



# PRINCE SHRI VENKATESHWARA ARTS AND SCIENCE COLLEGE

Gowrivakkam, Chennai-600073.

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

Recognized by UGC under section 2(f) of UGC Act 1956

## DEPARTMENT OF MICROBIOLOGY

2021-2022

### 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 பல்வேறு காலச் 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 | To develop Communicating, Reading and Writing skills in Hindi                            |
| C102.2 | To understand the vision of Premchand about the poor people                              |
| C102.3 | To learn the literary work on the basis of foundation laid by the Scholars               |
| C102.4 | To understand the meaning and concept of Functional Hindi                                |
| C102.5 | To understand the various forms of Functional Hindi according to its area of application |



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

| NO.    | COURSE OUTCOME   |
|--------|--|
| C103.1 | To develop the knowledge of skillful learning.   |
| C103.2 | Ability to write coherent paragraphs with wide range of vocabulary.  |
| 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 – SN21A – GENERAL MICROBIOLOGY AND MICROBIAL PHYSIOLOGY

| NO.    | COURSE OUTCOME   |
|--------|--|
| C104.1 | To Understand the contributions of various scientists in the field of microbiology and the classification of microorganisms.     |
| C104.2 | To apply various staining procedures for visualization of microorganisms and to understand the principle of various microscopes. |
| C104.3 | To understand pure culture techniques along with the mode of action and application of various sterilization techniques.         |
| C104.4 | To evaluate the nutritional requirement and cultivation of microorganisms under laboratory conditions.                           |
| C104.5 | To analyse various metabolic pathways occurring in microorganisms.   |

### YEAR/ SEM: I/I –SN221 – MAJOR PRACTICAL: GENERAL MICROBIOLOGY AND MICROBIAL PHYSIOLOGY

| NO.    | COURSE OUTCOME  |
|--------|---|
| C105.1 | To apply the concept of various sterilization processes in the preparation of different media.                |
| C105.2 | To apply various pure culture techniques to isolate organisms and to evaluate their cultural characteristics. |
| C105.3 | To develop the practical skills in microscopy and to demonstrate the motility by using various techniques.    |
| C105.4 | To evaluate antibiotic sensitivity pattern using different methods.   |



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|               |  |
|---------------|--|
| <b>C105.5</b> | To apply various biochemical tests to identify microorganisms and methods of preservation and maintenance of microorganisms. |
|---------------|--|

### YEAR/ SEM: I/I – SB31A – BIOCHEMISTRY

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C106.1</b> | To learn the concept of carbohydrates with their structure, physical & chemical properties and its biological importance.                                   |
| <b>C106.2</b> | To understand the structure and functions of 20 amino acids and their biological importance   |
| <b>C106.3</b> | To attain the theoretical and practical skills in fats and its classification and its biological importance   |
| <b>C106.4</b> | To recognize the structural levels of organization of proteins, Classification, chemical and physical properties, functions and its denaturation properties |
| <b>C106.5</b> | To understand the basic of vitamins. Have knowledge of the vitamin deficiency Disease and its importance  |

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

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C107.1</b> | Recognize their own ability to improve their own competence in using the language   |
| <b>C107.2</b> | Use language for speaking with confidence in an intelligible and acceptable manner understand the importance of reading for life. |
| <b>C107.3</b> | To read independently unfamiliar texts with comprehension   |
| <b>C107.4</b> | To understand the importance of writing in academic life  |
| <b>C107.5</b> | To Write simple sentences without committing errors of spelling or grammar.   |

### YEAR/ SEM: I/I – NLT1C – BASIC TAMIL

| NO.           | COURSE OUTCOME                               |
|---------------|--|
| <b>C108.1</b> | தமிழ் எழுத்துகளைத் தெரிந்து கொள்ளுதல்        |
| <b>C108.2</b> | தமிழ் ஒலியன்களை உச்சரிக்கக் கற்றுக்கொள்ளுதல் |
| <b>C108.3</b> | எழுத்துக்களைக் கொண்டு சொற்களை உருவாக்குதல்   |



