Department of Tamil M.A

2022 – 2023

Programme Specific outcome	❖ Let us know the depth and antiquite of the Tamil language. ❖ To learn about the Grammatical area of the Tamil language ❖ To get the proper impetus to write and speak in the rich style.
Course outcomes	**First Semester**
1. ARA ILAKKIYAM KAVITHAI	❖ Knowing the basic information about literary genres. ❖ Knowing the expression of poets from time to time. ❖ Knowing the information about the life of the people realizing the need of preface reading. ❖ To know about literary techniques.
2. ILAKKANAM 1 – THOLKAAPPIYAM EZTHUTHU	❖ To know the grammars for the basic characters of the language. ❖ To know the writing principles of Tolkappiyam, the ancient grammar book of Tamil. ❖ Introducing the basics of error free writing. ❖ To make aware of the changes that have taken place in the grammar texts over time. ❖ Know the difference between usage words and grammatical words.
3. IKKALA ILAKKIYAM PUNAIKATHAIUM URAINADAIUM	❖ Knowing the development stages of fiction. ❖ Creating a continous reading experience by introducing introducing primary literary to contemporary. ❖ To know the manner in which emotional

	literature is also subjected to scruting.
	❖ Shooting realistic situations featuring natural elements.
4. ARA ILAKKIYAM (Elective)	❖ Emphasizing the importance of morality.
	❖ Inculcation of social morals.
	❖ Explaining concepts in a simple way
	❖ Realizing the relationship between morality and life.
	❖ Knowing the Moral thoughts of religions
5. NATTAR VAZHAKKATTIYAL ADIPPADAIKAL	❖ knowledge of the terminology of Natar jurisprudence.
	❖ To develop a through understanding of national jurisprudence.
	❖ To know the literature of Natar pronunciation.
	❖ To know the superiority of the art of Natar pronunciation.
	❖ Scrutinize everything like worship and rituals.
6. ITHAZHIYAL (Elective)	❖ To know the origin and development of journalism.
	❖ To know the types and hierarchies of magazines.
	❖ To explore the nature of news
	❖ Visualizing the main features of journals
	❖ Knowing the opportunities that journals provide to students.
Second Semester	
1. MOZHI VARALARU	❖ Knowing the difference between spoken and written language.
	❖ Knowing the characteristics of languages.
	❖ To know the ancient characteristics of Tamil language.
	❖ To plan the development of modern Tamil language.

2. **ILAKKANAM II THOLKAPPIYAM SOL II**	❖ To know Tamil phrase structure ❖ To know the types of Tamil words. ❖ To know the characteristics of words in the development of Tamil language. ❖ To learn the differences of words found in Tamil grammar book. ❖ To know the stages of development to Tamil words.
3. **BAKTHI ILAKKIYAM**	❖ Becoming interested in spirituality. ❖ Establishing religious harmony ❖ Attaining mental stability ❖ Believing in spirituality ❖ Knowing the way to live a godly, steadfast and sustainable life.
4. **SITTILAKKIYAM**	❖ To know the nature of calligraphy. ❖ To know the culture of the people through calligraphy. ❖ To know the social environment of the era of calligraphy. ❖ To know the many religious ideas expressed by calligraphy ❖ To know human psychological characteristics through calligraphy.
5. **THAMIZH AGARATHIYIYAL (Elective)**	❖ To acquire basic knowledge about the dictionary ❖ Knowing the types of Tamil dictionaries. ❖ Finding new Tamil words ❖ Knowing the difference and meaning of words. ❖ Development of Local Tamil Vocabulary.
6. **INAIYA THAMIZH (Elective)**	❖ Creating Tamil websites ❖ Typing Tamil on computer ❖ Discovering Tamil websites

	❖ Expressing internet creativity
	❖ Learning how to handle online files.

Third Semester	
1. **KAPPIYA ILAKKIYAM**	❖ Knowing kappiya Grammar, origin and development of Tamil kappiyams and changes in kappiya format.
	❖ Knowing the intricacies of Silapathikaram, Manimekalai and Sivakasintamani.
	❖ Learning the Kappiya Nayas of Sulamani, Udayanakumara Kavyam and Nagkumar Kavyam.
	❖ To know the meaning of religious scriptures such as periyapurana, Kandapurana, Kambaramayanam, Thembhavani, Seerapuranam.
	❖ To know the innovations of Kannagi partachi Kappiya and the excellence of the Tamil.
2. **ILAKKANAM III THOLKAPPIYAM PORUL - 1**	❖ Anthropology in Archaeology learning fields grammer.
	❖ Knowing the pedagogical conventions and sconomic skills in Archeology
	❖ Learning the principles of war in archeology.
	❖ Comparison of archeology. To know the changes and developmental stages in the life o Tamils.
3. **URAIYASIRIYARKALUM, URAIMARABUM**	❖ Knowing about the speakers, the origin and development of the text.
	❖ Learning about the grammatical speakers and the textual tradition.
	❖ Knowing about the literary speakers and the textual tradition.

	❖ Learning about the Bible writers and the textual tradition.
	❖ Learn about nineteenth and twentieth century writers and textual traditions.
4. AARAYICHI NERIMURAIKAL	❖ Knowing the research method and study plan.
	❖ Formulating hypothesis, Finding observation, Questionnaire, interview.
	❖ To know about the origin, development, library use of Tamil studies.
	❖ Learning how to write a thesis.
	❖ Determining the design of the study.
5. THAMIZHILAKKIYA MAANIDAVIYAL (Elective)	❖ Knowing the need of anthropology and realizing its evolutions.
	❖ Knowing the importance of communication to human life and culture.
	❖ Literary Ethonography, Discovering the theory of Metaphysics.
	❖ Knowledge of ethnographic and ethnographic poetics.
	❖ Association Literature – understanding food production and exchange relationships.
6. OPPILAKKIYAMUM MOZHIPEYARPPUM (Elective)	❖ Knowing the need for analoger.
	❖ Learning French theory, American theory
	❖ To know about new dimension in comparative literature.
	❖ To find out about the nature and tradition of translation, qualifications and duties of the translator.
	❖ Knowledge of translation principles, translation strategies, translation problems.

1. PANDAI ILAKKIYAM	❖ To know palandamizhar manpai by knowing the inner principles of Tamil ❖ To know the weaving, kurinji and mulking customes and lifestyle of palanthamizhar and the features of the landscape. ❖ To know the life elements of the people of the hill country. ❖ Archaic Muruga worship, Historical Accounts of the Chera kings, Pride of Pandya lineage. ❖ Sangam literature, Octopus, Two texts in Tens, Full Round Sangam Panuval's Dimensional characteristics, Text structure.
2. ILAKKANAM IV THOLKAAPPIYAM PORUL - II	❖ They learn about philosophy and concepts that are an expression of human feelings. ❖ They get to know the compositional system and genetic environment of palandamizhar. ❖ From the time of Tholkappiya the later yapu rules are known to undergo changes from time to time. ❖ Know he peculiarities of the textual tradition of Tamil Cheyul tradition ❖ They know the multifaceted nature of Tolkappiyam.
3. ILAKKIYA THIRANAIVIYAL	❖ Knowing the fundamentals, uses, discriminations of literature and knowing the relationship between life and literature. ❖ To know the principle so any literature, to understand and express the literary genre and history ❖ Review know the techniques of analysis and

	research. The history of review lays the foundation for becoming a good reviewer by knowing the benefits and merits. ❖ The definition of literature by knowing the types. ❖ Facilitates later study by making the lesson learned in to a process exercise
4. **THAMIZH NAADAKAKALAI**	❖ Know the Tamil drama tradition on historical basis. Making people aware of the social concept through drama. ❖ The evaluate and understand the development and trend of 20th Century drama ❖ Realize the experience of reading the script and the needs of reform drama over time. ❖ Feminist and Dalit needs are realized through plays. ❖ Translation play is used to know plays suitable for studying and performing in educational institutions.
5. **AAIVEDU Project**	❖ The research paper motivates to select and study literary, cultural, domains. ❖ Selecting texts suitable for the research topic and conveying the research objective. ❖ Guides appropriate application of learned texts to study. ❖ Helps to achieve social history and cultural awareness. ❖ Research findings are objective and useful to society. Studies should also be stimulating.

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Department of English(2022-2023)	
B. A. English	
Program outcome	❖ Acquire knowledge of various literary works. ❖ Explore the avenues of world Literatures. ❖ Think critically and apply theoretical approaches to literary texts. ❖ Equip themselves to undertake research projects.
Program specific outcome	➢ Acquire knowledge of the important historical and political milestones of England, from the early times to the present. ➢ Develop an aptitude for critical analysis of literary works. ➢ Read a variety of texts critically and proficiently to demonstrate in writing or speech, the comprehension, analysis and interpretation of those texts. ➢ Demonstrate knowledge and comprehension of major texts and traditions of language& literature written in English as well as their social, cultural, theoretical and historical contexts. ➢ Speak clearly, effectively and appropriately in a public forum for a variety of audiences and purposes. ➢ Obtain professional skills in translation.

Courses outcome

courses	Outcomes
I B. A English	
I SEMESTER	
Communicative English I	• To enhance the communicative skills of students. • To enrich the knowledge of students in grammar usage. • To simulate real life situations in the classroom to practice real English dialogues and speeches to gain English language fluency. • To build up the learners confidence in oral and interpersonal communication
Professional English I	• To develop communicative skills of the learners in listening, speaking, writing and reading. • To develop the abilities of students and make them independent, competent and confident.
British Poetry	• Students were aware of the various British authors and their writing style. • To develop the knowledge about British poetry. • To learn rhythm of the poems. • To understand about the poems in various centuries.
Social History of England	• Students can learn brief out line of British History. • Helps the students to understand social structures, changes, and problems in early modern England
Literary Forms	• Make them prepare for competitive exam. • Know different genres of literature • Know the history of each genre in literature.
Environmental studies	• Helps to gather knowledge about environment. • Learns to protect the environment.
II SEMESTER	

Communicative English II	• Helps to improve practical usage of English Grammar. • To help students overcome their fear and to speak in English in front of their peers and teachers. • To build students self-confidence through various classroom activities and outdoor activities.
Professional English II	• Develop a confidential communication skill. • Learned different styles of writings, like prose, poetry and fiction. • Students will be able to enhance his or her familiarity and fluency with the language considerably.
Modern English Grammar and Usage	• To develop the communication skills. • To develop the basic knowledge in English language. • Practical usage of English Grammar.
British Drama	• To learn diverse cultures and values of each age. • To understand various dramatic techniques. • helps the students of express themselves imaginatively and creatively. • Acquire good speaking and listening habits to understand enjoy and appreciate dramatic texts.
History of English Literature	• To make the students familiar with the evolution and progress of English language and Literature through different years and periods. • To understand important literary figures and historical periods.
II B A English	
III SEMESTER	
Part II English	• to develop interest in and appreciation of Literature • To develop confidential communication skill. • Learned different styles of writings, like prose, poetry and fiction. • Practical usage of English Grammar.
British Prose	• Understand the various kinds of thoughts and ideologies of each periods. • Enhance the power of comprehension and literary competence.
Indian English Literature I	• Analyse the artistic and rhetorical devices used by the writers. • Enhance the overall literary and linguistic competence.
American Literature I	• Understand values and themes that impact culture and society. • Write poems and short stories and also enact scenes from the plays.
African Literature	• Understand the uniqueness of African Literature in terms of form and content. • Assess and compare the genres of nonfiction, fiction, drama and poetry of African Literature
Consumer Awareness	• This paper gave a clear idea about consumers and consumerism. • It gives knowledge about consumer laws, which are useful for the well being of individuals.
II B. A English	
IV SEMESTER	
Part II English	• To enable the learner to communicate effectively and appropriately in real life situation • To develop Vocabulary and Pronunciation. • Students will be able to enhance his or her familiarity and fluency with the language considerably.
British Fiction	• Interpret the different meanings and messages in the novels.

	•	Asses the literary value of each novel.
Indian English Literature II	•	Understand the broad view of culture as seen from outside the culture.
	•	Critically engage with Indian literary texts written in English in terms of colonialism, post colonialism, regionalism and nationalism.
American Literature II	•	Acquainted with the historical and literary elements in American literature.
	•	Attain knowledge of various literary styles in relation to their cultural context and literary forms.
Language and Linguistics	•	Understand a wide array of linguistic diversity, systematic patterns and cross linguistic universals that constrain the diversity.
	•	Asses the efficiency of the tools and knowledge that give a new perspective on language and linguistic.
Content Writing	•	Improve the ability to read the literary texts critically and analyse them.
	•	Gain an understanding about various modes and methods of literary interpretation.
	•	Understanding the development of new forms of writing and literary interpretation .
III B. A English		
V SEMESTER		
Non- Fiction	•	The students got familiarized prose writings of the representative writers of English Literature.
	•	The subject helped the students to learn different styles in writing different types of essays.
Literary critics and approaches	•	Develops the critical sensibilities of the students.
	•	It helps the students to apply concepts from literary theory and criticism in the analysis and interpretation of text
	•	This paper helps the students to write critical responses in literary works
Canadian literature	•	It helps the students to know the culture , tradition and manners of Canada
	•	This paper highlights the lifestyle of the people in Canada and their landscape.
Creative Writing	•	Learned different styles of writings.
	•	This paper helps the students of express themselves imaginatively and creatively.
World Literature in Translation	•	Students get knowledge about new areas of literature.
	•	Able to understand the cultural and moral precepts of various nations.
	•	Various genres demonstrate an overall view of nations.
VI semester		
Shakespeare	•	It made students to understand the fine technical details of Elizabethan Drama.
	•	This course dealt with various plays of Shakespeare, which gave the overall idea of Elizabethan Era.
South- Asian Literature in English	•	It made the students to know about the countries comprising the South Asian subcontinent.
	•	It dealt with the background of distinctions cultures and history of

	South Asia.
Short stories and one act Plays	• The subject has made the students to comprehend the thematic descriptions, characters and genre.
Regional Literature in English	• Syllabus of this subject increased wide knowledge and perspective in subject area. • Students studied about Tamil writers and Tamil Literature. • It creates passion towards the students.
African literature	• The students understood the role of African literature in establishing the identity of Africans • It helped the students to know about new writers, their works and about their discrimination which Africans faced in the hands of colonizers.

M.A. English	
Program outcome	❖ Understand the significance of literary works in their cultural and ideological contexts. ❖ Develop comprehensive reading, writing and research skills. ❖ Analyze how writers have reacted to the social challenges of their contemporary period. ❖ Developing critical thinking and communicative skills
Program specific outcome	➤ Develop proficiency in critical thought and creative writing. ➤ Understand the historicity and textuality of word Anglophone literatures. ➤ Demonstrate knowledge of the major texts and traditions of literature written in English in their social, cultural & historical context. ➤ Prepare and deliver effective oral presentations and arguments acceptable within the English profession. ➤ Write fiction or poetry of publishable quality. ➤ Write papers that construct logical and informed arguments. ➤ Analyze the functions of texts and their relation with historical, social & political contexts. ➤ Analyze texts to achieve particular literary, rhetorical and aesthetic effects.
Courses outcome	
I M A ENGLISH	
I semester	
Indian writing in English I	• It helps the students to learn about the culture , tradition and history of India • It helps to find out the important authors and famous leaders in India
British Poetry	• It helps the students to learn about the nature and the life of common people • It helps to learn about classical ideas and mythical imagination • It also helps to develop the important influence on historiography, education and natural beauty
British Drama	

	• The subject helped the students to know about the great tragedies and comedies of English literature • The students came in touch with the classical works of English literature
American Literature I	• The subject helps the students to know about American culture and tradition • It helps them to understand the great minds of American people • It creates interest towards the students to read more students
African literature	• Introduction to various writers from Africa , South, East and West • Becoming aware of social realities from those parts of the world • Learning the styles adopted by the African writers to expose and express their societies.
Literature and Pandemics	• Know and express the varied socio- cultural conditions related to pandemics. • Understand major biological crisis like the COVID-19 pandemic.
II Semester	
British non-fiction	• Learn and appreciate the cultural realities of the various periods. • Analyze the functions of English texts and their relations with historical, social and political contexts. • Grasp the changing role of English in the new world order.
American Literature II	• Students got a proper knowledge about the background and history and politics of America • Learnt about the cultural diversity and the factors that kept America united • Emergence of tribal and subaltern studies as a part of American literature
Literary theory I	• The purpose was to create awareness regarding the major literary theories from 1950s to 1970s • To learn to apply these theories in the analysis of literary texts
Indian English Literature II	• The subject helped the students to know about the different works and authors of different regional languages. • The subject helped the students to know about the art of translating works
Canadian Literature	• Get acquainted with the richness of Canadian literature through various genres. • Create thoughtful and critical analyses of the assigned texts.
Shakespeare	• Recognize the elements of dramatic devices and techniques of Elizabethan drama. • Recognize Shakespearean theatre and language.

courses	Outcomes

II M. A ENGLISH	
III SEMESTER	
British Fiction	• .to identify distinct literary characteristics of modern narratives. • To analyse the concepts of modern and post modern literature
Australian Literature	• To trace the key issues in Australian Literature • To understand Australia's varied socio cultural conditions
Research Methodology	• To know the definition and process of research. • To identify research problem and proceed with it.
Aspects of English Language I	• To articulate the phonological sound system. • Appraise how various linguistic phenomena have developed and changed in modern English.
Literary Theory II	• Explore the text with a specific epistemological and contextual learning. • Critically analyze the significance of race, class and gender from a theoretical perspective.
Green Literature	• Understand the importance of nature and the indomitable part of nature in life. • Appreciate the ethical, cross cultural and historical context of environmental issues.
IV SEMESTER	
Gender Studies	• Demonstrate the ability to conduct an interdisciplinary analysis of gender studies. • Understand feminism in its diverse cultural contexts.
Asia Pacific Literature	• Understand the various narrative techniques unique to the region. • Critically analyze representative literary texts from the regions as cultural discourse.
Aspects of English Language II	• Distinguish the concepts of word meaning and sentence meaning; sense and reference. • Understand and analyze distinguishing features of written and spoken language in the text.
Content Writing	• Comprend the knowledge about digital skills and media. • Analyze and present a topic of study in a field specific language.
Dissertation	• To gain an understanding of the existing research and debates relevant to a particular topic or area of study. • To present knowledge in the form of a written report. • To conduct literature reviews and build knowledge in literary field.

