.2	To enroll people in our ideas, our visions, and our visions.



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C111.3	To enhance listening skills
C111.4	Awareness of the art of personal letter/email writing without grammatical errors.
C111.5	To analyse crucial for effectiveness – particularly in sales or leadership roles.

YEAR/ SEM: I/II — SB22A – CELL BIOLOGY

NO.	COURSE OUTCOME
C112.1	To understand the concept that cell is the fundamental unit of life
C112.2	To understand the structure and purpose of basic components of eukaryotic cells, especially macromolecules, membranes and organelles
C112.3	To gain knowledge about membranes, types of transport and their organization
C112.4	To analyse chromosomes and cell cycle, cell division
C112.5	To evaluate apoptosis, cancer and its prevention. At the end of the course, the student has a strong foundation on the functions of the cell.

YEAR/ SEM: I/II — SB221 - CORE PRACTICAL I

NO.	COURSE OUTCOME
C113.1	To gain knowledge about the preparation of standard buffers and pH determination
C113.2	To create knowledge on volumetric analysis - glycine, calcium and iron
C113.3	To gain knowledge and preparation of biochemical compounds like starch, casein and lactalbumin and albumin from potatoes, milk and eggs.
C113.4	To evaluate BMI measurements.
C113.5	To analyse the morphology of plant & cellular organelles



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YEAR/ SEM: I/II – SD3AC - CHEMISTRY II

NO.	COURSE OUTCOME
C114.1	To understand the features of coordination compounds and its applications
C114.2	To identify the structure and properties of carbohydrates in living system
C114.3	To gain the knowledge of proteins, amino acids - importance, classifications and functions in biological system.
C114.4	To understand basic terminologies of electrochemistry, types of battery and its uses and types of catalyst uses in chemical reaction
C114.5	To gain the knowledge of separation of substance by qualitative and quantitative methods

YEAR/ SEM: I/II – SD3A1 – CHEMISTRY PRACTICAL

NO.	COURSE OUTCOME
C115.1	To Perform the volumetric analysis and estimate the quantity present.
C115.2	To identify and analyze organic compounds
C115.3	To identify the nature of the functional groups
C115.4	To find out the nature of hetero atoms
C115.5	To analyze the nature of compounds - aromaticity, special elements, saturation

YEAR/ SEM: I/II – SC5AB – HERBAL MEDICINE

NO.	COURSE OUTCOME
C116.1	To gain knowledge about plants and their medicinal uses - ethnomedicine
C116.2	To gain a better understanding about the importance of medicinal plants and their role in human health care.
C116.3	To understand about methods used in traditional medicine to diagnose diseases - tribal medicine
C116.4	To gain traditional knowledge on the utility of medicinal plants in India
C116.5	To decipher about the plants used in day-to-day life which have both nutritional and medicinal value.



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YEAR/ SEM: I/II – NLT2D – BASIC TAMIL

NO.	COURSE OUTCOME
C117.1	தமிழ் இலக்கியங்களை அறிந்து கொள்ளுதல்
C117.2	அற இலக்கியங்களைத் தெரிந்து கொள்ளுதல்
C117.3	திருக்குறளின் சிறப்புகளை அறிந்துகொள்ளுதல்
C117.4	தமிழர்களின் பண்பாடு, நாகரிகம் போன்றவற்றைத் தெரிந்துகொள்ளுதல்
C117.5	தமிழகத்தின் விழாக்களை அறிந்துகொள்ளுதல்

YEAR/ SEM: I/II – PZ1SD – ENGLISH FOR LIFE SCIENCE II

NO.	COURSE OUTCOME
C118.1	To attend interviews with boldness and confidence.
C118.2	To imbibe the rules of language unconsciously and tune to deduce language structure and usage
C118.3	To adapt easily into the workplace context, having become communicatively competent.
C118.4	Apply to the Research & Development organizations/ sections in companies and offices with winning proposals.
C118.5	To decipher the mechanism of language and use it for success in competitive examinations and job-related speaking and writing tasks.

YEAR/ SEM: II/III – CLA3M – TAMIL III

NO.	COURSE OUTCOME
C201.1	பல்லவர் காலத்தில் நாயன்மார்கள் மற்றும் ஆழ்வார்களின் பக்தி நெறிகளை அறிகின்றனர்
C201.2	இசுலாமியர் மற்றும் கிறித்தவர்கள் தமிழிக்குச் செய்த தொண்டினை அறிகின்றனர்
C201.3	நாயக்கர் காலத்தில் தோன்றிய சிற்றிலக்கியங்களின் வளர்ச்சி நிலைகளை அறிகின்றனர்
C201.4	சமயங்கள் வளர்த்த இலக்கியங்களை அறிகின்றனர்