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|        |   |
|--------|---|
| C108.4 | அன்றாடப் பயன்பட்டு சொற்களைப் பயிற்றுவித்தல் |
| C108.5 | தமிழ் மொழியை அறிந்து கொள்ளுதல்.             |

### YEAR/ SEM: I/I – SS52B – HERBAL MEDICINE

| NO.    | COURSE OUTCOME   |
|--------|--|
| C109.1 | To understand the incredible world of plants and their medicinal uses according to various cultures. |
| C109.2 | To understand the role of medicinal plants in human health and diet.                                 |
| C109.3 | To analyse the methods of disease diagnosis and treatment using tribal medicine.                     |
| C109.4 | To apply traditional knowledge to utilize medicinal plants available in Tamilnadu.                   |
| C109.5 | To understand the medicinal value of plants in day today life.                                       |

### YEAR/ SEM: I/II –LAI2A– TAMIL II

| NO.    | COURSE OUTCOME   |
|--------|--|
| C110.1 | சங்க இலக்கியங்களின் வாயிலாக அக்கால மக்களின் வாழ்வியலை அறிகின்றனர்.                   |
| C110.2 | புறநானூற்றின் வாயிலாக மன்னர்களின் போர்ச் சமூக அமைப்பை அறிகின்றனர்.                   |
| C110.3 | முல்லைப்பாட்டின் வாயிலாக முல்லைநிலமக்களின் வாழ்வியல், பண்பாடு ஆகியவற்றை அறிகின்றனர். |
| C110.4 | திருக்குறள் மற்றும் நாலடியார் வாயிலாக ஈகை மற்றும் ஒழுக்கத்தை அறிகின்றனர்.            |
| C110.5 | மொழிப்பயிற்சி வாயிலாக தமிழைப் பிழையில்லாமல் எழுதவும் பேசவும் அறிகின்றனர்.            |



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### YEAR/ SEM: I/II – CLE2G – HINDI II

| NO.    | COURSE OUTCOME  |
|--------|---|
| C111.1 | To understand the Drama and the stories based on social problems                              |
| C111.2 | To develop the approach of Hindi language   |
| C111.3 | To understand the change in content and style of expression in short stories in modern period |
| C111.4 | To develop the skills of Translation from Hindi to English by using high technical words      |
| C111.5 | To analyse the development of one act play  |

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

| NO.    | COURSE OUTCOME   |
|--------|--|
| C112.1 | Ability to comprehend both the written and spoken texts. Ability to frame questions and answer them. Ability to write/speak grammatically correct sentences. |
| C112.2 | To enroll people in our ideas, our visions, and our visions.   |
| C112.3 | To enhance listening skills  |
| C112.4 | Awareness of the art of personal letter/email writing without grammatical errors.  |
| C112.5 | To analyse crucial for effectiveness – particularly in sales or leadership roles.  |

### YEAR/ SEM: I/II – SN22A – BASIC AND APPLIED IMMUNOLOGY

| NO.    | COURSE OUTCOME   |
|--------|--|
| C113.1 | To understand the key concepts in immunology and overall organization of the immune system |
| C113.2 | To understand the structure of antigen and antibody.                                       |
| C113.3 | To evaluate Antigen – Antibody reactions using various In-vivo and In-vitro tests.         |



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|---------------|--|
| <b>C113.4</b> | To understand the mechanism of hypersensitivity and autoimmune disorders |
| <b>C113.5</b> | To analyse transplantation immunology and types of vaccines.             |

### YEAR/ SEM: I/II – SN222 – PRACTICAL II – BASIC AND APPLIED IMMUNOLOGY

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C114.1</b> | To demonstrate blood grouping and to identify specific Ag-Ab reactions. |
| <b>C114.2</b> | To demonstrate various immunological assays.                            |
| <b>C114.3</b> | To apply techniques to isolate various components of blood.             |
| <b>C114.4</b> | To demonstrate antibody production in experimental animals.             |
| <b>C114.5</b> | To demonstrate anaphylactic reactions in model animals.                 |