M. Phil English

Department of English	
M. Phil English	
Program outcome	Developing research skills and professionalism
Program specific outcome	➢ Prepare and deliver effective oral presentations and arguments acceptable within the English profession. ➢ Write papers that construct logical and informed arguments. ➢ Analyze the functions of texts and their relation with historical, social & political contexts. ➢ Analyze texts to achieve particular literary, rhetorical and aesthetic

	effects.
Research and Teaching Methodology	• Students learned to use the mechanics of Research writing. • Students understood that research is not a paper, but it is a life skill that is used throughout their life. • Learned the rules, regulations and formats that were mentioned in MLA Handbook for Research 8th Edition.
Critical Theory	• To learn to apply theories in the analysis of literary texts • Students get an understanding of the new theories post 1950 that have shaped correct thinking about literature.
Contemporary Literature	• It arouses interest in the students to read more novels and dramas. • Students understand the different perspectives of author and their countries. • Students get knowledge about new areas of literature.
Dissertation and viva voce	• To provide a clear outline of the research problem or the goals of the research undertaken. • To write a well-structured, concise dissertation of appropriate length. • To choose appropriate illustrations and presenting them clearly with suitable annotations and legends. • Select references carefully, and presenting them in a consistent and appropriate form. • To draw convincing conclusions based on the evidence presented. • To present their findings appropriately

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NANJIL CATHOLIC COLLEGE OF ARTS AND SCIENCE

KALIAKKAVILAI

PROGRAM OUTCOMES & COURSE OUTCOMES

Department of Mathematics (2022-2023)	
B. Sc Mathematics	
Program Outcome	• gain knowledge in foundational areas of mathematics • communicate mathematics accurately, precisely and effectively • develop mathematical thinking • apply mathematical knowledge • solve mathematical problems using technology • Understand the pedagogical knowledge specific to mathematics teaching and learning.
Program Specific outcome	◆ Think in a critical manner. ◆ Know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand. ◆ Formulate and develop mathematical arguments in a logical manner. ◆ Acquire good knowledge and understanding in advanced areas of mathematics and statistics, chosen by the student from the given courses. ◆ Understand, formulate and use quantitative models arising in social science, business and other contexts.

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Course outcome

Courses	Outcomes
I B.Sc Mathematics - I SEMESTER	
PART – 1 Tamil (Poetry, Grammar, Prose Literature, Short Stories & Literary History)	• Knowing the literary creators and works of the time and creating new works. • Understanding the basics of language. • Knowing the ancient cultural customs of the classical language. • Assuming solutions to social problems and issues.
Communicative English I	• To enhance the communicative skills of students. • To enrich the knowledge of students in grammar usage. • To simulate real life situations in the classroom to practice real English dialogues and speeches to gain English language fluency.
Calculus and Classical Algebra	• Apply the mathematical knowledge to analyze the properties of a curve such as curvature, radius of curvature, Involute and Evolute. • Classify double and triple integrals . • Solve the different types of reciprocal equations and to find the number of real roots using Descartes rule of signs.
Allied Paper-I Statistics- I	• Find and relate the concepts of moments, skewness and kurtosis and to demonstrate the method of least squares and to classify parabolic, exponential and logarithmic curves. • Develop the statistical techniques used in the theory of attributes and to analyze consistency of data and criteria independence and to interpret Yule's coefficient of association.
Allied Paper-I- Algebra and Differential equations	• Construct different types of equations and to compare and to find the relationships betweenroots and coefficients. • Identify types of matrices and to find the characteristic equation of matrix. Eigen values and eigen vectors can be determinedby applying Cayley Hamilton Theorem.

II SEMESTER	
PART – 1 Tamil (Poetry, Grammar, Prose Literature, Life History, Literary History)	• Announcement of devotional norms through religious literature. • Practice writing letters expressing the language structure. • Expressing moral thoughts through the texts of justice. • Teaching and directing the biographiesof the saints.
Communicative English II	• Helps to improve practical usage of English Grammar. • To help students overcome their fear and to speak in English in front of their peers and teachers. • To build students self-confidence through various classroom activities
Differential Equations and Analytical Geometry of Three dimension	• Solve the differential equations which are all solvable for x, y, p and Clairaut's form. Also, to illustrate the method of solving the differential equations of the form f1 (D)x+g1(D)y=h1t, f2(D),x+ g2(D)y = h2(t). • The equations of spheres and circles of intersection can be interpreted and to illustrate and analyze the tangency of sphere. • Find and classify the equation of lines in different forms and calculate the image of the point, image of a line and to distinguish lines and planes.The angle between the line and plane can be determined
Allied Paper -II Statistics-II	• To explain statistical quality control and its advantages. Process control can be illustrated by making use of this control chart, range chart, P- chart can be designed • Construct testing of hypothesis and to distinguish null hypothesis and alternative hypothesis. Type I and Type II errors can be classified. The level of significance and test of significance for large samples can be explained.
Allied Paper-II- Vector Calculus and Fourier Series	• Analyze what is meant by vector differentiation and how to apply vector differentiation and its properties • Determine the functions whether the functions are odd or even. By making use of these concepts half range series can be found out.
II B.Sc mathematics – III SEMESTER	
PART – 1 Tamil (Poetry, Grammar, Prose Literature, Novel, Literary History)	• To know the life history of the ancient Tamils through epics. • Promoting the grammatical ability of the consecration team by teaching them the grammer. • Instruction to live in an honest way.
Part II General English	• To develop Vocabulary and Pronunciation. • To understand various styles of writings. • To enhance his or her familiarity and fluency with the language considerably.

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Sequences And Series	• Analyse the real number system and also to classify rational and irrational numbers.To find the upper bounds,least upper bounds and maximum elementand to elaborate triangleinequality and Cauchy-Schwartz Inequality. • Demonstrate the behavior of monotonic sequences and to apply Cauchy's first limit theorem,Make use of Cauchy's Second limit theorem and Cesaro's Theorem. Contruct subsequence and to explain Cauchy's general principle of convergence. • Categorize the sequences as bounded sequences, monotonic sequences, convergent sequences and divergent sequences. Also to find the algebra of limits
Skill Based Core-Paper IVector Calculus	• Classify the vector point function and scalar point function.Determine the derivative of a vector and derivative of product of scalar and vector function. • Interpret the integration of point function and to illustrate line integral. To solve surface integral. • Analyze and solve the volume integral. Also to illustrate and make use of Guass Divergence Theorem to solve problems.
Non -Major Elective Paper I Mathematics For Competitive Examinations -I	• Interpret simplification and find averages • Assess partnership and solve percentage Problems • Solve problems on numbers
Non -Major Elective Paper I Fundamentals Of Statistics I	• Analyse the classification of datas.Also to construct bar diagram and Pie chart. • Interpret correlation and to solve rank correlation problems.
SEMESTER - IV	
PART – 1 Tamil (Poetry, Grammar, Prose Literature, Drama, Literary History)	• To know the culture of the ancient Tamils. • Teaching subject grammer for biology • Motivation to create plays centered on historical backgrounds.
Part II General English	• To develop interest in and appreciation of Literature. • To develop confidential communication skill. • To learn different styles of writings, like prose, poetry and fiction. • To understand practical usage of English Grammar.
Abstract Algebra	• Explain the definitions of groups and itsexamples.Also to determine the order of an element.Illustrate about Subgroups • Elaborate about Normal Subgroups andgroup homomorphism. Illustrate Isomorphism ,Automorphism .Also to apply Cayley's theorem wherever required.Utilize the concept of homomorphism

	and isomorphism on rings .Also to find kernel of homomorphism and to make use of fundamental theorem.
Skill Based Core- Paper I Trigonometry, Laplace Transforms And Fourier Series	• Summarize about Trigonometry and toillustrate about the expansion of $\sin nx$, $\cos nx$, $\sin^n x$, $\cos^n x$ • Solve differential equations with constantcoefficientsby making use of Laplace Transforms. • Solve problems based on Fourier series . Identify the odd and even functions and todeduce half range series.
Non -Major Elective Paper II Mathematics for competitive examinations -II	• Analyse and solve the problems based on simple interest and compound interest. • Apply short tricks on solving time and work Problems • Find solutions for pipes and Cistern problem
Non -Major Elective Paper II Fundamentals of Statistics II	• Explain the theory of Attributes • Analyse and predict consumer price index numbers
III B.Sc mathematics – V SEMESTER	
Linear Algebra	• Determine the span of a set and to check whether the given set is Linearly dependent or not.Also to find basis and dimensions. • Determine Eigen Values and Eigen Vectors.Identify bilinear forms and quadratic forms.Also To deduce Diagonal form from Quadratic form. • Explain the definitions and general properties of vector spaces. Also to explain subspace. They know where to apply fundamental theorem of homomorphism.
Real Analysis	• Explain about Metric spaces and to construct an open ball .Also to interpretinterior • Summarize continuity. Illustrate about uniform continuity. • Illustrate about compactness and to find the connected subsets of R.Illustrate and make use of Heine Borel Theorem .To determine the relationship between compactness andcontinuity.
Statics	• Explain the forces acting at a point and to apply the parallelogram law of forces,Triangle law of forces and Lami's theorem. • Summarize equilibrium of three forces acting on a rigid body and to illustrate three coplanar forces theorem and to make use of the above theorem to solve problems • Interpret the equilibrium of strings.To deducethe equation of catenary and its geometrical properties.
Operations Research I	• Solve Linear Programming Problem by making use of Graphical

		method, Simplex method.
		• Interpret the concept of duality.
		• Classify primal and dual problems. Utilizing the concept of duality, solve problems on dual simplex method.
		• Determine the solution for Assignment problems.
		• Solve sequencing problems.
Major Elective –I Programming in C		• Summarize about character set. Classify thekeyword And identifiers. Identify the constants, variables and data types.
		• Compile programs by utilizing decisionmaking and branching statements. Also to apply Decision making and loopingstatements while develop a program.
		• Illustrate user defined functions and illustrate the definitions of functions and return values and theirtypes. Also to categorize function call, function declaration.

SEMESTER - VI

Complex Analysis	• Explain analytic functions and determine the functions of a complex variables and to Utilize Cauchy Reimann equations • Elaborate Bilinear Transformations and classify the elementary transformations. • Also to find fixed points. Illustrate complex integrations and to make Use of Cauchy's Integral Formula
Number Theory	• Construct graph and to explain its definition. Determine degrees. Also to perform operations on graph • Classify degree sequence and graphic sequence. Illustrate connectedness, Compactness and connectivity. • Construct Eulerian Graphs and Hamiltonian graphs. Elaborate the characterizations of Trees and to find centre of a tree.
Dynamics	• Explain Peano's theorem and to utilize mathematical induction. Also to make use of Binomial theorem • Illustrate Division Algorithm. Determine GCD. To Deduce the Diaphantine equation $ax+by=c$ • Summarize the basic properties of congruence's and to apply Chinese Remainder Theorem
Numerical Methods	• Illustrate projectiles and to find the equation of path,range and maximum height and time of flight. • Elaborate about the collision of elastic bodies. Interpret law of impact and classify direct And oblique impact. • Obtain solution for numerical algebraic and Transcendental equations by making use of various methods. • Find finite difference or first and higher order differences. • To classify forward and backward differences. • To apply interpolation formulaic Newton's Forward and backward, Guass Forward and backward formula.
Fuzzy Mathematics	• Explain Crisp sets and fuzzy set and illustrate the Characteristics and significance of Paradigm Shift.

	• Elaborate the Additional properties of α cuts and the extension principle for fuzzy sets. • Determine fuzzy numbers and Linguistic variables. Apply arithmetic operations on intervals and on fuzzy numbers. • Construct lattice of fuzzy Numbers.
Programming in C++	• Illustrate and make use of the concepts of tokens, expressions and control structures • Utilize the functions in C++ and to apply it while Writing programs • Interpret constructors and destructors • Explain and apply operator overloading while Writing programs

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Department of Mathematics (2022-2023)

M. Sc Mathematics

Program Outcome	- Inculcate critical thinking to carry out scientific investigation objectively without being biased with preconceived notions. - Equip the student with skills to analyze problems, formulate an hypothesis, evaluate and validate results, and draw reasonable conclusions thereof. - Prepare students for pursuing research or careers in industry in mathematical sciences and allied fields. - Imbibe effective scientific and/or technical communication in both oral and writing. - Continue to acquire relevant knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in mathematical sciences. - Create awareness to become an enlightened citizen with commitment to deliver one's responsibilities within the scope of bestowed rights and privileges.
Program Specific outcome	- Understanding of the fundamental axioms in mathematics and capability of developing ideas based on them. - Inculcate mathematical reasoning. - Prepare and motivate students for research studies in mathematics and related fields. - Provide knowledge of a wide range of mathematical techniques and application of mathematical methods/tools in other scientific and engineering domains. - Provide advanced knowledge on topics in pure mathematics, empowering the students to pursue higher degrees at reputed academic institutions. - Strong foundation on algebraic topology and representation theory which have strong links and application in theoretical physics, in particular string theory. - Good understanding of number theory which can be used in modern online cryptographic technologies. - Nurture problem solving skills, thinking, creativity through assignments, project work. - Assist students in preparing (personal guidance, books) for competitive exams e.g. NET, GATE, etc

	- Create a hypothesis and appreciate how it relates to broader theories. - Evaluate hypotheses, theories, methods and evidence within their proper contexts. - Solve complex problems by critical understanding, analysis and synthesis. - Demonstrate engagement with current research and developments in the subject. - Critically interpret data, write reports and apply the basics of rules of evidence. - Select, interpret and critically evaluate information from a range of sources that include books, scientific reports, journals, case studies and the internet. - Develop proficiency in the analysis of complex physical problems and the use of mathematical or other appropriate techniques to solve them. - Provide a systematic understanding of the concepts and theories of mathematics and their application in the real world – to an advanced level, and enhance career prospects in a huge array of fields Criticize mathematical arguments developed by themselves and others. - Communicate effectively by oral, written, computing and graphical means. - Recognize the need to engage in lifelong learning through continuing education and research.

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INDIA

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Nanjil Catholic College of Arts & Science
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Course outcome

Courses	Outcomes
I M.Sc Mathematics - I SEMESTER	
Algebra-I	• Demonstrate competence with the basic ideas of algebra including the concepts of counting principle and Homomorphisms. • Understand the concept of Cayley's theorem and about Solvable group. • Able to demonstrate about the permutations and Accounting principle. • Appreciate the significance of Sylow's theorem and Galois theory. • Acquire the knowledge of direct products, finitely generated abelian groups.
Analysis-I	• Understand the need of metric spaces, compact sets and connected sets. • Able to recognize the convergence of sequence of functions. • Analyze the root test, ratio test, power series, absolute convergence and algebra of series.
Analytic Number Theory	• Study the basic concepts of elementary number theory • Explain several arithmetical functions and construct their relationships • Apply algebraic structure in arithmetical functions • Demonstrate various identities satisfied by arithmetical functions • Determine the application to $\mu(n)$ & $\wedge(n)$ and several equivalent form of prime number theorem
Operations Research	• Be able to build and solve Transportation and Assignment problems using appropriate method • Learn the constructions of network and optimal scheduling using CPM and PERT. • Ability to construct linear integer programming models and solve linear integer programming models using branch and bound method. • Understand the need of inventory management. • To understand basic characteristic features of a queuing system and acquire skills in analyzing queuing models.