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C201.5	மொழிப்பயிற்சியின் வாயிலாக கடிதம் மற்றும்பிற மொழிக் கலவாமல் தமிழ் எழுத அறிகின்றனர்
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YEAR/ SEM: II/III – CLE3H – HINDI III

NO.	COURSE OUTCOME
C202.1	To identify the literary trends of ancient Hindi literature, and social conditions and its impact on ancient poetry
C202.2	To summarize the content of prescribed poems and understand the trends of Ancient Hindi Literature
C202.3	To critical study and analysis of artistic skills of poets and their expressional skills and literary trends
C202.4	To employ the methods of interpreting contexts, ideas and identify the special features, poetic skills through practicing annotation writing
C202.5	To differentiate the subject, ideology, contribution and poetic skills with each other and also know about contemporary poets, writers and the impact of contemporary situations

YEAR/ SEM: II/III – CLZ3P – ENGLISH III

NO.	COURSE OUTCOME
C203.1	To refer dictionary and study the correct stress, right accent and right intonation.
C203.2	To ask questions, make requests or to make command.
C203.3	They will be familiar with the conventions of diverse textual genres including fiction, nonfiction, poetry, autobiography, biography, Journal, film, plays, editorials etc.
C203.4	To make the students see how Indian English poetry expresses the ethos and culture of India
C203.5	To encourage students to interpret literary works and to develop aptitude for critical analysis.

YEAR/ SEM: II/III – TAP3A – CHEMISTRY OF BIOMOLECULES I

NO.	COURSE OUTCOME
C204.1	To demonstrate the chemistry and the role of mono and disaccharides in living systems
C204.2	To elucidate the structural conformation of different types of polysaccharides



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C204.3	To gain insight into the reactivity of amino acids and nutritional importance of proteins
C204.4	To apply the relationship between the structure and functions of proteins in biological context
C204.5	To elucidate the various levels of organization of Proteins and its biological importance

YEAR/ SEM: II/III – SBANC – MICROBIOLOGY I

NO.	COURSE OUTCOME
C205.1	To understand the contributions of various scientists in microbiology and scope of various branches
C205.2	To classify the bacteria on the basis of various parameters
C205.3	To describe various types of nutrient media for cultivation and isolation of bacteria.
C205.4	To compare various types of stains and dyes
C205.5	To determine the sensitivity of specific bacteria to given antibiotics

YEAR/ SEM: II/III – TSSE1 – COMPUTING SKILLS

NO.	COURSE OUTCOME
C206.1	To impart hands on training to students in Microsoft Office
C206.2	To claim proficiency in Word and Power point.
C206.3	To independently create professional-looking documents and presentations.
C206.4	To use Word and power point in a variety of professional and educational
C206.5	To be able to create and share presentations



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YEAR/ SEM: II/IV – CLA4K – TAMIL IV

NO.	COURSE OUTCOME
C207.1	காப்பியங்களின் வாயிலாக வாழ்வியல் அறங்களை அறிகின்றனர்
C207.2	புராணங்களின் வாயிலாக பண்பாடு, ஒழுக்கம் ஆகியவற்றை அறிகின்றனர்
C207.3	தேம்பாவணி, சீறாப்புராணம் வாயிலாக இறைத்தூதர்களின் வாழ்வியல் மற்றும் அருட்செயல்களை அறிகின்றனர்
C207.4	சிறுநிலக்கியங்களின் வாயிலாக பழங்கால மக்களின் வாழ்வியல் முறைகளை அறிகின்றனர்.
C207.5	மாணாக்கர்கள் கவிதை மற்றும் சிறுகதைப் படைக்கும் ஆற்றலைப் பெறுகின்றனர்

YEAR/ SEM: II/IV – CLE4J – HINDI IV

NO.	COURSE OUTCOME
C208.1	To identify the modern trends of Modern Hindi literature, different forms of modern literature i.e., poetry, fiction etc.
C208.2	To summarise the content of prescribed poems and understand the trends of modern Hindi Literature
C208.3	To Critical study and analysis of artistic skills of poets and their expression skills
C208.4	To employ the methods of interpreting contexts, ideas and identify the poetic skills through practicing annotation writing
C208.5	To differentiate the subject and poetic skills of prescribe poems with each other and also know about contemporary poets, writers and the impact of contemporary situations

YEAR/ SEM: II/IV – CLZ4R – ENGLISH IV

NO.	COURSE OUTCOME
C209.1	To enable learners to appreciate and enjoy a wide range of literary or creative texts and other related cultural forms
C209.2	To perform various speaking and writing tasks, such as roleplays, debates, group discussions apart from the use of correct spelling, punctuation.
C209.3	To enhance students awareness in the aesthetics of poetry and to empower them to read, appreciate and critically evaluate poetry independently.
C209.4	To enable students to become competent users of English in real life situations