### YEAR/ SEM: I/II – SN32A – BIOINSTRUMENTATION

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C115.1</b> | To gain knowledge on principle and working of various laboratory equipments.      |
| <b>C115.2</b> | To analyse the principle and application of different chromatographic techniques. |
| <b>C115.3</b> | To evaluate different electrophoresis techniques.                                 |
| <b>C115.4</b> | To understand the principle and application of various spectroscopic techniques.  |
| <b>C115.5</b> | To understand the principle & application of radioisotopes in life sciences.      |

### YEAR/ SEM: I/II – SN321 - BIOINSTRUMENTATION PRACTICAL

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C116.1</b> | To determine pH using various titration methods.                                |
| <b>C116.2</b> | To apply chromatographic techniques for the separation of various biomolecules. |



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|---------------|--|
| <b>C116.3</b> | To evaluate serum protein using gel electrophoresis                                  |
| <b>C116.4</b> | To evaluate various macromolecules using UV spectroscopy.                            |
| <b>C116.5</b> | To demonstrate the estimation of various organic compounds using Gas chromatography. |

### YEAR/ SEM: I/II – NLT2D – BASIC TAMIL

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

### YEAR/ SEM: I/II – SS52A – MUSHROOM CULTIVATION

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C118.1</b> | To understand the types and identification of mushrooms.              |
| <b>C118.2</b> | To analyse the scope of mushroom cultivation in small scale industry. |
| <b>C118.3</b> | To understand the life cycle of important mushroom species.           |
| <b>C118.4</b> | To apply the steps involved in mushroom cultivation.                  |
| <b>C118.5</b> | To assess various diseases in mushroom cultivation.                   |

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

| NO.           | COURSE OUTCOME                                     |
|---------------|--|
| <b>C119.1</b> | To attend interviews with boldness and confidence. |



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|--------|--|
| C119.2 | To imbibe the rules of language unconsciously and tune to deduce language structure and usage  |
| C119.3 | To adapt easily into the workplace context, having become communicatively competent.   |
| C119.4 | Apply to the Research & Development organizations/ sections in companies and offices with winning proposals.                         |
| C119.5 | 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 – LA13A – TAMIL III

| NO.    | COURSE OUTCOME  |
|--------|---|
| C201.1 | பல்லவர் காலத்தில் நாயன்மார்கள் மற்றும் ஆழ்வார்களின் பக்திநெறிகளை அறிகின்றனர்.     |
| C201.2 | இசுலாமியர் மற்றும் கிறித்தவர்கள் தமிழிக்குச் செய்த தொண்டினை அறிகின்றனர்.          |
| C201.3 | நாயக்கர்காலத்தில் தோன்றிய சிற்றிலக்கியங்களின் வளர்ச்சிநிலைகளை அறிகின்றனர்.        |
| C201.4 | சமயங்கள் வளர்த்த இலக்கியங்களை அறிகின்றனர்.  |
| C201.5 | மொழிப்பயிற்சியின் வாயிலாக கடிதம் மற்றும் பிறமொழிக் கலவாமல் தமிழ்எழுத அறிகின்றனர். |

### YEAR/ SEM: II/III – CLE3H – HINDI III

| NO.    | COURSE OUTCOME   |
|--------|--|
| C202.1 | To understand the division and the concept of Hindi literature   |
| C202.2 | To understand the features and evaluate the period Adikaal, Bhakthikaal and Reethikaal in context of social and political condition of that period |
| C202.3 | To identify the eminent Hindi writers of each period   |
| C202.4 | To describe the progressive nature of Kabirdas, Soordas and Thulasidas   |
| C202.5 | To understand the sudden development of ancient and medieval Hindi literature  |





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### YEAR/ SEM: II/III – LZ13B – LANGUAGE THROUGH LITERATURE I

| NO.    | COURSE OUTCOME  |
|--------|---|
| C203.1 | To get acquainted with the different forms of poetry, prose, fiction and drama.                               |
| C203.2 | To get exposed to advanced level of grammatical patterns and usages in English.                               |
| C203.3 | To improve their skills to speak and write English accurately.  |
| C203.4 | To closely analyze texts, applying critical and theoretical approaches.                                       |
| C203.5 | To evaluate socio-cultural and historical phenomena influence the literary production of a particular period. |