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Ordinary Differential Equations	• Develop ways of finding explicit solutions of second order linear equations and understand the nature and properties • Recall an algebraic function and create attention to the general homogeneous second order linear equation. • Confront the theoretical side of the problem, adapt to the technicall task of defining the Legendre polynomial and build their special properties • Specialize the linear system
SEMESTER - II	
Algebra-II	• Demonstrate competence with the basic ideas of algebra including the concepts of ideals and quotient Rings • Understand the concept of the Particular Euclidean ring. • Able to demonstrate about the Polynomial rings over Commutative rings. • Appreciate the significance Radicals
Analysis-II	• Explain the integration of vector valued functions and make use of geometric interest with application. • Explain a new mode of convergence, point wise convergence with integration , equi continuous function and point wise bounded sequence. • Developing properties of polynomials and deriving properties of function represented by power series.
Advanced Calculus	• Understand the difference between a multiple integral and an iterated integrals and move from one to the other • Organise with functions whose range of values will be points in m space, for some specific choice of m such as 2 or 3. • Use linear and a fine transformation as local approximations to a general transformation.
Differential Geometry	• Interpret the geometric character of curves in Space (R^3) • Explain the nth order of a curve and a surface, Develop the plane of curvature at a point of the surface • Build the concept of a surface and fundamental forms • Analyse the properties of a surface relative to the Euclidean space in which it is embedded

Research Methodology And Statistics	• Discuss the information of the sections in a dissertation or thesis • Discuss the distributions of the random variables, conditional Distributions and expectations, independent random variables and its generalizations • Classify the distributions of Functions of Random Variables and define three additional distributions of statistical inference
Classical Mechanics	• Distinguish between the external force acting on the particles due to sources outside the system and internal forces on all other particles in the system. • Work with many vector forces and accelerations and deal with two scalar functions. • Discuss the problems of two bodies moving under the influence of a mutual central force as an application of the Lagrangian formulation.
SEMESTER - III	
Advanced Algebra-I	• Construct the process to develop the fundamental notations of linear dependence, basis and dimensions • Develop the concepts about linear transformation and matrix theory • Identify the theorems about linear transformations, canonical form of matrices and fundamental properties of matrices • Identify the theorems about linear transformations, canonical form of matrices and fundamental properties of matrices
Graph Theory	• Demonstrate the concept of different structures and types about graphs and explain its applications • Acquire the knowledge about Euler Tours, Hamilton Cycles and matchings in Graphs • Explain the concept of vertex colorings
Measure And Integration	• Establish the basics for Lebesgue measurable functions and the Lebesgue integral. • Characterize on inner approximation by closed sets and on outer approximation by open sets. • Provide a characterization of the class of functions on closed, bounded intervals that may be expressed as the difference of increasing functions. • Abstract the most important properties of Lebesgue measure on the real line in the absence of any Topology.

Topology–I	• Demonstrate an understanding of the concepts of topological spaces, construct topologies on a set. Understand the natural generalization of open and closed sets, limit points for the real line and Euclidean space on to the Topological Spaces. • Extend the concept of continuity and various properties of continuous functions; and define a topology on the Cartesian products of topological spaces. • Appreciate the importance of a weaker form of compactness called Limit point compactness, local compactness and one-point compactification and identify spaces where Limit point compactness coincides with compactness.
Calculus Of Variations And Integral Equations	• Demonstrate competence with the basic ideas Maxima and Minima • Demonstrate Relation between differential and integral equations • Appreciate the significance of Fredholm equations with separable kernels
SEMESTER - IV	
Advanced Algebra-II	• Build the knowledge with the relation of one field to another • Study the relationship between the roots of a polynomial with its Galois Group and examine it • Determine the nature of fields having only a finite number of elements • Understand the classification of all division rings R in their centre and satisfy the condition. Also study the Left Division Algorithm and Lagrange's Theorem
Complex Analysis	• Extend Calculus to Complex domain. • Develop the fundamentals of point set Topology and Metric Space. • Distinguish between definite and indefinite integrals. • Familiar with the theory of definite integrals of real continuous functions • Classify the isolated singularities of analytic functions.
Functional Analysis	• Make use of the uniform Boundedness theorem in the conjugate of an operator on a Banach Space. • Examine the properties of the mapping from the operator on a normed linear space to its conjugate. • Understand the importance of operators such as self adjoint and normal operators. • Able to focus on fixed but arbitrary Hilbert space.

Topology-II	• Demonstrate understanding of the concepts of countable, First countable space, Second countable space, Lindel of space, Separable space and Regular space • Appreciate the concepts of normal space and derive normality from other spaces, and understand the Urysohn Lemma and completely regular definition. • Explain Baire spaces, complete metric space, compact Hausdorff spaces and the relation between these spaces. • Apply theoretical concepts in topology to understand some applications.
Project	• Differentiate primary and secondary data and questionnaire • Explain about research methodology • Read articles and write an article. • Know about the bibliography • Know how to write dissertations and present a paper in conferences.

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NANJIL CATHOLIC COLLEGE OF ARTS & SCIENCE, KALIYAKKAVILAI

Department of Physics

B.Sc. Physics	
Program Outcome	Upon completion of B.Sc degree programme, the graduates will be able to • Acquire a fundamental concepts in the field of Physics and procedural knowledge that creates different types of professionals related to the subject area of Physics, including professionals engaged in research and development, teaching and government / public service. • They achieve a chance to demonstrate the ability to use skills in Physics and its related areas of technologies for formulating and tackling Physics related problems. • They inculcate innovative skills and teamwork among students to meet societal expectations. They can perform analysis to assess, interpret and create innovative ideas through practical experiments. • The program facilitate to enter multidisciplinary path to solve day-to-day scientific problems. It improve communication ability and knowledge transfer through ICT aided learning integrated with Library resources. The program helps to attain competency in job market / entrepreneurship.
Program Specific Outcome	Upon completion of the B.Sc. Physics Programme, students will be able to • Understand and appreciate the principles of physics and demonstrate knowledge of mechanics, optics, thermodynamics, electromagnetism, nuclear physics, solid state physics, spectroscopy and electronics. • They develop skills to comprehend and solve problems in physics. • They also conceptualize and perform experiments and relate the results with theoretical predictions. • They can apply the knowledge of physics to solve present-day problems such as energy crisis and pollution. • They communicate scientific knowledge effectively using technology.

Course Outcomes

B.Sc. Physics

Courses	Outcomes
SEMESTER I	
Tamil: Poetry, Grammar, Prose Literature, Short Stories & Literary History	Knowing the literary creators and works of the time and creating new works. The students - understand the basics of language - understand the ancient cultural customs of the classical language - assume the solutions to social problems and issues.
Malayalam: Malayala Kavitha	The students - understand the different branches of poetry which deals with numerous social subjects - helps to build a very deep knowledge about today's social conditions.
Communicative English I	- It enhances the communicative skills of students. To enrich the knowledge of students in grammar usage. - It stimulates the real life situations in the classroom to practice real English dialogues and speeches to gain English language fluency. - It helps to build up the learners confidence in oral and interpersonal communication.
Properties of Matter and Mechanics	- Understand the different concepts and the principle in Physics such as, Stress, Strain, Poisson's ratio, Hooke's law, Torsion pendulum and determine the elastic constant by Searle's Method, the study of young's Modulus and Rigidity Modulus. - Derive the Expression for the Bending Moment, Cantilever depression, Uniform and Non-Uniform Bending. - Analyse the different Molecular Forces that causes tension on the surface of liquid and determine the surface tension by Capillary rise method and Quincke's Method. - Understand the law of floatation and determine the Meta Centric height of a ship and apply the principle of Bernoulli's Theorem in Pitot's tube and Venturimeter.
Professional English I	- Develop the skill of using the language for speaking with confidence in an intelligible and acceptable way. - Understand the importance of reading in life. They read independently unfamiliar texts with comprehension. - Understand the importance of writing in academic

	life.
	• Write simple sentences without committing error of spelling or grammar
Major Practical I	• Develop the skill to measure the material constants such as, young's modulus, rigidity modulus and moment of inertia of the solid materials.
	• Get idea to measure gravitational acceleration using simple pendulum.
	• Understand the principle and properties of sound through experiments.
	• Able to illustrate the properties of fluids such as viscosity and surface tension by simple experiments.
Environmental Studies	• Understand the concepts and methods from ecological and physical sciences and their application in environmental problem solving.
	• Understand concepts and methods from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.
	• Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
	• Understand the transnational character of environmental problems and ways of addressing them, including interactions across local to global scales.
	• Apply systems concepts and methodologies to analyze and understand interactions between social and environmental processes
Allied Physics I	• Understand the properties of matter such as elasticity, surface tension and viscosity.
	• Develop the skill of correlating the concept of simple harmonic motion with vibration of strings.
	• Acquire the knowledge to explain the theory and experimental methods of transfer of heat through conduction, convection and radiation.
	• Discuss the properties of light such as interference, diffraction and polarization.
Allied Practical I	• Demonstrate experimentally and find the Young's modulus of a beam and Rigidity modulus of a wire.
	• Acquire the knowledge of determining the coefficient of viscosity of a liquid by Stoke's method.
	• Able to evaluate the thermal conductivity of a bad conductor by Lee's disc experiment.
	• Estimate the wavelength of light using spectrometer experiment and thickness of a wire using air wedge experiment.

SEMESTER II	
Tamil II: Poetry, Grammar, Prose Literature , Life History & Literary History	• Acquire the knowledge of announcement of devotional norms through religious literature. • Learn to practice writing letters expressing the language structure. • Develop the skill of expressing moral thoughts through the texts of justice. • Attain the skill of teaching and directing the biographies of the saints. • Gain the knowledge of literature created by religions.
Malayalam: Gadhya Sahithyam	• The autobiographical study of different famous personalities the students were ale generate several good qualities with the study of Basheer's Balyakalasakhi. • Understand a lot more about cultural practices of our society.
Communictive English II	• Helps to improve practical usage of English Grammar and the students overcome their fear to speak in English in front of their peers and teachers. • Build self-confidence through various classroom activities
Optics and Acoustics	• Gain good knowledge of optics and understand the various optical instruments and making finer measurements of wave length of light using Newton's rings experiment, Fresnel and Fraunhofer Diffraction etc. • Understand the differences between interference, diffraction and polarization and apply these phenomena in the optical instruments. • Understand the fundamentals and applications of sound and ultrasonics .
Major Practical II	• Develop skill to measure thickness of very thin ojects using Newton's rings and wavelength of visible light using grating. • Gain the knowledge of measuring the AC frequency of voltage using sonometer. • Determine the specific heat capacity of a liquid by different experimental techniques. • Understand the concepts of refractive index, dispersion, interference and diffraction through experiments
Professional English for Physical Sciences II	• Improve the reading and communication skills of students. • Undergo the special tasks to improve the vocabulary and grammar knowledge of students.
Value Based Education:	• It gives a positive direction to the students to shape their future and even helps them to know

	the purpose of their life.
	• It teaches them the best way to live that can be beneficial to individuals as well as the people around them.
	• Value education also helps the students to become more and more responsible and sensible.
	• It helps them to understand the perspective of life in a better way and lead a successful life as a responsible citizen.
Allied Physics II	• Gain the knowledge of applying Kirchoff's laws to electrical circuits.
	• Understand the concept of electromagnetism.
	• Develope the skill of using the diodes and transistors and the basic operation of logic gates.
	• Discuss the general properties of nucleus and laws of radioactivity.
	• Develop the skill of analysing the motion of a projectile and the concept of relativity.
Allied Practical II	• Gain the knowledge of using a potentiometer to calibrate an ammeter and a low range voltmeter.
	• Demonstrate resonance phenomenon using series and parallel LCR circuits.
	• Understand the working of Zener diode and transistors and logic gates using simple experiments.
	• Determine the self inductance and mutual inductance through experiments.
SEMESTER III	
Tamil III :Poetry, Grammar, Prose Literature, Novel &Literary History	• To know the life history of the ancient Tamils through epics. Promoting the grammatical ability of the consecration team by teaching them the grammar.
	• Sowing literary study ability in the mind of the student. Instruction to live in an honest way. Making history of eipics and short stories.
	•
Malayalam: Dhrishya kala sahithyam	• Not only watching, but by studying about movies students were introduced to a new world were they actually allowed to understand about what they are watching on big screen, with the study of different branches of drama students are getting deeper knowledge about it.
General English I	• To develop Vocabulary and Pronunciation.
	• To understand various styles of writings.
	• To enhance his or her familiarity and fluency with the language considerably.
Electricity and Electromagnetism	• Acquire the basic knowledge about electricity and electromagnetism.
	• Understand the various laws such as Ohm's law, Kirchoff,s laws, growth and decay of the current in the

	differential cirucuits.
	• Understand the concepts of Faraday' s law, Owen's bridge and co-efficients of coupling.
	• Able to derive the Maxwell's derivations.
Maintenance of Electrical Appliances	• Understand the principle and working of measuring meters such as galvanometer, ammeter, voltmeter and multimeter.
	• Describe the construction, working and testing of transformers. Trouble shoot household components such as electric lamb, fan, electric iron, washing machines, heaters and refrigerators.
	• Analyze AC and DC connections, house wiring and earthing.
	• Understand the mechanism of electrical protection and the operation of UPS, generator and motor.
Major practical III	• Use a potentiometer to calibrate an a low range voltmeter.
	• Construct the series resonance circuit to find out the self inductance of the coil.
	• Demonstrate experimentally the comparison of capacitances and figure of merit using Ballistic galvanometer.
	• Newton's law of cooling is verified. Construct the parallel resonance circuit to find out the self inductance of the coil.
SEMESTER IV	
Tamil IV: Poetry, Grammar, Prose Literature, Drama & Literary History	• To know the culture of the ancient Tamils. Teaching subject grammar for Biology.
	• Teaching Biological virtues through literature. Motivation to create plays centered on historical backgrounds.
	• To know the history and individual features of Sangam literature.
Malayalam: Vaartha Madhyamangal (Journalism)	• By the study of journalism students were taken to a new path of their career
General English II	• Develop interest in and appreciation of Literature.
	• To develop confidential communication skill.
	• To learn different styles of writings, like prose, poetry and fiction.
	• To understand practical usage of English Grammar.
Heat and Thermodynamics	• Acquire the knowledge of Joule-Kelvin effect, liquefaction of hydrogen and helium gases and adiabatic demagnetization .
	• Explain various heat experiments and understand the concepts of black body radiation.
	• Understand the various laws of thermodynamics and

	gas equation.
Maintenance of electronic appliances	• Understand the functions of electronic components and familiarize with soldering and de-soldering techniques. • Explain the operations of multimeters, CRO and A/F&R/F Oscillators. • Discuss the working and uses of transducers. • Describe the basic operation of a communication system. • Understand photography and the related accessories.
Major Practical IV	• Use a potentiometer to find the specific resistance and emf of a thermocouple. • Demonstrate experimentally the comparison of emf's and high resistance by leakage using Ballistic galvanometer. • Demonstrate experimentally to find the absolute capacity of a condenser using Ballistic galvanometer. • Evaluate the magnetic field along the axis of a coil and horizontal component of earth's magnetic field using vibration magnetometer. • Develop skill to determine the self inductance of the coil by Anderson's bridge. • Develop skill to calibrate the ammeter using potentiometer. • Acquire the knowledge of comparison of magnetic moments using deflection magnetometer in Tan A and Tan B position.
SEMESTER V	
Basic Electronics	• Analyze any linear circuit using Thevenin's theorem and Norton's theorem. • Familiarize with different types of diodes and their characteristics. • Understand the functions of transistor amplifiers and operation amplifiers. • Distinguish between oscillators and multivibrators.
Spectroscopy	• Understand the basics of atomic and molecular spectroscopy. • Compare the principles and techniques of microwave, infrared, Raman and electronic spectroscopies. • Understand the instrumentation of IR spectroscopy
Atomic and Nuclear Physics	• Explain band theory of solids and classify solids based on band theory. • Understand the properties of positive rays and the experimental determination of e/m. • Analyse the various atom models and the coupling mechanisms.

	• Understand properties and uses of X-rays. • Understand the basic properties of nucleus. • Understand the basic properties of nucleus. • Explain the kinematics of nuclear reactions. • Discuss the operations of nuclear detectors and particle accelerators. • • Analyze the behavior of elementary particles and their fundamental interactions Solid state physics • Compare different bonds in solids. • Understand the principle of superconductivity
Communication electronics	• Understand the principles of modulation in communication systems. • Compare amplitude and frequency modulation techniques. • Analyze transmission and reception of AM and FM modulation. • Explain the unique features of digital modulation techniques.
Personality Development	• Gives basic awareness about the significance of soft skills in professional and inter-personal communications and facilitate an all-round development of personality.
Practical V Non-Electronics	• Demonstrate the conversion of a galvanometer into voltmeter. • Determine through experiment the absolute capacity of a capacitor and mutual inductance using Ballistic galvanometer. • Verify Thevenin's and Norton's theorems. • Evaluate Cauchy's constant experimentally. • Determine the young's modulus of the material using elliptical fringes.
Practical VI Electronics	• Study the V-I characteristics of PN junction diode and zener diode. • Analysing the percentage of regulation of a Full wave rectifier. • Demonstrate the operations of oscillators and multivibrators using transistor-based circuits. • Design circuits using OPAMPs to function as -Adder, Subtractor, differentiator, Integrator, -Low Pass And High Pass Filter
SEMESTER VI	
Quantum Mechanics	• Understand wave-particle duality of matter. Explain uncertainty principle. • Solve Schrodinger's 1D and 3D wave equations and evaluate eigen values. • Describe the applications of quantum mechanics.(tunneling, simple harmonic oscillator and particle in a box)

Digital Electronics	- Understand basic codes Boolean operation and logic gates. - Construct Half adder,full adder, flip-flops and multivibrators. - Design logic circuits employing Karnaugh maps. Design Shift registers and counters
Solid State Physics	- Understand the electronic properties of solids already gained through Introduction to Condensed Matter Physics, and use this understanding to elucidate the electrical, optical and magnetic properties of crystalline solids. - Apply their knowledge to solve problems in solid state physics. - Interpret experimental and computational results.
Energy Physics	- Understand the various available energy sources. - Understand about the renewable and clean energy sources such as solar, hydrogen, wind, etc. - Understand the principle of photovoltaics and solar cells. Explain the working of windmills.
Practical VII: General Practical	- Develop the skill in doing the various experiments on spectrometer to find the various parameters such as angle of the prism, minimum deviation, dispersive power, etc. - Calculate the impedance and the power factor using LR circuit. - Develop the skill of finding the moment of the magnet.
Practical VIII:Electronics	- Gain knowledge in constructing various electronic circuits skill fully. - Gain the knowledge of constructing the NAND and the NOR gates showing that they are the universal building blocks. - Verify the Boolean algebra and the De Morgan's law

M.Sc. Physics

Program Outcome	On completion of program, the post graduates will • Apply the knowledge and skill they acquired in the designing and development of Electronics circuits to fulfill the needs of Electronic Industry. • Become professionally trained in the area of electronics, optical communication, nonlinear circuits, materials characterization and lasers. • Pursue research related to Physics and Materials characterization
Program Specific Outcome	Upon completion of the M.Sc Physics Programme, students will be able to • Understand the basic concepts of physics particularly concepts in classical mechanics, quantum mechanics, electrodynamics and electronics to appreciate how diverse phenomena observed in nature follow from a small set of fundamental laws. • Learn to carry out experiments in basic as well as certain advanced areas of physics such as nuclear physics, electronics and lasers. • A research oriented learning that develops analytical and integrative problem-solving approaches.