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C209.5	The ability to transfer information in the writing tasks.
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YEAR/ SEM: II/IV – TAP4A – CHEMISTRY OF BIOMOLECULES II

NO.	COURSE OUTCOME
C210.1	Gain insight into the classes of lipids and characterization of fats by their constants
C210.2	Establish the diverse role of lipids in biological system
C210.3	Relate the structure of lipids with their reactivity in biological membrane systems and life processes.
C210.4	Establish the role of purine and pyrimidine bases in nucleic acid structure .
C210.5	Acquire knowledge about principle of various centrifugation types and its applications. Appreciate the principle, instrumentation and the difference between various spectroscopic methods to choose analysing biological samples

YEAR/ SEM: II/IV – SBAND – MICROBIOLOGY II

NO.	COURSE OUTCOME
C211.1	To define and analyse the role microorganisms in dairy, food, and environment
C211.2	To inter relate the microorganisms and elemental cycles in nature.
C211.3	To Understand the various biogeochemical cycles - microbes involved and biochemical mechanisms of Carbon, Nitrogen.
C211.4	To give examples of industrially important micro-organisms and their applications
C211.5	To summarise the role of microorganisms in agriculture

YEAR/ SEM: II/IV – SBAN1 – MICROBIOLOGY PRACTICAL

NO.	COURSE OUTCOME
C212.1	To attain the practical skills in microscopy and their handling techniques and staining procedures
C212.2	To Prepare various nutrients media for cultivating microbes in laboratory



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C212.3	To isolate specific bacteria in pure form from sample.
C212.4	To study microbiological examination of foods, microbiological quality Control and quality schemes
C212.5	To Understand and explain the significance of bacteriological analysis of drinking water

YEAR/ SEM: II/IV – TSSE2 – COMPUTING SKILLS

NO.	COURSE OUTCOME
C213.1	To impart hands on training to students in Microsoft Office
C213.2	To claim proficiency in Word and power point.
C213.3	To independently create professional-looking documents and presentations.
C213.4	To use Word and power point in a variety of professional and educational
C213.5	To be able to create and share presentations

YEAR/ SEM: II/IV – TAP41 – PRACTICAL II

NO.	COURSE OUTCOME
C214.1	To learn titrimetric methods of characterization of fats
C214.2	To analyze simple sugars by the characteristic tests
C214.3	To analyze amino acids by the characteristic tests
C214.4	To perform the characteristic test for protein
C214.5	To understand and estimate biological compounds using colorimetric methods - proteins, carbohydrate & amino acids.



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YEAR/ SEM: II/IV – ENV4B – ENVIRONMENTAL STUDIES

NO.	COURSE OUTCOME
C215.1	To understand the scope and importance of environmental studies and to create public awareness for environmental protection
C215.2	To evaluate the problems created by the over utilization of resources and to suggest alternate energy to meet our energy crisis/demand
C215.3	To analyse ecosystem, ecological succession, ecological pyramid, food chain and food web
C215.4	To analyse the different methods of biodiversity conservation
C215.5	To create awareness on effects of pollution and the role of individual for pollution control programme

YEAR/ SEM: III/V – TAP5A - ENZYMES

NO.	COURSE OUTCOME
C301.1	To gain thorough knowledge about the nature and classification of enzymes.
C301.2	Understand specificity, kinetics, inhibition and mechanism of action.
C301.3	Elucidation about mechanism of enzyme activity.
C301.4	Understand isolation, Purification and characterization of enzymes.
C301.5	Analyse the immobilization and applications of enzymes.

YEAR/ SEM: III/V – TAP5B - METABOLISM

NO.	COURSE OUTCOME
C302.1	To comprehend the concepts of thermodynamics and the mechanism of energy transfer in ETC.
C302.2	Understand the fate of absorbed carbohydrates and metabolism of other hexoses.
C302.3	Gain knowledge about fate of the dietary lipids, biosynthesis and degradation of fatty acids.
C302.4	Evaluate about fate of dietary proteins and catabolism of carbon skeleton of amino acids.
C302.5	At the end of the program the student gain knowledge about interrelationship between carbohydrates, fat and protein metabolism.



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YEAR/ SEM: III/V – TAP5C – ANALYTICAL BIOCHEMISTRY

NO.	COURSE OUTCOME
C303.1	Understand the concepts of acids, bases, buffers, various units used in expressing their strength and measuring their pH, buffers in body fluids.
C303.2	To gain in depth knowledge about the techniques, types, operation and applications of oxygen electrode and Microscopy.
C303.3	To apply knowledge in the chromatographic and electrophoretic techniques.
C303.4	Understanding radioactivity, its measurements and applications
C303.5	Comprehend about basics of bioinformatics, Nanotechnology and its applications in various fields.