### YEAR/ SEM: II/III – SN23A – MOLECULAR BIOLOGY

| NO.    | COURSE OUTCOME   |
|--------|--|
| C204.1 | To understand the chemical components and structure of DNA and RNA.          |
| C204.2 | To know about the model of prokaryotic replication.                          |
| C204.3 | To assess the control of gene expression at transcription level.             |
| C204.4 | To analyze the mechanism of Protein synthesis.                               |
| C204.5 | To know about regulation activity of Genes and Gene products in Prokaryotes. |

### YEAR/ SEM: II/III – SN241 – MAJOR PRACTICAL MOLECULAR BIOLOGY

| NO.    | COURSE OUTCOME   |
|--------|--|
| C205.1 | To estimate DNA and RNA                                |
| C205.2 | To isolate Plasmid, Genomic and Chromosomal DNA        |
| C205.3 | To isolate RNA and antibiotic resistant mutants        |
| C205.4 | To acquire Knowledge in Preparation of competent cells |



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|---------------|--|
| <b>C205.5</b> | To acquire Knowledge in Transformation of E. coli. |
|---------------|--|

### YEAR/ SEM: II/III – SN33A – CLINICAL LAB TECHNOLOGY

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C206.1</b> | To outline the structure of organization of clinical laboratory and safety regulation |
| <b>C206.2</b> | To impart knowledge on biological specimen collection                                 |
| <b>C206.3</b> | To describe haematology process   |
| <b>C206.4</b> | To focus on basic concepts routine urine analysis                                     |
| <b>C206.5</b> | To study about laboratory standard accreditation boards.                              |

### YEAR/ SEM: II/III – SN341 – CLINICAL LAB TECHNOLOGY PRACTICAL

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C207.1</b> | To focus on basic concepts in biosafety                              |
| <b>C207.2</b> | To study about Cell Counts- RBC, WBC and Platelets                   |
| <b>C207.3</b> | To learn basic steps for tissue processing                           |
| <b>C207.4</b> | To learn estimation of Glucose, albumin, Serum cholesterol in blood. |
| <b>C207.5</b> | To Study the Physical examination of urine                           |

### YEAR/ SEM: II/III – TSSEG – PERSONALITY ENRICHMENT

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C208.1</b> | To develop and exhibit an accurate sense of self.   |
| <b>C208.2</b> | To demonstrate knowledge of personal beliefs and values and a commitment to continuing personal reflection and reassessment |
| <b>C208.3</b> | To evaluate and improve upon personal leadership strengths and weaknesses   |



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|--------|---|
| C208.4 | To build self-awareness, personal development, and life skills.                   |
| C208.5 | To assert strengthened personal character and further, an enhanced ethical sense. |

### YEAR/ SEM: II/IV – LA14A – TAMIL IV

| NO.    | COURSE OUTCOME  |
|--------|---|
| C209.1 | காப்பியங்களின் வாயிலாக வாழ்வியல் அறங்களை அறிகின்றனர்.   |
| C209.2 | புராணங்களின் வாயிலாக பண்பாடு, ஒழுக்கம் ஆகியவற்றை அறிகின்றனர்.                                   |
| C209.3 | தேம்பாவணி, சீறாப்புராணம் வாயிலாக இறைத்தூதர்களின் வாழ்வியல் மற்றும் அருட்செயல்களை அறிகின்றனர்.   |
| C209.4 | சிறுநிலக்கியங்களின் வாயிலாக பழங்காலமக்களின் வாழ்வியல் முறைகளை அறிகின்றனர்.                      |
| C209.5 | மொழிப்பயிற்சியின் வாயிலாக மாணாக்கர்கள் கவிதை மற்றும் சிறுகதைப் படைக்கும் ஆற்றலைப் பெறுகின்றனர். |

### YEAR/ SEM: II/IV – CLE4J – HINDI IV

| NO.    | COURSE OUTCOME  |
|--------|---|
| C210.1 | To make an in-depth study and analysis of the literary work   |
| C210.2 | To gain awareness on the importance of literature in addressing contemporary issues                       |
| C210.3 | To create, select, and apply appropriate approaches to literature, resources and modern literary theories |
| C210.4 | To describe the philosophy of life as well as the poems of modern literature                              |
| C210.5 | To understand the History of development of drama, short stories, one act play and novel.                 |

### YEAR/ SEM: II/IV – LZ14B – LANGUAGE THROUGH LITERATURE II

| NO.    | COURSE OUTCOME  |
|--------|---|
| C211.1 | Ability to comprehend both the written and spoken texts.                  |
| C211.2 | To broaden their vocabularies and to develop an appreciation of language. |



## PRINCE SHRI VENKATESHWARA ARTS AND SCIENCE COLLEGE

Gowrivakkam, Chennai-600073.