Course Outcomes

SEMESTER I	
Classical Mechanics	• Understand the Lagrangian and Hamiltonian approaches in classical mechanics and its application with symmetry properties and conservation laws. • To get the idea about classification of orbits and kepler's laws. • The classical background of Quantum mechanicsand get familiarized with Poisson brackets and Hamilton -Jacobi equation. Kinematics and Dynamics of rigid body in detail and ideas regarding Euler's equations of motion . • Theory of small oscillations in detail along with basis of Free vibrations. • Basic ideas about theory of relativity in a detailed manner.
Mathematical Physics I	• Learn about Gradient, Divergence and Curl in orthogonal curvilinear and their typical applications in physics. • Learn about special type of matrices that are relevant

	in physics and then learn about tensors. Get introduced to Special functions like Gamma function, Beta function, Delta function, Dirac delta function, Bessel functions and their recurrence relations. • Learn the fundamentals and applications of Fourier series, Fourier and Laplace transforms,their inverse transforms etc.
Integrated Electronics	• Understanding of manufacturing technology of Intergrated circuits and its components on substrate. • Understanding digital circuit components such as logic gates, flip flops, registers, etc. • Basic operational amplifier characteristics, OPAMP parameters, applications as inverter, integrator, differentiator etc . • Digital electronics biasing logic gates and working of major digital devices like flip flops, CMOS, CCD etc.
Non- Linear Dynamics	• Know the importance of nonlinearity. • Learn the mathematical implication of NLD. Understand about bifurcation. • Acquire the skill of NLD phenomenon in Electronic circuits. • Apply the concepts of NLD in various types of physical equations .
Practical I:General Physics Experiments I	• Describe the methodology of finding the susceptibility of the liquid using Quinke's method. • Practice the methodology of finding the cauchy's constant. • Acquire necessary skill to find the wavelength of the source by Michelson's interferometer. • Understand the determination of the self inductance of the coil.
Practical II: Electronics Experiments	• Develops the skill in the construction of voltage regulator. Setting up Schimitt trigger using transistor. • Construction of triangular and ramp wave generator using op-amp. • Construction of counters and decoders. Construction of Analog and Digital convertors. • Designing of constant current source. Study the FET characteristics.
SEMESTER II	
Mathematical Physics II	• Analyses various complex functions. . • Gain ability to apply group theory to physics problems, which is a pre-requisite for deeper understanding of crystallography, particle physics, quantum mechanics and energy bands in solids. • Understand the concept of Legendre polynomial and

	Hermite polynomials.
	• Develop partial differential equation in various applications such as heat flow, etc.
	• Develop skill for tensor analysis.
Electromagnetic Theory	• Understand electric and magnetic fields.
	• Apply the principles of Coulomb's Law and Gauss's law to electric fields in various coordinate systems.
	• Attain the knowledge of physical interpretation and the ability to apply Maxwell's equation to determine field waves.
	• Develop the skill of measuring voltage induced by time varying magnetic flux.
Microprocessor 8085 & Microcontroller 8051	• Study the Organization and internal architecture of the Intel 8085.
	• Understanding of how the processor works, nature of instructions and execution of instruction.
	• Learn the applications of microprocessor 8085 and microcontroller 8051.
Statistical Mechanics	• Understand the fundamentals of thermodynamics, laws of thermodynamics, thermodynamic potentrode, etc.
	• Able to deal systematically with complete Classical and two types of quantum statistics explaining fully the basic properties of Statistical Mechanics.
	• Explain the classical and quantum theories of specific heat of solids and gases.
	• Understand about the phase transitions.
	• Attains complete idea about the physical properties during phase transition.
Field work	• On visiting an industry the students gain deep knowledge on the construction, working and application of the whole system.
Practical III: General Physics Experiments II	• Ability to determine the young's modulus of the material by hyperbolic fringes.
	• Determine the velocity of ultrasonic waves in liquid. Skill to determine the wavelength of the given source using young's double slit method. S
	• tudy of mutual inductances of the coils on varying certain factors.
	• Understand XRD- crystallographic parameters. Under the fibre optic characteristics.
Practical IV: Electronics Experiments II	• Develops the skill of designing and construction of II order active filters.
	• Study the characteristics of UJT.
	• Design the phase shift oscillator using op-amp.
	• Construction of D/A convertor using op-amp.
	• Study of SCR characteristics. Construction of code convertors

SEMESTER III	
Quantum Mechanics I	- Attains wave mechanical basic concepts and Schrodinger and Heisenberg formulations. - Solves various eigen value problems. Describes different operators and matrix theory in quantum mechanics. - Understand the Theory of angular momentum and spin matrices, orbital angular momentum and Clebsh Gordan Coefficient . - Understand the time dependant and independent perturbation theory.
Atomic and Molecular Spectroscopy	- Learn the origin of spectrum and spectroscopy. - Understandthe existence of various EM waves and their related spectra. - Understand the concept of IR, UV and Resonance spectra. - Analyse different spectra of NMR, XPS and Raman. - Acquire the skill of interpreting several types of spectra in real time experiment
Condensed Matter Physics	- Understand the importance of superconductivity both in scientific and technical way. - Attains the knowledge of the electronic structure of solids, especially, metals, semiconductors and dielectrics. - Attains the knowledge about the phonons and their thermal properties. - Get idea about free electron theory. - Develops skill about identifying different types of magnetic behavior.
Numerical Methods and C++ Programming	- Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations. - Analyse and evaluate the accuracy of common numerical methods. describe the advantages of a high level language like C++, the programming process, and the compilation process. - To describe and use software tools in the programming process. - To apply good programming principles to the design and implementation of C++ programs.
Practical V: Advanced Experiments I	- Develop the skill to find the magnetic susceptibility of the given sample . - Ability to determine the young's modulus, bulk modulus and rigidity modulus of the given material using elliptical fringes. - Develops the skill of forming the equipotential lines and to determine the electric field between the lines. - Ability to determine the temperature coefficient of

	forward biased diode.
	• Undergo characteristic study on photodiode. • Calibrate hall probe into gauss meter.
Practical VI: Microprocessor Experiments	• Develop skill in the arithmetic operation and data manipulation. • Design interfacing circuits with 8085. Design and implement 8051 microcontroller based systems . • To Understand the concepts related to I/O and memory interfacing.

SEMESTER VI	
Quantum MechanicsII	• Understand the approximation methods for time-independent problems to solve Schroginger equation. • Attains the knowledge of Theory of scattering and calculation of scattering cross section, optical theorem ,Born and Elkonal approximation, partial wave analysis etc. • Understand the Theory of identical particles and effects of spin on energy states. • Develops the skill of solving the equation of motion, brackets and various symmetries. • Understand the Relativistic Quantum Mechanics using Dirac equation, Dirac matrices etc.
Nuclear & Particle Physics	• Have a basic knowledge of nuclear size ,shape , bindingenergy.etc and also the characteristics of nuclear force in detail. • Gain knowledge about various nuclear models and potentials associated. • Acquire knowledge about nuclear decay processes and their outcomes. • Have a wide understanding regarding beta and gamma decay. • Grasp knowledge about Nuclear reactions, Fission and Fusion and their characteristics. • Understand the basic forces in nature and classification of particles and study in detail conservations laws and quark models in detail.
Research Methodology	• Identify and discuss the complex issues inherent in selecting a research problem. • Selecting an appropriate research design, and implementing a research project. • Attains the skill of writing the thesis. • Develops the skill of using the origin and Latex software.
Renewable Energy Sources	• Gains the knowledge of various renewable energy sources available in the nature. • Understand the availability and utility of the resources
Practical VII : Advanced	• To gain practical knowledge to determine temperature co-

Physics Experiments II	eficient and band gap using carey foster bridge.
	• To learn more about hall effect.
	• Understand the principle of four probe and its application.
	• To develop the skill in ultrasonic diffraction.
	• Understand about two probe and its applications.
Practical VIII: C++ Programming	• Know the basics of programming in C++ and write simple programs.
	• Describe the principle of Object oriented Programming.
	• Develop programs using functions, Classes, operator overloading and inheritance.
Project	• Develop the skill in finding the problem and analysing the data and find the solution.
	• Get the basic for the research.

Signatuare of the HoD
Head
Department of Physics,
Nanjii Catholic College of Arts & Science,
Kaliyakkavilai - 629 153, Tamil Nadu

DEPARTMENT OF CHEMISTRY	
B.Sc. Chemistry	
Program Outcome	✓ Develop skills to carry out experiments in various branches of science. ✓ Have enough scientific knowledge to go for higher studies and become entrepreneur ✓ Identify, formulate and solve the technological problems of the industry ✓ Effective written and oral communication skills especially the ability to transmit complex technical information in a clear and concise manner ✓ Understand the issues of environmental contexts and sustainable development. ✓ Acquire professional ethics and act in a non-biased manner
Program Specific Outcome	➢ Have sound knowledge about the fundamentals and applications of chemical and scientific theories. ➢ Acquire a skill for safer handling of chemicals, apparatus and instruments. ➢ Apply appropriate techniques for the qualitative and quantitative analysis of chemicals in laboratories and industries. ➢ Develop analytical skills and problem solving skills requiring application of chemical principles. ➢ Acquire the ability to synthesis, separate and characterize compounds using laboratory and instrumentation techniques. ➢ To provide the professional service to industry, research organization and institutes.

Courses Outcome

Courses	Outcomes
I B.Sc. Chemistry	
SEMESTER I	
INORGANIC CHEMISTRY I	• Recall the structure of an atom and explain the theories and concepts that go with it. • Identify and classify the elements, as well as knowing the periodic properties. • Discuss the theories of chemical bonding and how they are used to explain the structure and properties of various molecules. • Compare the general characters of s and p block

	elements.
	• Classify the types of volumetric analysis and choose suitable indicators for various titrations.
PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCES I	• Recognize their own ability to improve their own competence in using the language
	• Use language for speaking with confidence in an intelligible and acceptable manner
	• Understand the importance of reading for life
	• Read independently unfamiliar texts with comprehension
	• Understand the importance of writing in academic life
	• Write simple sentences without committing error of spelling or grammar
ALLIED CHEMISTRY I	• Apply theories of chemical bonding predict the geometry of molecules and their stability.
	• Analyze the types of reagents and intermediates involved in different organic reactions.
	• Explain the methods of preparation and uses of important drugs for long life.
	• Outline the preparation, properties and applications of cement, glass and explosives.
	• Discuss the methods of preparation and importance of drugs for long life.
INORGANIC QUANTITATIVE (VOLUMETRIC) ANALYSIS -I	• Develop the practical skill in quantitative analysis and analyze the principle of different titrations.
	• Determine the amount of acid and alkali in the given solution.
	• Apply the principles of permangnometric titration and estimateamount of oxalate and ferrous ammounium sulphate
INORGANIC QUANTITATIVE ANALYSIS	• Apply the principles of volumetric analysis to determine the concentration of acids/bases/ions
	• Determine volumetrically the amount of acids and bases in the given solution
	• Estimate the amount of inorganic compounds using permangnometric titrations
SEMESTER II	
ORGANIC CHEMISTRY I	• Recall basic concepts of organic chemistry and Nomenclature of organic compounds.
	• Analyse different types of organic reactions and apply their mechanisms to various reaction.
	• Discuss the structure and relative reactivities of various carbonyl compounds.
	• Outline the preparation and discuss the properties and uses of organometallic and sulphur containing organic compounds
	• Explain the theories and conformational isomers of

	acyclic/cyclic compounds.
PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCE II	• Attend interviews with boldness and confidence. • Adapt easily into the workplace context, having become communicatively competent. • Apply to the Research &Development organizations/ sections in companies and offices with winning proposals.
ALLIED CHEMISTRY II	• Analyse the chemical and biological applications of coordination compounds • Explain the electronic effects and apply these to organic compounds. • Define electromotive force and Analyse its uses • Discuss structure and biological functions of carbohydrates, aminoacids. • Analyse common diseases and important tablets used to cure the diseases.
INORGANIC QUANTITATIVE (VOLUMETRIC) ANALYSIS II	• Outline the principles of Iodometric, dictrometric and complexometric titrations • Estimate Iodometrically the amount of Cu^{2+} and dichromate • Determine the concentrations of metal ions (Zn^{2+}, Pb^{2+}, Mg^+ and Cu^{2+}) using complexometric titrations
INORGANIC QUALITATIVE ANALYSIS	• Develop the practical skill on qualitative analysis • Analyse the given inorganic simple salt using preliminary and other specific and confirmatory tests to report for interfering acid radicals. • Illustratethe interfering radicals and to carry our systematic analysis and identifying the cations given in the simple salt.
II B.Sc. Chemistry	
SEMESTER III	
PHYSICAL CHEMISTRY I	• Compare the behaviour of ideal and real gases. • Develop knowledge on the concept of vapour pressure and Distinguish ideal solutions from non ideal solutions • Analyze the structure of crystals and explains the imperfections in crystal systems • Explain the activity of isotopes and Discuss the applications of radio isotopes • Discuss the kinetics of photochemical reactions and Illustrate the photo physical process
GREEN CHEMSITRY	• Apply the Principles of Green Chemistry in various reactions • Assess the quality of green solvents in Chemical process • Explain the efficiencies of green catalyst

	• Distinguish the Problems of Ordinary reactions and Green reactions • Illustrate the importance of green energy technology.
FOOD CHEMISTRY	• Analyse the needs of foods to human and other living things. • List out important Nutrients, Vitamins and Minerals to the human • Discuss on food additives and preservative methods • Explain the food adulterations and analyse adulterants available in the common foods • Illustrate the various food regulation laws and standards.
FOOD SCIENCE	• Find the sources of food and list out major food groups • Summarizes the food additives and explain its significance. • Explain the food preservation and functions of food • Preservatives Identify the adulterants available in the food. • Examine the food and what are the food quality standards used to assess the food.
WATER MANAGEMENT	• Classify the water pollution and analyse the water pollutants • List out different water quality parameters and discuss its importance. • Elaborate water purification processes and show the advantages of different methods • Apply various methods to treat waste water and analyze the treated water • Develop the water storage methods
ORGANIC PREPARATION & INORGANIC QUALITATIVE ANALYSIS I	• List out the compounds to be prepared and discuss the procedure for preparations • Discuss the principle of qualitative analysis and apply the principle for the analysis of given salt. • Analyse systematically the given salt mixture and determine the acidic and basic radicals present in it
SEMESTER IV	
INORGANIC CHEMISTRY II	• Explain the basic concepts of acids and bases and analyze the general characteristics of non-aqueous solvents. • Compare the general characteristics of d and f block elements and select the suitable transition and inner transition elements for specific uses. • Elaborate the Principle and Procedure of metal extraction and identify most useful compounds of metals.