YEAR/ SEM: III/V – TEP5A - PHYSIOLOGY

NO.	COURSE OUTCOME
C304.1	Understand the structure and function and different components of Digestive and urinary system.
C304.2	Analysis of blood composition and its function, blood clotting mechanism and cardiovascular diseases.
C304.3	Gain knowledge about the muscular and nervous system, role of neurotransmitters in Physiology.
C304.4	To inculcate knowledge about respiratory and to create awareness about lung disorders.
C304.5	To acquire in-depth knowledge about reproductive physiology and to understand about structure and function of hormones.

YEAR/ SEM: III/V — VAE5Q – VALUE EDUCATION

NO.	COURSE OUTCOME
C305.1	To gain knowledge about the importance of value education
C305.2	To learn about salient values for life and problem-solving and decision-making skills
C305.3	To create awareness about the importance of human rights & social values
C305.4	To evaluate the environmental and ecological balance.
C305.5	To apply human rights to combat social evils.



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YEAR/ SEM: III/V – TAP6A – CLINICAL BIOCHEMISTRY

NO.	COURSE OUTCOME
C306.1	To gain knowledge on the scope of clinical biochemistry and the alteration in biochemical components during various clinical conditions
C306.2	To comprehend Liver function tests and clinical enzymology.
C306.3	To analyse the kidney function tests and proteinuria.
C306.4	To evaluate the abnormal levels of lipids in diseases and inborn errors of amino acid metabolism.
C306.5	To apply the knowledge and importance of various biochemical parameters in the diagnosis of diseases.

YEAR/ SEM: III/VI – TAP6B – MOLECULAR BIOLOGY

NO.	COURSE OUTCOME
C307.1	Gain knowledge about the various types of DNA, the organization of genes to chromosomes in prokaryotes and eukaryotes.
C307.2	Understand the molecular basis of DNA synthesis, know the importance of the process, and the role of inhibitors of DNA as drugs.
C307.3	Comprehend the process of RNA synthesis, post transcriptional modifications and apply the same to understand the role of antibiotics.
C307.4	Elucidation about the genetic code, molecular basis of protein synthesis & modification.
C307.5	Application of molecular biology techniques to study the mechanism of DNA mutation, repair system and understand the use of molecular process in disease diagnosis.

YEAR/ SEM: III/VI – TAP61 – CORE PRACTICAL III

NO.	COURSE OUTCOME
C308.1	To demonstrate proficiency in the collection of urine samples, clean-catch techniques, 24-hour urine collection, and paediatric urine collection.
C308.2	To perform qualitative analysis of normal and abnormal constituents of urine, recognizing clinical significance.
C308.3	To gain hands-on experience in quantitative analysis of urine samples, utilizing techniques such as spectrophotometry or chromatography and interpreting results and relating them to normal physiological ranges.
C308.4	To understand the interplay between urine and blood parameters and their significance in diagnosing and monitoring various medical conditions.



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C308.5	To Comprehend about experiments, interpreting results, and presenting findings, enhancing their ability to work effectively in a laboratory setting.
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YEAR/ SEM: III/VI – TAP62 – CORE PRACTICAL IV

NO.	COURSE OUTCOME
C309.1	To evaluate collection and preservation of blood sample
C309.2	To analyse hematological studies a. RBC counting b. Total and differential count of white blood cells c. Packed Cell Volume
C309.3	To analyse erythrocyte sedimentation rate, blood clotting time and blood grouping
C309.4	To gain knowledge about the quantitative estimation in blood hemoglobin, glucose, cholesterol, urea, creatinine, protein by Lowry's method
C309.5	To analyze enzyme assay a. AST b. ALT c. Alkaline phosphatase

YEAR/ SEM: III/VI – TEP6A - IMMUNOLOGY

NO.	COURSE OUTCOME
C310.1	Understand about the types of immunity, lymphoid organs and the cellular basis of immunity
C310.2	Obtain knowledge on types of antigens, antibodies and activation of complements
C310.3	Gain insight into various in vitro reactions between antigen and antibody and its application in clinical diagnosis
C310.4	Apprehend the enormous scope of different types of vaccines
C310.5	Acquire knowledge on autoimmunity, hypersensitivity and transplantation immunology. The course develops in the student an appreciation for principles of immunology and its applications in treating human diseases.

YEAR/ SEM: III/VI – TEP6B - BIOTECHNOLOGY

NO.	COURSE OUTCOME
C311.1	To acquire basic knowledge of recombinant DNA technology, DNA manipulation in prokaryotes and eukaryotes
C311.2	To understand the methods of engineering of DNA molecules using restriction and modification enzymes.



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C311.3	To get acquainted with the use of cloning and vectors, creation of genomic and cDNA libraries and their applications.
C311.4	To evaluate the methods for production of proteins using recombinant DNA technology and their applications.
C311.5	To comprehend the basics of tissue culture, transgenesis, stem cell technology, risks, and safety aspects and patenting in biotechnology.