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

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|---------------|---|
| <b>C211.3</b> | To develop a deeper appreciation of cultural diversity by introducing them to poetry from a variety of cultures throughout the world. |
| <b>C211.4</b> | Ability to write/speak grammatically correct sentences.   |
| <b>C211.5</b> | To create clear and compelling communication in writing and speaking skills.  |

### YEAR/ SEM: II/IV – SN24A – SOIL AND AGRICULTURAL MICROBIOLOGY

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C212.1</b> | To understand types, structure, formation and microbial flora of soil   |
| <b>C212.2</b> | To understand the role soil microflora in biogeochemical cycle in the environments  |
| <b>C212.3</b> | To know about the mechanism and responsibility of microbial interaction with microbes, plants, animals and insects                        |
| <b>C212.4</b> | To assess the role of microorganism in nitrogen fixation and know about the types and mode of action of biofertilizers and biopesticides. |
| <b>C212.5</b> | To know about defense mechanism, etiology, epidemiology and management of various plant diseases.   |

### YEAR/ SEM: II/IV – SN242 – MAJOR PRACTICAL SOIL AND AGRICULTURAL MICROBIOLOGY

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C213.1</b> | To learn different methods for the isolation and enumeration of soil microorganisms.                                |
| <b>C213.2</b> | To understand the mechanisms and application of enzymes produced by soil microbes                                   |
| <b>C213.3</b> | To know about the role and methods used for the isolation and identification of symbiotic and asymbiotic organisms. |
| <b>C213.4</b> | To know about the application and methods used for isolation and identification of nitrogen fixing algae            |
| <b>C213.5</b> | To analyze various diseases occurring in plants.  |

### YEAR/ SEM: II/IV – SN34A – CLINICAL BIOCHEMISTRY

| NO. | COURSE OUTCOME |
|-----|----------------|
|-----|----------------|



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Gowrivakkam, Chennai-600073.

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

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|---------------|--|
| <b>C214.1</b> | To provide knowledge on blood glucose homeostasis. Maintenance of blood glucose by hormone disease, Goiter, Grave's disease. |
| <b>C214.2</b> | To know about the Liver function   |
| <b>C214.3</b> | To understand the function of amino acid and Kidney function tests - Inulin, urea and creatinine clearance tests             |
| <b>C214.4</b> | To learn lipid mechanisms and abnormal levels of these lipids in diseases  |
| <b>C214.5</b> | To learn about hormonal disorders - Acromegaly, Cushing's syndrome, Addison's  |

### YEAR/ SEM: II/IV – SN342 – CLINICAL BIOCHEMISTRY (ALLIED PRACTICAL)

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C215.1</b> | To learn Collection and preservation of blood sample                            |
| <b>C215.2</b> | To learn working methods of Hematological studies.                              |
| <b>C215.3</b> | To be familiar with the quantitative estimation in blood                        |
| <b>C215.4</b> | To discuss the principles and working methods of quantitative analysis of Urine |
| <b>C215.5</b> | To learn the working experience of enzyme assays                                |

### YEAR/ SEM: II/IV – TSSEH – PERSONOLITY ENRICHMENTS

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C216.1</b> | To develop and exhibit and accurate sense of self.                                   |
| <b>C216.2</b> | To develop and nurture a deep understanding of personal motivation.                  |
| <b>C216.3</b> | To develop an understanding of and practice personal and professional responsibility |
| <b>C216.4</b> | To demonstrate knowledge of personal beliefs and values                              |



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Gowrivakkam, Chennai-600073.