	• Discuss the various compounds of halogens and noble gases • Summarize the methods to analyze data in the experiments
PHARMACEUTICAL CHEMISTRY	• List out common diseases and explain the reasons. • Summarize the common drugs and specify its (function) action. • Analyze drugs action and metabolism. • Explain different chronic diseases and its treatment • Find the chemicals to treat health disorder and elaborate various medicinal plants to treat disease.
INDUSTRIAL CHEMISTRY	• Explain suitable water purification techniques. • Summarize the fuels of petroleum and biofuels. • Discuss the electrical insulating material and list out the commercial batteries and its uses. • Explain the corrosion and its prevention. • Identify the chemicals used in day to day life.
DAIRY CHEMISTRY	• Identify the components in the milk and analyze the properties of milk • Illustrate the processing of milk and Elaborate the changes in properties during processing • List out the milk products and determine the constituents in it • Explain the fermentation of milk and list out the fermented milk products. • Analyzed the condensed milk and Distinguish Cow and buffalo milk.
CHEMISTRY IN EVERYDAY LIFE	• Outline the daily used Cosmetics • List out the soaps and detergents and classify the soaps. • Explain about the nutrients from food materials. • Discuss the fertilizers and pesticides necessary for the grow of plants. • Distinguish fibres, yarns & Fabrics andIdentify the dyes used in dyeing.
MAJOR PRACTICAL IV	• Define acidic and basic radicals and list out the anions and cations to be analyzed • Discuss the principle of qualitative analysis and apply the principle for the analysis of given salt mixture • Analyse systematically the given salt mixture and determine the acidic and basic radicals present in it.
II B.Sc. Chemistry	
SEMESTER V	

ORGANIC CHEMISTRY II	• Interpret the elements of symmetry and apply Cahn Ingold Prelog"s rule. • Discuss the geometrical configuration (Cis/Trans and /or E or Z) and know the conformational analysis • Analyse the structure and reactions of Carbohydrates. • Identify the aromatic organic compounds Using Huckel"s rule and study the electrophilic and nucleophilc substitution reactions • List out the important heterocyclic compounds and analyse its aromatic characters.
PHYSICAL CHEMISTRY II	• Explain the basic concepts of thermodynamics. • Identify the importance of I, II & III laws of thermodynamics • Construct the phase diagram for different heterogeneous system in equilibrium. • Find the applications of solubility product principle and explain different types of conductometric titrations in the laboratory to find the end point • Discuss the various types of molecular spectroscopy and examine the molecules to be active in UV-Visible, IR, Raman Spectroscopy
POLYMER CHEMISTRY	• Classify the polymers based on their characters and structures. • Explain the mechanisms and techniques of polymerization. • Discuss the applications of various organic and inorganic polymers. • Summarize the advantages and disadvantages of polymer processing and degradation techniques • List out the important applications of conducting polymers, biopolymers and explain the plastic waste management.
BIO CHEMISTRY	• Compare the characters of amino acids and proteins • Explain the important properties and functions of carbohydrates. • Classify the lipids and analyse its specific functions. • List out the various enzymes involved in biochemical reactions and specify its catalytic activities. • Distinguish DNA & RNA and find the functions of components in blood.

MORDERN INSTRUMENTAL ANALYTICAL TECHNIQUES	- Discuss the application of various chromatographic techniques - Explain the principles and analytical applications of Thermoanalytical techniques. - Determine the concentration of metal ions using suitable electro analytical techniques. - Outline the principle and applications of various spectroanalytical methods - Analyze the basic concepts of radioanalytical methods and analytical application
APPLIED CHEMISTRY	- Define fuels and Explain various types of fuels - Choose the suitable paints, pigments, lubricants and adhesives for day to day life activities. - Analyze the highly useful fertilizers, pesticides, insecticides and fungicides to improve crop yield. - Discuss the oils, soaps and detergents which are necessary for human health and other activities - Outline the industrially important compounds for the human development activities.
ORGANIC ANALYSIS & PHYSICAL CONSTANT DETERMINATION	- Examine the elements other than carbon & Hydrogen present in the organic compounds. - Find the functional group present in the given organic compound - Determine the physical constant for the organic subsiances
GRAVIMETRIC ESTIMATION & INORGANIC PREPARATION	- Discuss the principle of gravimetric estimation and explain the procedure for the estimation of ions - Estimate the amount of metal ions available in the given solution and compare the accuracy with other methods. - Illustrate the procedure for the preparation of various metal complexes
SEMESTER VI	
INORGANIC CHEMISTRY III	- Apply the valency bond and crystal field theories to coordination compounds and analyse its spectral and magnetic properties - Compare the various substitution reactions of Coordination Compounds and deduct the stability of the complexes. - Discuss the various organometallic compounds and find its applications - Analyse the characteristics of metal complexes using various Spectroscopy.

	• Identify the biologically important metals & compounds and analyze their uses.
ORGANIC CHEMISTRY III	• Understand the reaction mechanism and effect of substituents of phenols and aromatic acid • Discss various types of rearrangements. • Demonstrate various theories of colour and constituents and discuss the structure of naphthalene and anthracene. • Elaborate the structure of alkaloids and terpenoids. • Apply Woodward Fieser rule toconjugated dienes & α,β unsaturated ketones and IR & NMR spectroscopy to compounds
PHYSICAL CHEMISTRY III	• Explain the applications of EMF measurements. • Apply the rate constant expressions for various reactions. • Discuss the applications of Le Chatelier''s Principle & Hammett equation and Identify the applications of Interface chemistry • Classify the molecules into various groups based on group theory. • Explain the principles and applications of NMR, ESR & NQR Spectroscopy
TEXTILE CHEMISTRY	• Identify the natural and man made fibres and Analyse its characters. • Explain the characteristics of different natural fibres • Illustrate the properties and uses of manmade fibres. • Elaborate the dyeing process of fibres. • Define Printing of fibres andDistinguish between dyeing and printing processes of fibres.
NANOCHEMISTRY	• Define the different nanosized materials and analyze their peculiar properties. • List out the various physical, chemical and biological methods of synthesis of nanomaterials • Choose the suitable analytical techniques to characterize nanoparticles. • Elaborate the various applications of nanomaterials and nanocomposites. • Summarize the important nanocompounds and Explain their specific uses.
PHYSICAL CHEMISTRY EXPERIMENTS	• Explain the principles of physical chemistry experiments • Determine the molecular weight and Critical Solution Temperature. • Estimate the amount of substance by conductometric and potentiometric titrations.

M.Sc. CHEMISTRY	
Programme Outcomes	➢ Function as responsible individuals with ethical values, accountable to the community. ➢ Gain detailed knowledge of the major areas of chemistry including a wide range of factual information and experimentally observed phenomena. ➢ Apply chemical concepts in new situations and computational software in chemistry efficiently. ➢ Think critically and analyze chemical problems. ➢ Work effectively and safely in a laboratory environment. ➢ Present scientific and technical information resulting from laboratory experimentation by means of oral presentation, scientific poster or a written report. ➢ Pursue higher education / employable/ entrepreneur. ➢ Work in teams as well as independently in academia, industry or government.
Program Specific Outcome	❖ Apply advanced concepts of organic, analytical, physical and inorganic chemistry to solve complex problems to improve human life. ❖ Possess skill in spectral, analytical, qualitative and quantitative techniques which will be useful in industry. ❖ Gain knowledge in recent and advanced developments in the area of Green Chemistry, Chemistry of Industrial products and formulation, Forensic Chemistry, Industrial Processes, Catalysis, Nanoscience and Nanotechnology, Medicinal Chemistry, Natural Products Chemistry, Bioinorganic Chemistry, Computational Chemistry, Contrasting agents in medical Diagnosis, Sensors etc. ❖ Design a synthetic route for new compounds and transform innovative ideas into reality. ❖ Be competent in problem solving, critical thinking and analytical reasoning as applied to scientific problems. ❖ Acquire understanding of Plagiarism and Intellectual Property Rights. ❖ Use Computational software in chemistry efficiently. ❖ Carry out research / investigation independently to solve practical problems and write / present a substantial technical report/document. ❖ Transform learned knowledge and skills to qualify in the NET and other competitive exams for higher studies and job.
Courses outcome	
I M.Sc. Chemistry	
Semester I	

AROMATICITY AND ORGANIC REACTION MECHANISM	- Analyze and predict the aromaticity of compounds and the nomenclature of bicyclic and tricyclic systems. - Develop skills for identifying the kinetics of reactions. - Demonstrate the generation, stability, and reactivity of carbenes, nitrenes and free radicals. - Explain and analyze the mechanism of substitution, elimination and addition reactions in aliphatic systems. - Infer the major types of nucleophilic substitution reactions on aromatics with their specific reactivity.
FUNDAMENTALS OF INORGANIC CHEMISTRY, NUCLEAR CHEMISTRY AND INORGANIC POLYMERS	- Recall the basic concepts of atomic structure, periodic table, periodic properties and chemical bonding of elements. - Explain poly acids, cage compounds and Inorganic polymers. - Apply the concept of hybridization to identify the structure of molecules by VBT, MOT and VSEPR theory. - Distinguish hard and soft acids and bases and explain their relative strengths. - Explain various nuclear reactions and the analytical applications of radio isotopes.
QUANTUM MECHANICS AND SPECTROSCOPY – I	- Explain the mathematical and physical aspects of quantum mechanics which illustrates the relationship between mathematics and fundamental of quantum mechanics. - Solve quantum mechanical problems. - Analyze the quantum mechanical aspects in various areas of applications in chemistry. - Explain the basic idea of quantization of energy and spectroscopy and apply to the rotational spectra of diatomic molecules. - Explain the basic principles of vibrational spectra of diatomic molecules including both IR and Raman spectra.
GREEN CHEMISTRY – TECHNIQUES AND APPLICATIONS	- Explain the basic principles of green chemistry, alternative energy sources and green metrics. - Apply the green catalysis in chemical reactions. - Identify the role of important green solvents in organic reactions. - Illustrate name reactions and analyze the various green reactions using microwave techniques. - Explain the principles of renewable energy resources and generate its importance to the environment.
CHEMISTRY OF INDUSTRIAL PRODUCTS AND FORMULATION	- Acquire knowledge of paints and pigments and investigate its drying mechanism. - Apply and formulate the role of cosmetics in industries. - Identify the fibre for paper making and evaluate its properties. - Apply processing operations of milk and milk products in day to day life.

	• Explain types of textile fibres and analyze its characters by various treatments
FORENSIC CHEMISTRY	• Acquire knowledge on forensic science and apply through biometric and finger printing technique. • Interpret the different methods of finger printing and characterization of blood stains. • Analyze the selected drugs, inks and paints using different techniques. • Identify the samples using forensic toxicology methods and DNA finger printing. • Explain the proper applications of computer network in forensic science to investigate the crimes
ORGANIC CHEMISTRY PRACTICAL - I	• Explain the basic separation procedures of organic mixtures. • Select the separation methods to separate the organic mixtures. • Classify the functional groups using systematic procedure. • Determine the physical properties of organic compounds • Develop skills to isolate natural products from plants.
PHYSICAL CHEMISTRY PRACTICAL - I	• Explain the principles of conductometric titrations and estimate the strength of solutions. • Explain the basic principles of thermometry and determine the heat of solution as well as the amount of solute present in the solution. • Determine the solubility product of sparingly soluble salts using conductometric technique.
SEMESTER II	
STEREOCHEMISTRY, ORGANIC REAGENTS AND PHOTOCHEMISTRY	• Recognize three dimensional structures of any organic molecule with orientation of atoms or groups. • Analyze the conformation and the reactivity of acyclic and sixmembered cyclic compounds. • Develop the skill to choose the appropriate reagents for organic reactions. • Illustrate the fundamental concepts of photochemistry and its application in organic reactions • Explain the core concepts of Pericyclic reactions and its mechanisms in organic substrates and to predict whether the chemical reaction is thermal or photochemical.
COORDINATION COMPOUNDS AND SOLID STATE CHEMISTRY	• Recall the basic terms in coordination chemistry, Applications and limitations of CFT. • Explain the stability and reactions of various coordination complexes. • Compare the magnetic properties of Octahedral, Tetrahedral and Square planar coordination complexes. • Classify the types of defects in solids and apply this

	knowledge to identify the type of defect present in compounds. • Distinguish metals, semiconductors and insulators and explain the properties and applications of semiconductors.
ELECTROCHEMISTRY AND SPECTROSCOPY - II	• Explain the concepts of electrochemistry and basic ideas of electrochemical processes. • Analyze the applications of electrochemistry such as batteries and fuel cells. • Illustrate the electroanalytical techniques such as Polarography, Differential pulse polarography, Stripping voltammetry. Cyclic voltammetry, etc. • Explain the basic principles of nuclear magnetic resonance (NMR) and Electron paramagnetic resonance (EPR) spectroscopy techniques. • Illustrate the principles of Nuclear quadrupole resonance and Mössbauer spectroscopy techniques and Mass spectrometry.
NANOSCIENCE AND NANOTECHNOLOGY	• Explain the unique properties and structure of nanomaterials. • Trace the different methods of synthesis of nanomaterials. • Acquire knowledge about polymer based nanocomposites and applications of bio- nanocomposites. • Evaluate the synthesis and potential applications of carbon nanotubes and grapheme. • Apply nanotechnology in bio-medical field
MEDICINAL CHEMISTRY	• Categorize the drug delivery system and gain knowledge on molecular docking. • Acquire knowledge about structure activity relationship of drugs. • Explain the structure and functions of antiseptics, antibiotics and differentiate bacterial and fungal cell walls. • Illustrate the synthesis and mode of actions of some important drugs. • Create certain developments in cancer chemotherapy and cardiovascular drugs.
INDUSTRIAL PROCESSES AND CATALYSIS	• Acquire knowledge on unit operations and unit process in industry. • Explain reverse osmosis and how to apply it in the pretreatment of water. • Distinguish homogeneous and heterogeneous catalysis and analyze the advantages of heterogeneous catalysis in industry. • Evaluate the role of catalysis in petrochemical industry. • Save the environment from hazardous industrial chemical waste.
ORGANIC CHEMISTRY PRACTICAL - II	• Develop the skills to estimate organic compounds • Estimate the amount of organic compound using quantitative

	organic estimation methods
	• Illustrate various organic reactions and their utility in organic preparations.
	• Acquire the skills to isolate useful compounds from natural sources
	• Determine the physical properties of organic compounds
INORGANIC CHEMISTRY PRACTICAL - II	• Describe the principles, techniques and skills related to quantitative determination of ions in a mixture by complexometric titration.
	• Estimate one metal ion in presence of another metal ion by complexometric method.
	• Estimate the amounts of components present in Solder alloy.
	• Prepare and analyze the Inorganic complexes and estimate them by volumetric methods.
	• Describe the basic principle of calorimetry and apply it for the estimation of ions present in solution.
PHYSICAL CHEMISTRY PRACTICAL - II	• Explain the basic principles of conductometric titrations and determine the Dissociation constant of weak acids.
	• Illustrate the principles of distribution law and estimate the distribution of solute in two immiscible solvents.
	• Outline the basic principles of thermometry and determine the solution enthalpy of solute in solvent.
SEMESTER III	
ORGANIC SPECTROSCOPY AND REARRANGEMENTS	• Describe the basic principles of UV, IR, ORD and CD, and the applications of UV-Visible spectroscopy, IR spectroscopy, ORD and CD in structural elucidation of organic compounds.
	• CO2 Interpret the 1H NMR and 13C NMR spectral data to elucidate the structure of organic compounds.
	• Explain the fragmentation pattern in Mass spectrometry and use them in structural elucidation.
	• Interpret the 2D NMR spectrum and solve structure related problems
	• Illustrate the types and mechanisms of the prescribed rearrangement reactions and their applications in Organic synthesis.
SPECTRAL METHODS-I, ORGANO METALLIC AND ANALYTICAL METHODS	• Describe the principles and applications of electronic and photo electronic spectroscopic techniques in coordination compounds.
	• Determine absolute configuration of chelate complexes by applying ORD and CD.
	• Recall the EAN rule and explain the 18 & 16 electron rules to determine the stability of complexes.
	• Classify terminal and bridging carbonyl groups in metal carbonyls using IR spectra.

	• Categorize the different types of organometallic catalysts and explain their applications. • Describe the principles and applications of thermo analytical techniques and determine the stability of complexes.
GROUP THEORY AND CHEMICAL THERMODYNAMICS	• Explain the basic concepts of group theory and construct character tables for various point groups. • Analyze the symmetry of molecules and apply the group theory into spectroscopy and hybridizations. • Illustrate the relationship between group theory and quantum mechanics. • Summarize the concepts of statistical thermodynamics and the interlinking between the quantum mechanics and thermodynamics. • Explain the irreversible thermodynamic processes and apply to biological and non-linear systems.
SCIENTIFIC RESEARCH METHODOLOGY	• Select research problem and various funding agencies. • Write the research report and make effective presentations. • Apply software for identifying plagiarism. • Describe the forms of IPR and its significance. • Describe the surface probe microscopic techniques to analyze the sample surfaces.
ORGANIC CHEMISTRY PRACTICAL - III	• Estimate the amount of organic compounds using quantitative organic estimation methods • Develop the skills to handle corrosive and toxic chemicals in organic preparations. • Categorize organic reactions and their mechanisms relevant to organic preparations. • Carry out microscale organic preparations • Determine the physical properties of organic compounds
INORGANIC CHEMISTRY PRACTICAL - III	• Describe the concept of volumetric and Gravimetric analysis. • Explain the principles for volumetric and gravimetric methods of estimation of cations present in a mixture. • Separate and estimate mixture of metal ions quantitatively. • Analyze and estimate the contents of Ores and Alloys.
PHYSICAL CHEMISTRY PRACTICAL - III	• Explain the principles of potentiometric titrations and apply for various reactions such as neutralization, redox and precipitation reactions. • Determine the Dissociation constant of weak acids, pH of buffer and solubility product of sparingly soluble salts potentiometrically. • Describe the principles of chemical kinetics and study the kinetics of a system. • Illustrate the principles of adsorption process and carry out experiments to find out whether a particular adsorption

	process is Freundlich or Langmuir Adsorption isotherm.
SEMESTER IV	
SYNTHETIC STRATEGIES IN ORGANIC CHEMISTRY	• Illustrate the prescribed organic name reactions with their mechanisms and apply in organic synthesis. • Design organic synthetic steps employing disconnection approach in the synthesis of drugs, natural products etc. • Identify suitable reagent for important organic reactions and building appropriate bonds. • Explain the structural elucidation of cholesterol and various synthetic approaches of steroids in Natural Products synthesis. • Infer the structural elucidation and the synthesis of vitamins and terpenoids
BIOINORGANIC, SPECTRAL METHODS-II AND PHOTOCHEMISTRY	• Describe the role of metalloporphrins and metalloenzymes in various biological processes. • Apply metal complexes as drugs and probes of nucleic acids • Explain the applications of Mossbauer, NMR and EPR Spectroscopy in inorganic compounds and interpret the data. • Explain the photophysical and photochemical properties of metal complexes • Develop photochemical conversion, storage of solar energy and green photocatalyst.
CHEMICAL KINETICS, PHOTOCHEMISTRY AND SURFACE CHEMISTRY	• Explain kinetic theory of gases and phase rule and its applications. • Describe the concepts of chemical kinetics and make use of it in understanding reaction mechanisms. • Illustrate various photochemical processes and experimental techniques in photochemistry. • Explain the basic ideas of radiation chemistry and its applications. • Describe the concepts of Adsorption processes and catalysis.
SELECTED TOPICS IN CHEMISTRY	• Describe the importance and applications of Computational Chemistry methods. • Be competent in separation and purification techniques. • Explain the corrosion monitoring methods and application of corrosion inhibitors. • Develop various types of sensors. • Choose contrasting agents in medical diagnosis.
COMPUTATIONAL SOFTWARE IN CHEMISTRY - LABORATORY COURSE	• Use chemical software for drawing chemical structures, reaction schemes and generation of their names. • Perform molecular docking in structural molecular biology and computer assisted drug design which enhance their employability in academia and industry. • Calculate the single point energy, energy gap, dipole moment,

	resonance energy. equilibrium constant, electrophilicity index, dimerisation energy etc. • Interpret spectral data (UV, IR, NMR spectrum) • Investigate intermolecular interactions and packing in crystalline materials using Hirshfeld surface analysis.
PROJECT	• Identify research problem, carry out literature survey and use of different experimental/spectroscopic techniques. • Develop interdisciplinary solutions to a variety of chemical problems. • Communicate research findings efficiently in written (report) and verbal (viva-voce) forms. • Use terminology appropriate to the field of study correctly and contextually. • Motivate themselves and acquire basic knowledge for carrying out research work.

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Nanjil Catholic College of Arts and Science, Kaliyakkavilai

Department of Computer Science

Programme Outcome and Course Outcome

2022-2023

DEPARTMENT OF COMPUTER SCIENCE

ACADEMIC YEAR 2022-2023

PROGRAM OUTCOME (B.Sc COMPUTER SCIENCE)

Program Outcome	
Program Outcome	- Be aware of the history of the discipline of latest technology and understand the conceptual underpinnings of the subject - Illustrate the nature of the software development process , including the need to provide appropriate documentation - Be able to develop program in one or two programming languages - Be able to analyze a technique for a specific problem to meet a particular objective. - Compare the basic theory of computer architectures , including computer hardware and networking - Construct new information technology applicable to the society , business and the individual , both from a technical and from an ethical and legal point of view
Program Specific Outcome	- Define Fundamental principles and methods of Computer Science to a wide range of applications. - Demonstrate and document solutions to significant computational problems - Apply design ,programming skills and develop principles in the construction of software systems - Decide for continued professional Development - Design new technologies in web development

COURSE OUTCOME

Course	Outcome
B.Sc Computer Science	
I Semester	
PROGRAMMING IN C	- To obtain knowledge about the structure of the programming language C - To develop the program writing and logical thinking skill. - To summarize statements and arrays - To make use of defined functions - To explain pointers and files
PROGRAMMING IN C LAB	- To define the features of C by applying sample problems - To explore skills in implementing algorithms through the programming Language C

	✓ To develop array of elements ✓ To evaluate matrices ✓ To develop the programs using pointers and functions
DISCRETE MATHEMATICS	✓ To recall basic concepts for clear understanding of mathematical principles ✓ To explain practical problems. ✓ To construct matrices using discrete mathematics ✓ To analyze techniques to draw graph using mathematics ✓ To design graphs using the representations
II SEMESTER	
PROGRAMMING IN C++	✓ To define the basic knowledge of object oriented programming concepts ✓ To relate the idea of classes and objects ✓ To analyze and develop constructors and destructors ✓ To design C++ streams, Inheritance, Overloading of operators, functions, constructors, File Handling and templates concepts of C++ programming. ✓ To develop the knowledge about how to work on files.
PROGRAMMING IN C++ LAB	✓ To define object oriented programming concepts using class and member functions. ✓ To develop overloading operators ✓ To analyze friend function ✓ To gain the knowledge about the importance of constructor ✓ To design C++ virtual functions
LINUX LAB	✓ To find various Linux commands ✓ To interpret and make effective use of Linux utilities ✓ To construct Shell scripting language to solve problems. ✓ To list shell scripting conditions ✓ To develop Linux communication oriented commands
III SEMESTER	
JAVA PROGRAMMING	✓ To recall the basic concepts of Object Oriented Programming ✓ To apply the tools of Object – Oriented Paradigm in Java programming ✓ To understand the fundamentals of applet, event – driven programming ✓ To analyze the ability to develop Applet programs

	with tools of Java ✓ To design the skills to develop software
JAVA PROGRAMMING LAB	✓ Illustrate and make effective use of Java Programming to develop software ✓ Develop Java application programs using OOP principles. ✓ Apply Constructors and Overriding methods ✓ Develop Multithreaded programs ✓ To implement error handling techniques using exception handling
SCRIPTING LANGUAGE	✓ To understand the basic concepts of HTML and web programming. ✓ To Demonstrate the concepts of scripting languages for developing web-based projects ✓ Ability to compare the differences between Scripting languages and programming languages ✓ To understand CSS files HTML Multimedia. ✓ Ability to develop projects using HTML and Web pages
SCRIPTING LANGUAGE LAB	✓ To develop knowledge in web-based projects ✓ To demonstrate programming skills in scripting languages. ✓ To construct the skill of designing GUI in scripting languages ✓ To categorize CSS files ✓ To design JavaScript programs
DIGITAL DESIGN	✓ To recall the concept of digital systems, to operate on various number systems and simplify Boolean functions and to distinguish logical and combinational circuits. ✓ Illustrate the concept of digital and binary systems ✓ Be able to develop combinational logic circuits. ✓ Be able to design and analyze sequential logic circuits. ✓ Construct and implementation of digital circuits and systems.
	✓ Interpret simplification and find averages ✓ Determine ratio and proportion ✓ Assess partnership and solve percentage problems ✓ Distinguish profit and loss

	✓ Solve problem of numbers
IV SEMESTER	
DATA STRUCTURES	✓ To understand the concepts of basic data structures. ✓ To acquire the knowledge about stack, Queues and Linked list. ✓ To have general understanding of the network structures through trees and graph. ✓ To make the students to understand the basic algorithms for sorting. ✓ Define data structure Algorithms
DATA STRUCTURES LAB	✓ To develop skills in implementing sort and search data structure algorithms ✓ To implement queue and stack technique ✓ To design tree traversals ✓ To implement binary search tree ✓ To Compile sorting algorithms
MACHINE LEARNING TECHNIQUES	✓ To introduce students to the basic concepts of Machine Learning. ✓ To acquire various techniques in Machine learning. ✓ To have a thorough understanding of the Supervised and Unsupervised learning techniques ✓ To study the probability based learning techniques ✓ To understand graphical models of machine learning algorithms
PYTHON LAB	✓ To understand the basic concepts in python ✓ To understand the concepts and develop python programs ✓ To acquire the knowledge about menu driven programs ✓ To improve the knowledge in CSV files ✓ To understand the functions of python
COMPUTER ARCHITECTURE	✓ Understand the basics of Computers and its Organization ✓ Know the various Technologies behind the Computer Architecture ✓ An ability to apply knowledge about hardware implementation and algorithms ✓ To evaluate various input output organizations

	✓ To develop the architecture using various memories
NME-MATHEMATICS FOR COMPETITIVE EXAM -II	✓ Analyze and solve the problems based on simple interest and Compound interest ✓ Apply short tricks on solving time and work problems ✓ Making use of the concept of time and distance while solving problems. ✓ Utilize chain Rule ✓ Find solutions for pipes and Cistern problem
V SEMESTER	
RELATIONAL DATABASE MANAGEMENT SYSTEM	✓ To understand relational database concepts and transaction management concepts in database system. ✓ To write SQL programs that use: procedure, function, package, cursor and Exceptions. ✓ To Use current techniques and tools necessary for complex computing practices.
DATA COMMUNICATION AND COMPUTER NETWORKS	✓ To understand the concepts in Computer Network and Data Communication ✓ To know about the various protocols used in network
PHP and mySQL	✓ To learn and use open source database management system MySQL ✓ To create dynamic web pages and websites. ✓ To connect web pages with database. ✓ To understand the concepts of open sources.
PHP and mySQL Lab	✓ To develop knowledge about basic PHP Programs.
CLOUD COMPUTING	✓ To know in detail about the various Cloud Computing concepts
OPERATING SYSTEM	✓ To acquire the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system. ✓ Understand the basic working process of an operating system. ✓ Understand the importance of process and scheduling. ✓ Understand the issues in synchronization and

	memory management.
SOFTWARE ENGINEERING AND TESTING	✓ To acquire the fundamental knowledge of Software Engineering and to know the various testing performed
COMPUTER GRAPHICS AND VISUALIZATION	✓ To acquire the fundamental knowledge of Computer Graphics and Visualization. ✓ To understand the Algorithms in Computer Graphics
INTRODUCTION TO DIGITAL IMAGE PROCESSING	✓ To acquire the fundamental knowledge of introduction to Digital Image Processing. ✓ To understand the features present in Digital Image Processing
COMPUTER GRAPHICS LAB	✓ To acquire skills in programming computer graphics ✓ To acquire skills in multimedia concepts
DIGITAL IMAGE PROCESSING USING SCILAB / MatLab	✓ To get knowledge about the basic programs on Digital Image Processing
INTERNET OF THINGS	✓ To give a brief idea about IOT working ✓ To make the students understand the Architecture of IOT

PROGRAM OUTCOME (M.Sc COMPUTER SCIENCE)

Program Outcome	
	➢ Apply their knowledge of computing to evaluate, analyze, synthesize, model and integrate technologies to develop new computerized solution for the industrial and social problem ➢ Work upon unfamiliar problems through investigative studies and research and contribute to the development of technological knowledge and towards new intellectual property. ➢ Comprehend and make effective technical reports and presentations on software / Hardware related issues. ➢ Communicate effectively, as a member or team leader, in software projects involving multidisciplinary environments.

	➢ Learn reflectively from mistakes, engage in lifelong learning, adapt new developments and participate in continuing education opportunities to foster personal and organizational growth.
	➢ Understand contemporary issues in providing technological solutions for sustainable development considering impact on economic, social, political, and global issues and thereby contribute to the welfare of the society.
	➢ Demonstrate integrity, ethical behavior and commitment to code of conduct of professional practices and standards.

COURSE OUTCOME (M.Sc COMPUTER SCIENCE)

Course	Outcome
M.Sc Computer Science	
I SEMESTER	
DESIGN AND ANALYSIS OF ALGORITHMS	➢ Get a view of how to choose problem ➢ Able to design and solve complex problems
ADVANCED JAVA PROGRAMMING	➢ Able to develop a Graphical User Interface (GUI) with Applet and Swing. ➢ Develop a Client-Server Application with Database Maintenance.
MATHEMATICAL FOUNDATION FOR COMPUTER SCIENCE	➢ Get an insight about basic mathematical concepts related to computer science ➢ Able to get knowledge about simple data structure concepts ➢ Able to have knowledge about mathematical logic
COMPILER DESIGN	➢ Able to understand various phases of a compiler ➢ Explore the features of code generation and optimization techniques ➢ Able to design a compiler
DISTRIBUTED OPERATING SYSTEM	➢ Get an insight about networking concepts ➢ Able to get knowledge about operating system concepts ➢ Able to have knowledge about file system concepts
ALGORITHM LAB (USE C++/JAVA)	➢ Apply generic programming technique to implement any data structure

	➢ Apply appropriate search trees for an application ➢ Use graphs in problem solving
ADVANCED JAVA LAB	➢ Able to develop a Graphical User Interface (GUI) with Applet and Swing. ➢ Develop a Client-Server Application with Database Maintenance.
II SEMESTER	
ADVANCED WEB TECHNOLOGY	➢ Design a web page with Web form fundamentals and web control classes ➢ Recognize the importance of validation control, cookies and session ➢ Apply the knowledge of Java Script object, data access and SQL to develop a client server model. ➢ Recognize the difference between Data list and Data grid controls in accessing data.
MACHINE LEARNING	➢ Have a good understanding of the fundamental issues and challenges of machine learning: data, model selection, model complexity, etc. ➢ Have an understanding of the strengths and weaknesses of many popular machine learning approaches. ➢ Appreciate the underlying mathematical relationships within and across Machine Learning algorithms and the paradigms of supervised and un-supervised learning. ➢ Be able to design and implement various machine learning algorithms in a range of realworld applications.
ADVANCED DBMS	➢ Know about the Various Data models and Works on Database Architecture ➢ Knowledge patterns, Object Oriented Databases are well equipped
CRYPTOGRAPHY AND NETWORK SECURITY	➢ Illustrate the approaches, trade-offs in security design principles. ➢ Apply number theory in public key encryption techniques. ➢ Design a secure operating system ➢ Discuss the various platform security models in a mobile environment.
FREE OPEN SOURCE SOFTWARE	➢ Ability to use various Linux commands that are used to manipulate system operations at admin level and a

	prerequisite to pursue job as a Network administrator. ➢ Ability to write Shell Programming using Linux commands. ➢ Ability to design and write application to manipulate internal kernel level Linux File System. ➢ Develop algorithmic solutions to simple computational problems Read, write, execute by hand simple Python programs ➢ Structure simple Python programs for solving problems. ➢ Decompose a Python program into functions.
DATA MINING	➢ To evaluate various mining techniques on complex data objects ➢ To develop applications using Big Data Mining Tools.
DATA SCIENCE & BIG DATA ANALYTICS	➢ Work with big data tools and its analysis techniques ➢ Design efficient algorithms for mining the data from large volumes ➢ Design an efficient recommendation system ➢ Design the tools for visualization ➢ Learn No SQL databases and management.
ADVANCED WEB TECHNOLOGY LAB	➢ Design a web page with Web form fundamentals and web control classes ➢ Recognize the importance of validation control, cookies and session ➢ Apply the knowledge of Java Script object, data access and SQL to develop a client server model. ➢ Recognize the difference between Data list and Data grid controls in accessing data. ➢ Design a Web application using various technologies such as Java, XML, AJAX, Servlets,PHP, JSP, MySQL and MEAN STACK
MACHINE LEARNING LAB USING PYTHON	➢ To learn to use Weka tool for implementing machine learning algorithms related to numeric data ➢ To learn the application of machine learning algorithms for text data ➢ To use dimensionality reduction algorithms for image processing applications

	➢ To apply CRFs in text processing applications ➢ To use fundamental and advanced neural network algorithms for solving real-world data
III SEMESTER	
DIGITAL IMAGE PROCESSING	➢ Review the fundamental concepts of a digital image processing system and Analyze images in the frequency domain using various transforms. ➢ Evaluate the techniques for image enhancement and image restoration. ➢ Categorize various compression techniques. ➢ Interpret Image compression standards, and Interpret image segmentation and representation techniques. ➢ Gain idea to process various image used in various fields such as weather forecasting,Diagnosis of various disease using image such as tumor, cancer etc.
SOFT COMPUTING	➢ Comprehend the fuzzy logic and the concept of fuzziness involved in various systems and fuzzy set theory. ➢ Understand the concepts of fuzzy sets, knowledge representation using fuzzy rules, approximate reasoning, fuzzy inference systems, and fuzzy logic ➢ To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. ➢ Understand appropriate learning rules for each of the architectures and learn several neural network paradigms and its applications. Reveal different applications of these models to solve engineering and other problems.
INTERNET OF THINGS	➢ Gain the basic knowledge about IoT and they will be able to use IoT related products in real life. ➢ It helps to rely less on physical resources and started to do their work smarter
ADVANCED COMPUTER	➢ To master the terminology and concepts of the OSI reference model and the TCP-IP reference model.