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

Recognized by UGC under section 2(f) of UGC Act 1956

|               |  |
|---------------|--|
| <b>C216.5</b> | To develop a commitment to continuing personal reflection and reassessment |
|---------------|--|

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

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C217.1</b> | To know the scope and importance of environmental studies and to create public awareness for environmental protection                   |
| <b>C217.2</b> | To Elucidate the problems created by the over utilization of resources and to suggest alternate energy to meet our energy crisis/demand |
| <b>C217.3</b> | To give a neat sketch explanation of ecosystem, ecological succession, ecological pyramid, food chain and food web                      |
| <b>C217.4</b> | To know the different methods of biodiversity conservation  |
| <b>C217.5</b> | To analyse the effects of pollution and the role of individual for pollution control programme  |

### YEAR/ SEM: III/V – TAN5A – MEDICAL BACTERIOLOGY

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C301.1</b> | To understand collection and isolation of bacteria from clinical specimens         |
| <b>C301.2</b> | To evaluate the Primary media for isolation of bacteria and their quality control. |
| <b>C301.3</b> | To assess the general characteristics of Gram positive and Gram-negative bacteria. |
| <b>C301.4</b> | To evaluate the general characteristics of Enterobacteriaceae.                     |
| <b>C301.5</b> | To understand the general characteristics of spirochetes.                          |

### YEAR/ SEM: III/V – TAN5B – MEDICAL MYCOLOGY AND PARASITOLOGY

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C302.1</b> | To understand the morphology and Classification of fungi.              |
| <b>C302.2</b> | To analyze the superficial and systemic fungal infection.              |
| <b>C302.3</b> | To evaluate the collection and isolation of medically important fungi. |



## PRINCE SHRI VENKATESHWARA ARTS AND SCIENCE COLLEGE

Gowrivakkam, Chennai-600073.

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

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|---------------|--|
| <b>C302.4</b> | To assess the medically important protozoa.      |
| <b>C302.5</b> | To understand the medically important helminths. |

### YEAR/ SEM: III/V – TAN5C – MEDICAL VIROLOGY

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C303.1</b> | To understand the general Properties of viruses and its detection. |
| <b>C303.2</b> | To analyze medically important RNA viruses and their diseases.     |
| <b>C303.3</b> | To evaluate medically important DNA viruses and their diseases.    |
| <b>C303.4</b> | To analyze the structure and types of bacteriophages.              |
| <b>C303.5</b> | To study the anti-viral agents and viral vaccines.                 |

### YEAR/ SEM: III/V – TEN5A – GENETIC ENGINEERING

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C304.1</b> | To understand the types of vectors used in genetic engineering.    |
| <b>C304.2</b> | To analyze the Principles and methods used in genetic engineering. |
| <b>C304.3</b> | To understand the basic steps of cloning techniques.               |
| <b>C304.4</b> | To analyze the Recombinant DNA.                                    |
| <b>C304.5</b> | To understand the DNA and protein sequencing                       |

### YEAR/ SEM: III/V – TAN61 - MAJOR PRACTICAL: MEDICAL BACTERIOLOGY, MYCOLOGY, PARASITOLOGY AND VIROLOGY

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C305.1</b> | To apply skills to identify medically important bacteria from the clinical samples |



## PRINCE SHRI VENKATESHWARA ARTS AND SCIENCE COLLEGE

Gowrivakkam, Chennai-600073.

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|---------------|---|
| <b>C305.2</b> | To analyze the processing of clinical sample.                                     |
| <b>C305.3</b> | To isolate phage from natural sources.  |
| <b>C305.4</b> | To evaluate medically important fungi using microscope.                           |
| <b>C305.5</b> | To evaluate the feces and blood sample for the detection of pathogenic parasites. |

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

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C306.1</b> | To understand the importance and of value education                                   |
| <b>C306.2</b> | To learn about salient values for life and problem-solving and decision-making skills |
| <b>C306.3</b> | To know the importance of human rights & social values                                |
| <b>C306.4</b> | To know the importance of environment and ecological balance                          |
| <b>C306.5</b> | To learn about social evils and how to tackle them.                                   |

### YEAR/ SEM: III/VI – TAN6A – ENVIRONMENTAL MICROBIOLOGY

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C307.1</b> | To understand the microbial communities and their habitat.                           |
| <b>C307.2</b> | To analyze microbial life in extreme environments.                                   |
| <b>C307.3</b> | To analyze microbes in aquatic environments and Water-borne diseases caused by them. |
| <b>C307.4</b> | To evaluate the microbes in air and air borne diseases caused by them.               |





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Gowrivakkam, Chennai-600073.