NETWORKS	➤ To master the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks. ➤ To be familiar with wireless networking concepts, and be familiar with contemporary issues in networking technologies. ➤ To be familiar with network tools and network programming
RESEARCH METHODOLOGY	➤ Ability to apply different research approaches and methodologies ➤ Develop data collection instrument according to the underlying theoretical framework. ➤ Analyze quantitative data and qualitative data using software packages ➤ Construct and document an appropriate research design ➤ Discuss limitations and potential contribution to theory and practice of research ➤ Effectively apply the appropriate computer tools in each stage of research ➤ Ability to perform ICT based Teaching Methods
CLOUD COMPUTING	➤ Articulate the main concepts, key technologies, strengths and limitations of cloud computing. ➤ Learn the key and enabling technologies that help in the development of cloud. ➤ Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models. ➤ Explain the core issues of cloud computing such as resource management and security. ➤ Be able to install and use current cloud technologies. ➤ Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.
MOBILE COMPUTING	➤ Explore the concepts of new technologies in wireless networks. ➤ Demonstrate various protocols of wireless and cellular networks. ➤ Discuss the features of different wireless networks.

	each stage of research ➤ Ability to perform ICT based Teaching Methods
CLOUD COMPUTING	➤ Articulate the main concepts, key technologies, strengths and limitations of cloud computing. ➤ Learn the key and enabling technologies that help in the development of cloud. ➤ Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models. ➤ Explain the core issues of cloud computing such as resource management and security. ➤ Be able to install and use current cloud technologies. ➤ Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.
MOBILE COMPUTING	➤ Explore the concepts of new technologies in wireless networks. ➤ Demonstrate various protocols of wireless and cellular networks. ➤ Discuss the features of different wireless networks.
OPTIMIZATION TECHNIQUES	➤ Get an insight about linear programming concepts ➤ Able to get knowledge about network concepts ➤ Able to have knowledge about simulation concepts
DIGITAL IMAGE PROCESSING LAB USING SCILAB	➤ Review the fundamental concepts of a digital image processing system and Analyze images in the frequency domain using various transforms. ➤ Evaluate the techniques for image enhancement and image restoration. Categorize various compression techniques. ➤ Interpret Image compression standards, and Interpret image segmentation and representation techniques. ➤ Gain idea to process various image used in various fields such as weather forecasting, Diagnosis of various disease using image such as tumor, cancer etc.

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NANJIL CATHOLIC COLLEGE OF ARTS AND SCIENCE

KALIYAKKAVILAI-629153

Department of Zoology

2022-2023

Program Outcome and Course Outcome

NANJIL CATHOLIC COLLEGE OF ARTS AND SCIENCE

Kaliyakkavilai

Department of Zoology

Programme outcome	Provide deep understanding of fundamental and concepts of Science and develop critical thinking skills in the field of Science. Pursue higher studies up to research in multidisciplinary level become professionals.
Programme specific outcome	Analyse and communicate fundamental concepts in Zoology. Apply practical skills in the specific fields of Zoology. Identify, formulate and find solutions for complex environmental problems and epidemiological and health issues for the betterment of sustainable.

Course and Course Outcome

Invertebrata	The diversity and basic taxonomy of non chordates. Interpret the biological status of the animals at basic level in their habitat
Chordata	Recall the diversity and basic taxonomy of chordates. Understand and examine the biological systems and evolution of chordates . Analyse and compare the adaptations and their importance in distribution
Developmental Zoology	Know the developmental processes of animals from cellular grade of organization to organ grade of organization
Nutrition and Dietetics	The classification and types of nutrients and food stuffs. Understand the nutritive value and metabolism of food materials.
Cell Biology and Biochemistry	Understand cell, its biology and origin of cells, diversity and structure and learn the basic differences between prokaryotic and eukaryotic cells and understand the basis of cytological techniques, principle of working and its application of microscope.
Vermitechnology	Find out vermicomposting is an eco-friendly, economically and socially acceptable technology. Utilize vermitechnology to improve the soil texture,soil aeration, improve the water retention capacity in the soil.
Ecology	To understand the dynamics of various ecosystem such as marine, freshwater and terrestrial. The interaction and interdependence among environmental factors and living organisms.
Genetics	Analyse the basic principles of Mendelian inheritance and genetic interaction . Construct chromosome map using crossing over.
Animal Physiology	Identify the working mechanisms of effectors, homoeostasis and understand how the animals adapt in the environments. List out the physiological processes in the animals.
Microbiology and Immunology	Understand the structure, classification and culture techniques of microbes. Analyse and distinguish food poisoning, food spoilage and preservation methods. Describe the different types of lymphoid organs, antigen- antibody reactions.
Evolution	Understand the origin of life and evidences in favour of evolution. Learn relationship

	between abiotic and biotic factors adaptation in the view of evolution. Get thorough knowledge of the tree diagram of the evolution of various animals and patterns of distribution.
Animal Biotechnology	Relate the basic principles of recombinant DNA technology. Explain various molecular techniques used in modern biotechnology.
Biostatistics, Computer applications and Bioinformatics	Attain an insight on statistical methods for analysis of biological data. Undertake statistical operations in biology. Understand and critically evaluate the data analysis procedures in publication of molecular biology research.
Sericluture	Understand the scope sericulture and mulberry cultivation practices. Gain knowledge on diseases of silkworms and pests of mulberry. Understand the classification, life style and physiology of silkworm.
Apiculture	Classify the honey bees and categorize its developmental stages and explain the principals of Apiculture and methods of Bee Keeping. Make use of Honey bee products and Marketing.

DEPARTMENT PHYSICAL EDUCATION

Part I Pothu Tamil (2021-2022)

Program Outcomes

Successful completion of the Tamil curriculum Acquiring the necessary skills to speak, write and learn the language without error.

Knowing the literary and historical background Acquiring the ability to solve social and life problems Passing government examinations through language education .

To develop self-confidence . Realization of virtue, virtues, equality. brotherhood.

Malayalam Programme Outcome	
Programme outcome	We were able to understand different branches of poetry which deals with numerous social subjects. Poetry helps to build a very deep knowledge about today's social conditions

ENGLISH Programme Outcome	
Communicative English I	To enhance the communicative skills of students. To enrich the knowledge of students in grammar usage. To simulate real life situations in the classroom to practice real English dialogues and speeches to gain English language fluency. To build up the learners confidence in oral and interpersonal communication

SEMESTER -11

Communicative English I1	Helps to improve practical usage of English Grammar. To help students overcome their fear and to speak in English in front of their peers and teachers. To build students self-confidence through various classroom activities.

SEMESTER -111	
Part II General English	To develop Vocabulary and Pronunciation. To understand various styles of writings. To enhance his or her familiarity and fluency with the language considerably.

SEMESTER -1V	
Part II General English	To develop interest in and appreciation of Literature. To develop confidential communication skill. To learn different styles of writings, like prose, poetry and fiction. To understand practical usage of English Grammar.

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PHYSICAL EDUCATION PROGRAM OUTCOME

   The undergraduate degree program of physical education will be of three years with six semesters . The course-level learning outcomes for each course with in B.Sc degree program in physical education are given below with content matter (detail syllabus of 5 units) to be taught in each unit and semester for three years. The key areas of study with in the physical education are Exercise physiology ,Sports psychology, Sports sociology, Sports management, Sports journalism, Kinesiology –biomechanics, Sports training ,Sports medicine , Kinanthropometry. As a part of the effort ,to enhance the employability of graduates of physical education program included learning experiences that offer opportunities in various spheres of   human existence.

MANONMANIAM SUNDARANAR UNIVERSITY, TIRUNELVELI

UG COURSES

B.Sc. PHYSICAL EDUCATION

(Choice Based Credit System)

Program Specific Outcomes (PSOs)

This would lead the students to understand historical concept of physical education and relationship between Philosophy, Education and Physical Education. The student would further understand the theoretical implications of philosophies of physical education with modern development and social aspects of Physical Education.

1. The curriculum would enable the pass out to select the inherited talented children for various sports activities.

2. The pass out shall be able to orient children in schools with the fundamental skills of selected sports as per their inherited potential.

3. The pass out shall be able to devise training program for athletes engaged in different sports activities

4. The curriculum shall enable them to officiate, supervise various sports tournaments and orient them in organizing sports events at all levels.

A. The curriculum would enable the pass out students to be entrepreneur (to start their own fitness centre, gym, spa etc) and device appropriate fitness program for different genders and age groups of people.

5. The curriculum would enable the pass out to devise training program for physically challenged

peoples.

Semester – I

Foundation of Physical Education and Gymnastics

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core – 1: Foundation of Physical Education and Gymnastics	Cognitive Level
CO1	Discus the historical review of physical education and sports Activities of Indian heritage	K2
CO2	Understand the basic principles and foundation of physical	K2
CO3	Identify and relate with the History of Physical Education.	K2
CO4	Describe the History of Gymnastics.	K2
CO5	Estimate the fundamental techniques of gymnastics	K3

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Major Practical – 1: Gymnastics

CO. No.	Major Practical – 1: Gymnastics	Cognitive Level
CO1	Apply the fundamental techniques of gymnastics	K3
CO2	Distinguish between advance players and beginners	K3
CO3	Judge the performance of gymnastics	K4
CO4	Estimate the fundamental techniques of gymnastics	K3
CO5	Adapt with the new trends in the field of gymnastics	K2

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Basic Anatomy and Physiology

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Allied – I Basic Anatomy and Physiology	Cognitive Level
CO1	Indicate the different parts of human body	K2
CO2	Demonstrate the functions of the human body	K2
CO3	inspect the different systems of the human body	K2
CO4	classify the physiological fitness of the human body	K3
CO5	Report the structures functions and its parts	K2

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Kinanthropometry

CO. No.	Allied Practical – I Kinanthropometry	Cognitive Level
CO1	learn the palpation technique of bones, bony landmarks, skeletal muscles and tendons of human body	K2
CO2	understand the concepts of human body measurement	K2
CO3	Identify the bony landmarks of human body	K2
CO4	acquirethetechniqueofmeasuringhumanbodysegmentslength,girth,andbreadth	K3
CO5	Learn the technique of measuring percent body fat using skin fold measurement	K2

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

SEMESTER II

Theories of Games-I (Kabaddi, Kho-Kho, Handball)

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core – III Theories of Games-I (Kabaddi , Kho-Kho, Handball)	Cognitive Level
CO1	find the basic rules and regulations of various games	K4
CO2	Demonstrate the basic skills of various games	K2
CO3	motivate himself towards international level	K2
CO4	estimate the performance of the players	K5
CO5	construct the play fields of various games	K3

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

Cos	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Major Practical II Kabaddi, Kho-Kho,Handball

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core – III Theories of Games-I (Kabaddi, Kho-Kho, Handball)	Cognitive Level
CO1	find the basic General and Specific Conditioning Exercises	K4
CO2	Demonstrate the basic skills of various games	K2
CO3	motivate himself towards international level	K2
CO4	estimate the performance of the players	K5
CO5	construct the play fields of various games	K3

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlate

Health Education, Safety Education and First aid

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Allied II - Health Education, Safety Education and First aid	Cognitive Level
CO1	Explain the factors influencing health and safety	
CO2	Build the knowledge on hygiene and various health programme	
CO3	Analyze the pollutions, various diseases and find their remedies	
CO4	Assess the mental health, community health and family life education	
CO5	Build and follow the principles of health education and safety measures	

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Methods in Physical Education

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core V- Methods in Physical Education	Cognitive Level
CO1	Learn different methods, technique and strategies of education.	K3
CO2	Prepare and use teaching aids to make teaching more effective	K6
CO3	Analyze and frame the general and specific objectives of lessons	K3
CO4	Understand the methods of evaluation	K2
CO5	Learn the principles and advantages of team teaching.	K3

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

Cos	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Theories of Games – II

(Badminton, Ball Badminton & Tennis)

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Allied - III- Theories of Games - II (Badminton, Ball Badminton & Tennis)	Cognitive Level
CO1	Learn the fundamental skills ,rules and regulation in various games and sports.	K3
CO2	Know to prepare and maintain of various play field and specification	K6
CO3	Learn to adapt team tactics and techniques of various sports.	K3
CO4	Develop valuation of skills and performance of the players.	K5
CO5	learntherulesandregulationsandcurrentinterpretationofnewchangesin the games	K3

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

Cos	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlate

Principles of Sports Training

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Skill Based Core I - Principles of Sports Training	Cognitive Level
CO1	Understand the characteristics of sports training	K4
CO2	Learn The various components of sports training.	K3
CO3	Apply the principles of the training load.	K4
CO4	Learn to plan the training program for different sports.	K3
CO5	Identify the talent, techniques and tactics of training.	K4

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

Cos	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlate

Badminton, Ball Badminton & Tennis

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Badminton, Ball Badminton & Tennis	Cognitive Level
CO1	Develop the understanding and knowledge eregarding the Racket parts , racket grips , shuttle e grips, The basic stances	
CO2	Develop the understanding and knowledge of The basic strokes-serve fore hand over head and under arm ,backhand-over head and underarm	
CO3	Gain knowledge of Drills and lead up games ,Types of games-singles ,doubles ,including mixed doubles	
CO4	Gain knowledge of Rules and their inter pretations and duties of officials	
CO5	Learn the rules and regulations and current inter pretation of new changes in the games	

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

Cos	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlate

Principles of Physical Literacy

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Non Major Elective I - Principles of Physical Literacy	Cognitive Level
CO1	Develop the motivation and ability to understand, communicate, apply and analyse various forms of movement	
CO2	Demonstrate a variety of movements confidently and competently across a wide range of physical activities	
CO3	Make healthy, active choices that are both beneficial to and respectful of their selves, others and environment.	
CO4		
CO5		

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

Cos	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Semester – IV

Organization and Administration in Physical Education

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core VI - Organization and Administration in Physical Education	Cognitive Level
CO1	Learn organization and administration strategies in physical education	K3
CO2	Learn to know various play field in sports and games	K4
CO3	Know the various methods in supervision.	K4
CO4	Learn the efficiency in class management and equipment maintains	K3
CO5	Prepare a good budget with the sources of in come and expenditure	K6

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

Cos	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Teaching Practice

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core Practical IV- Teaching Practice	Cognitive Level
CO1	understand varied responsibilities of a teacher Core	
CO2	understand the concept of teaching styles, methods, & approaches and to blend them judiciously in the teaching	
CO3	understand methods of communication & its effective use in the teaching process	
CO4	understand the importance & steps of planning. General lesson Plan and Particular Lesson Plan.	
CO5		

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlate

Fitness and Wellness

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Non Major Elective II - Fitness and Wellness	Cognitive Level
CO1	Understand the basic knowledge of fitness and wellness.	K2
CO2	demonstrateanawarenessoffactandfictionwithregardtorelationshipsbetweenpeople's health, activity and fitness	K3
CO3	Adapttheconceptofskillandtherangeoftechniquesneededinphysicaltraining.	K2
CO4 4	Learn the need and importance of social wellbeing.	K3
CO5	Demonstrate an understanding of health problems associated with in adequate fitness levels	K2

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

Cos	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Sports Psychology and Sociology

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Skill Based Core II - Sports Psychology and Sociology	Cognitive Level
CO1	Understand the basic knowledge of sports psychology.	K2
CO2	Learn the principles of motivation and theories of learning	K3
CO3	Understand the psychological factors important of sports performance	K2
CO4	Learn the need and importance of social wellbeing.	K3
CO5	Understand the game knowledge the role of media in sports	K2

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Sports Biomechanics and Kinesiology

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Allied IV - Sports Biomechanics and Kinesiology	Cognitive Level
CO1	Know the need of kinesiology in sports training	K1
CO2	Understand the mechanism of joints and muscles movements of the	K2
CO3	Understand the need of biomechanics prevention of injuries in	K4
CO4	Learn the concepts of mechanical principles and its field	K3
CO5	Understand the application of mechanical principles in sports	K4

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Exercise Physiology

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core VII - Exercise Physiology	Cognitive Level
CO1	find the functional changes in human body	K1
CO2	develop the physiological fitness of sports persons.	K2
CO3	analyze the effects of exercise on various systems of human body	K4
CO4	compare the functions of human body before and after exercise	K3
CO5	design the physiological concepts of physical fitness.	K4

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Semester – V

Test, Measurement and Evaluation in physical education and sports

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core VIII - Test, Measurement and Evaluation in Physical Education and Sports	Cognitive Level
CO1	Know the importance of test ,measurement and evaluation in physical education	K1
CO2	Learn to conduct the tests on motor fitness components	K3
CO3	Learn to conduct the tests on physical fitness components.	K3
CO4	Learn to conduct the tests on anthropometric, aerobic and anaerobic	K3
CO5	Learn to conduct the tests on various skill tests on different games.	K3

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Theories of Track and Field

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core IX - Theories of Track and Field	Cognitive Level
CO1	Find the rules and regulation of track and field events	K1
CO2	apply the fundamental techniques of track and field events in physical Education and sports	K3
CO3	distinguish the outstanding players from beginners	K3
CO4	Judge the performance of athletes	K3
CO5	adapt with the new trend sin track and field events	K3

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M

	1	2	3	4	5	6	1	2	3	4	5	6
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Principles of Motor Development

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core Elective I - Principles of Motor Development	Cognitive Level
CO1	Define motor learning and its relationship to other related disciplines	K1
CO2	Define motor control, motor development, motor behaviors, and motor performance	K3
CO3	Understand how learned motor learning principles can be applied to various professions such as physical education, exercise and sports science, sports coaching, physical therapy, the military, police and special forces, ballet and other dance forms, recreational activities, etc.	K3
CO4	Understand the importance of using new technology or training methods for the enhancement of the motor learning process	K3
CO5	Understand the factors contributing to motor learning performance	K3