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Recognized by UGC under section 2(f) of UGC Act 1956

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|---------------|--|
| <b>C307.5</b> | To assess the role of microbes in treatment of solid and liquid waste. |
|---------------|--|

### YEAR/ SEM: III/VI – TAN6B – FOOD AND DAIRY MICROBIOLOGY

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C308.1</b> | To gain knowledge about food as a substrate for various microbes.  |
| <b>C308.2</b> | To understand about the principles and application of different types of food preservation technique, chemical preservative and its advantages and disadvantages |
| <b>C308.3</b> | To understand the contamination and spoilage of various food.  |
| <b>C308.4</b> | To acquire a thorough understanding of food borne diseases, testing methods, and preventive techniques   |
| <b>C308.5</b> | To learn about the various fermented product and its various stage of spoilage   |

### YEAR/ SEM: III/VI – TEN6A – INDUSTRIAL AND PHARMACEUTICAL MICROBIOLOGY

| NO.           | COURSE OUTCOME  |
|---------------|---|
| <b>C309.1</b> | To understand basic concepts of industrial fermentation   |
| <b>C309.2</b> | To analyze the design and function of fermenters.   |
| <b>C309.3</b> | To understand the production of commercial products produced by using microbes.                     |
| <b>C309.4</b> | To analyze the extraction and recovery of microbial products produced through fermentation process. |
| <b>C309.5</b> | To apply good pharmaceutical manufacturing practices and quality control.                           |

### YEAR/ SEM: III/VI – TEN6B – BIOTECHNOLOGY

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C310.1</b> | To describe the industrial production of microbial enzymes and their applications in different industries. |
| <b>C310.2</b> | To analyze the application of genetic recombinant technology.  |



## PRINCE SHRI VENKATESHWARA ARTS AND SCIENCE COLLEGE

Gowrivakkam, Chennai-600073.

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Recognized by UGC under section 2(f) of UGC Act 1956

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|---------------|---|
| <b>C310.3</b> | To understand the plant tissue culture and its application.   |
| <b>C310.4</b> | To evaluate genetic engineering methods for crop improvement. |
| <b>C310.5</b> | To understand animal cell lines culture.                      |

### YEAR/ SEM: III/VI – TAN62 – MAJOR PRACTICAL VI - ENVIRONMENTAL, FOOD AND DAIRY MICROBIOLOGY

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C311.1</b> | To learn about Detection of number of Bacteria in milk by various method   |
| <b>C311.2</b> | To determine the quality of milk   |
| <b>C311.3</b> | To isolate the yeast and molds from spoiled nuts, fruits, and vegetables and also to examine various foods for bacterial contamination |
| <b>C311.4</b> | To determination of BOD and COD of wastewater and Water analysis by MPN and membrane filter methods                                    |
| <b>C311.5</b> | To quantify the microorganisms in air by settle plate and air sampler methods  |

### YEAR/ SEM: III/VI – CES6Q-EXTENSION ACTIVITIES

| NO.           | COURSE OUTCOME   |
|---------------|--|
| <b>C312.1</b> | It helps to instill social responsibility, groom overall personality and create awareness on social issues.                |
| <b>C312.2</b> | To improve literacy, reduced drug abuse, Hygienic surrounding, improved health, and cleanliness.                           |
| <b>C312.3</b> | Gain knowledge to use the target words and definitions during interesting, engaging, and contextualized activities.        |
| <b>C312.4</b> | It helps in generating-knowledge appropriate to the people by finding out their needs and problems.                        |
| <b>C312.5</b> | To develop skill needed in the exercise of democratic leadership and programme development to help them get self-employed. |



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Gowrivakkam, Chennai-600073.

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