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Adapted Physical Education

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core Elective I –Adapted Physical Education	Cognitive Level
CO 1	develop the understanding and knowledge about definition of disabling conditions, Physical Education for persons with disabilities, Benefits of Physical Education for students with disabilities, Recreational sports opportunities ,Competition opportunities :Special Olympics, Paralympics	K1
CO 2	Learn the basic concepts of Physical disabilities ,Mental retardation, Visual impairment, Hearing impairment, Behavioral disorders,Characteristicsandfunctionallimitationsoftheabovedisabilities	K3
CO 3	gain knowledge of the Guiding principles of adapted PhysicalEducationprogramme(AAHPERprinciple),Communicationwithparents,Parental involvement, Parent teacher association, Unified sports, Facilities and equipment for recreation and sport activities	K3
CO 4	gain knowledge of the Importance of adapted programme inRehabilitation,Functionalrehabilitation,Psychologicalrehabilitation,Governmentalwelfar programme	K3
CO 5		K3

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSO

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Track and Field Events

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core Practical V - Track and Field Events	Cognitive Level
CO 1	develop the understanding and knowledge regarding the Running Event :Running technique and starting techniques :running ABC,Standingstart,Crouchstartanditsvariations,Properuseofblocks,Finishingtechniques: Run Through ,Forward lunging, Shoulder Shrug.	K1
CO 2	O 2 develop the understanding and knowledge of Track & FieldMarking(400meter&200metertrackmarking,placementofhurdlesfor),RulesandOfficiating	K3
CO 3	gain knowledge of Hurdles: Fundamental Skills-Starting, ClearanceandLandingTechniques,TypesofHurdles,HighandLowHurdlesTechnique,GroundMarkingand Officiating	K3
CO 4	Gain knowledge of Relays :Fundamental Skills ,Various patterns of Baton Exchange, Understanding of Relay Zones, Ground Marking, Interpretation of Rules and Officiating	K3
CO 5		

Remember (K1); Understand (K2); Apply (K3; Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlate

Measurement and Evaluation in Human Performance

Course Outcomes

On completion of the course, the students will be able to

CO. No.	. Core Practical VI - Measurement and Evaluation in Human Performance	Cognitive Level
CO1	relate the different types of tests and measurement in physical education	K1
CO2	Identify the sports performance using different sports skill tests	K3
CO3	Compare and contrast the results of different test measurements	K3
CO4	determine the value of sports skill tests	K3
CO5	Improve and modify the existing skill test using computer application	

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlate

Semester – VI

Athletic Care, Sports Injuries and Rehabilitation

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core X - Athletic Care, Sports Injuries and Rehabilitation	Cognitive Level
CO1	relate the different types of tests and measurement in physical education	K1
CO2	Identify the sports performance using different sports skill tests	K3
CO3	Compare and contrast the results of different test measurements	K3
CO4	determine the value of sports skill tests	K3
CO5	Improve and modify the existing skill test using computer application	

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSO

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Theory of Games – III (Basketball, Football, Hockey, Cricket, Volleyball)

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core XI - Theory of Games – III (Basketball, Football, Hockey, Cricket, Volleyball	Cognitive Level
CO1	Know the fundamental of all the games and sports	K2
CO2	Understand the rules of all the games and sports	K3
CO3	Preparing the students for the competition	K3
CO4	Classify the students accordingly for various games ands ports.	K3
CO5	Design and practice the new methods of technique and training	K3

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlate

Elementary Statistics in Physical Education

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core XII - Elementary Statistics in Physical Education	Cognitive Level
CO1	Understand the importance of statistics in physical education.	K4
CO2	Understand and apply the statistics in research.	K4
CO3	Understand and apply the basics of statistics in research	K2
CO4	Learn the basic and advanced statistics.	K3
CO5	Know the graphical representation of statistics	K2

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSO

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Sports Nutrition

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core Elective II - Sports Nutrition	Cognitive Level
CO1	Understand the role of nutrition and weight management on sports	K2
CO2	Learn the importance of carbohydrates, fat and protein during	K3
CO3	Learn the health risks and solutions for over coming obesity	K3
CO4	Know to design diet plan for weight gain and weight loss.	K4
CO5	Understand the role of physical activity in weight management	K4

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSO

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Sports Journalism

Course Outcomes

On completion of the course, the students will be able to

CO. No.	Core Elective II - Sports Journalism	Cognitive Level
CO1	Identify the scope of journalism and in particular sports journalism and discover the open and hidden power structures/ opportunities in sports journalism	K2
CO2	Criticize the scams, ethics and in culcate professionalism. Use the theoretical knowledge as a sports journalist and get news-sources of news and write in a nunbiased ,factual manner	K3
CO3	Apply these concepts and techniques to sports communications: reporting, research,writingnews,matchreports,scriptsandpressreleases,interviewing, feature writing ,live porting etc	K3
CO4	Understand and demonstrate the ability to communicate effectively and persuasively to develop professional relationships with sports bodies, coaches, players and other journalists thus gets proficiency to work in various professional settings and diverse groups and organizations	K4
CO5	Develop an appreciation of how sport journalism can promo te equity and social justice at the global, national, regional, state and lo call evels	K4

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSO

COs	Pos						PSOs					
	1	2	3	4	5	6	1	2	3	4	5	6
1	H	L	M	M	L	H	L	M	H	H	L	M
2	H	L	M	M	H	H	L	M	H	H	L	M
3	H	L	M	L	M	H	L	M	H	H	L	M
4	H	L	M	H	L	H	L	M	H	H	L	M
5	H	L	M	H	H	H	L	M	H	H	L	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlated (L)

Games of Specialization (Basketball,Football, Hockey, Cricket, Volleyball)

On completion of the course, the students will be able to

CO. No.	Core Practical VII - Games of Specialization (Basketball, Football, Hockey, Cricket, Volleyball)	Cognitive Level
CO1	Understand the criteria for participation in District ,State ,National and International competitions	K2
CO2	Learn the mechanical principles of various drills of sports and	K3
CO3	Learn the training methods to develop the team tactics and strategies	K3
CO4	Learn to prepare profiles for players with respect to the sports and	K3
CO5	Learn to layout and maintain various playfield	K3

Remember (K1); Understand (K2); Apply (K3); Analyze (K4); Evaluate (K5); Create (K6)

Mapping COs with Pos and PSOs

COs	Pos	PSOs

	1	2	3	4	5	6	1	2	3	4	5	6
1	H	M	M	M	L	H	L	M	H	M	H	L
2	H	M	M	M	H	H	M	H	H	M	H	L
3	H	M	L	L	M	L	M	H	H	M	H	L
4	H	M	L	L	H	L	M	M	H	M	H	L
5	H	M	L	L	H	L	L	M	H	M	H	M

Highly Correlated (H); Moderately Correlated (M); Weakly Correlate

NANJIL CATHOLIC COLLEGE OF ARTS AND SCIENCE

KALIYAKKAVILAI

DEPARTMENT OF BUSINESS ADMINISTRATION

PROGRAMME OUTCOME

Academic Year (2022-2023)

BBA

Programme Outcomes (POs):

1. To impart knowledge of the foundations of management theory and its application in managerial decision making.

2. Select and apply appropriate tools required for solving complex managerial problems.

3. To develop capabilities in students to independently conduct theoretical as well as applied research.

4. To develop sound knowledge of the entrepreneurial process and inculcate creativity and innovation among students.

5. To produce industry ready graduates have highest regard for Personal & Institutional Integrity, Social Responsibility, Teamwork and Continuous Learning.

Programme Specific Objectives (PSOs):

On successfully completing the program the student will be able to:

1. To provide adequate basic understanding about Management Education

2. Provide strong analytical and critical thinking foundation enabling problem solving skills in the various disciplines of management.

3. To prepare students to exploit opportunities being newly created in the Management Profession.

4. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

5. Strengthen the ability to learn continuously to adapt to the dynamic challenges of the business world and lead business with conscience- moral, ethical and environmental values.

PRINCIPLES OF MANAGEMENT

Course Outcomes:

1. Develop an understanding of the functions of management and contributions made by management theorists to the field of scientific and modern management.

2. Demonstrate critical thinking when presented with managerial problems and express their views and opinions on managerial issues by applying the concepts of planning and decision making

3. Identify the factors influencing the design of organizational structure and the right span of control for effective functioning of an organization.

4. Identify and incorporate best staffing practices and apply principles of directing for hiring and managing employees.

5. Control and coordinate the work force in a systematic approach

BUSINESS STATISTICS

Course Outcomes:
1. Apply descriptive statistics in effective business decision making
2. Ascertain cause and effect relationship between business factors and predict direction of business
3. Analyse time series data to identify trend and seasonal variations to forecast and take business decisions
4. Construct and compare index numbers to analyse business and economic activities
5. Utilize statistical analysis in business projects to arrive at solutions

MANAGERIAL ECONOMICS

COURSE OUTCOMES:
1. Exhibit the role of a manager by making strategic business decisions considering economic environment.
2. Utilize the concept of demand, elasticity of demand to identify the determinants of demand and forecast demand.
3. Assess technically the possible ways of increasing the level of production.
4. Develop knowledge on different market structures and make the price and output decisions.
5. Develop an understanding of the role of government and taxes in controlling inflation and deflation.

BUSINESS MATHEMATICS

Course Outcomes:
1. Apply the concept of geometry in the field of business
2. Draw and use Venn diagrams to solve real problems in business.
3. Use derivatives in marginal analysis
4. Application of differential calculus to find the maxima and minima of a function.
5. Perform elementary matrix operation and use matrices in business decision making.

FINANCIAL ACCOUNTING

COURSE OUTCOMES:
1. Apply accounting concepts and accounting standards in practical situations
2. To be familiar with the rules governing accounting transactions.
3. Prepare Final accounts to ascertain profit or loss of the business and its financial position
4. Critically analyze financial statements of the enterprise , vertically and horizontally for business decision making
5. Identify the methods of calculating depreciation charges.

ORGANIZATIONAL BEHAVIOR

COURSE OUTCOMES:
1. Apply theories and concepts of organisational behaviour in workplace to create an effective organisational environment
2. Analyze workplace behaviours from theoretical perspective of ability, learning, attitude and values
3. Determine the influence of perception, personality and emotions on workplace behaviour in order to exhibit positive behaviour and to create solutions in a challenging context
4. Create a conducive environment to facilitate group functioning, articulate conflict management competencies in managing and resolving conflicts
5. Identify forces of change and manage a planned organizational change

BUSINESS ENVIRONMENT

COURSE OUTCOMES:
1. Develop knowledge on various factors influencing Business Environment
2. Describe the nature and structure of economy
3. Recognise the social responsibilities of business
4. Identify Political and demographic Environment factors of Business
5. Understand the impact of technological and natural environmental factors on business

BANKING AND INSURANCE

COURSE OUTCOMES:
1. Understand the concept of Indian banking system and its recent trends
2. Understand the functioning of Reserve Bank of India and overall working of commercial bank of India.
3. Utilize effectively the recent trends in banking to run business successfully.
4. Understand various principles, provisions that govern the Life General Insurance Contracts understand various principles, provisions that govern the Life General Insurance Contracts
5. Distinguish between life insurance and general insurance

BUSINESS LAW

COURSEOUTCOMES:
1. Understand the meaning and nature of contract and various essentials of contract.
2. Understand Discharge of contract and remedies for breach of contract
3. Analyze and differentiate between bailment, Pledge and Agency.
4. Understand the idea of sale, distinguish sale and agreement to sell and can explain conditions and warranties

5. Interpret critical issues of partnership business and can recognize rights and duties of partners.

COMPUTER APPLICATIONS IN BUSINESS – I

COURSE OUTCOMES:
1. Apply word basic commands, editing and proofing tools, creating tables, changing layout and mail merge concept for creating and managing business documents and effective communication
2. Handle business data by applying the in- built features of excel
3. Apply financial and statistical function of excel for financial forecast, project analysis and analysis of business data
4. Create a new presentation, modify presentation themes and add or edit text to slides
5. Design a simple data base, build a new data base with related tables and manage the data in a table

COST ACCOUNTING

COURSE OUTCOMES:
1. Prepare cost sheet to ascertain total cost and cost/ unit in order to prepare quotation
2. To differentiate methods of calculating material consumption
3. Apply various labor control Techniques for cost reduction and smooth functioning of business.
4. Explain meaning of Overheads. Classify, Allocate, Apportion and Reapportion various overheads to calculate cost.
5. Apply costing methods and costing techniques appropriately

MARKETING MANAGEMENT

COURSE OUTCOMES:
1. Identify the marketing functions, environment and segmentation for effective positioning of the products.
2. Assess the factors influencing consumer behavior and apply recent marketing trends in business
3. Develop new products and services that are consistent with evolving marketing needs.
4. Formulate effective pricing policy and select an appropriate channel of distribution
5. Summarize the nature and functions of the elements of Promotion mix

HUMAN RESOURCE MANAGEMENT

COURSE OUTCOMES:
1. Develop an understanding of the human resource functions and environment to manage human resource effectively.
2. Identify the human recourse requirement and select suitable work force.
3. Evaluate the performance of human resource and develop suitable training, development and career planning programs
4. Frame sound compensation policy for high employee retention
5. Develop an effective grievance handling procedure

PRODUCTION AND OPERATIONS MANAGEMENT

COURSE OUTCOMES:
1. Develop an understanding of the role of production manager and also select a suitable production system.
2. Analyse and decide a good location for the plant and its layout.
3. Demonstrate efficient planning and control of production activities
4. Analyze and apply skills in operations function to improve plant maintenance.
5. Develop strategies to ensure high quality products are manufactured and distributed.

CORPORATE LAW

COURSEOUTCOMES:
1. Understand the meaning and nature of company
2. Discuss the procedure of formation of companies
3. Understand various important documents of company
4. Understand the concept of GST
5. Analyze the collection procedure of GST.

COMPUTER APPLICATIONS IN BUSINESS-II

Course Outcomes:
1. To help students to work with well- known accounting software i.e. Tally ERP.9.
2. Students will learn to create company, enter accounting voucher entries including advance voucher entries
3. Demonstrate an understanding of various predefined inventory vouchers to suit the various business requirements and flexibility to create unlimited stock items.
4. Demonstrate an understanding of how to maintain a payroll register.
5. To prepare Accounting, Payroll, Billing, Sales and Profit Analysis, Auditing Banking Inventory, Taxation such as GST, VAT, TDS, TCS etc

MANAGEMENT ACCOUNTING

COURSE OUTCOMES:
1. Understand concepts of Management accounting and differentiate between various types of Accounting.
2. Compare common size and comparative financial statements of different periods
3. Discuss importance and limitation of Fund flow and Cash Flow statements and create them for accounting purpose.
4. Apply Standard costing technique for controlling cost.
5. Describe and Analyze relationships between cost, volume and profit for achieving breakeven point and profit maximization.

RESEARCH METHODOLOGY

COURSE OUTCOMES:
1. Gain the Knowledge & understanding of concept / fundamentals for different types of research.
2. Applying relevant research techniques.
3. Evaluating relevant data collection techniques and displaying of data collected
4. Classifying different techniques of sampling.
5. Applying Interpretation and prepare research report.

DIGITAL BUSINESS MANAGEMENT

COURSE OUTCOMES:
1. Identify drivers of digital business
2. Illustrate various approaches and techniques for E-business and management.
3. Develop a thorough understanding of Digital Business Application, Policy Frameworks, Digital Platforms and Market Places.
4. Analysing E-business services
5. Develop skills to formulate digital strategy for Digital Business.

FINANCIAL SERVICES

COURSE OUTCOMES:
1. Understand the functioning of the financial system & Financial services
2. Apply critical, analytical and integrative thinking while understanding the functioning for the Leasing
3. Utilise factoring, forfeiting and leasing services for their enterprises.
4. Assess and make wise investments in mutual funds and also get their credit worthiness evaluated for obtaining borrowings/investments.

5. Develop a critical, analytical and integrative thinking of the role played by the regulators in the smooth functioning of the markets.

RETAIL MANAGEMENT

COURSE OUTCOMES:
1. Clarify the concept and related terms in retailing.
2. Comprehend the ways retailers use marketing tools and techniques to interact with their customers.
3. Understand various formats of retail in the industry.
4. Recognize and understand the operations-oriented policies, methods, and procedures
5. Understand how to create a shopping experience that builds customer

SERVICES MARKETING

COURSE OUTCOMES:
1. Understand the Concept of Services and intangible products
2. Discuss the relevance of the services Industry to Industry
3. Examine the characteristics of the services industry and the modus operandi
4. Analyse the role and relevance of Quality in Services
5. Visualise the strategies in the Services sector.

EFFECTIVE EMPLOYABILITY SKILLS- 1

COURSE OUTCOMES
1. To help students explore their values and career choices through individual skill assessments.
2. To make realistic employment choices and to identify the steps necessary to achieve a goal.
3. To explore and practice basic communication skills
4. To learn skills for discussing and resolving problems on the work site
5. To assess and improve personal grooming

STRATEGIC MANAGEMENT

COURSE OUTCOMES:
1. Understand growing importance of strategies in uncertain business environment.
2. Understand the basic concept of business strategy
3. Identify and evaluate different alternative strategies for effective decision making
4. Analyze strategy implementation alternatives for effective decision making
5. Illustrate the strategic requirements and correlation between business plans with strategic plans

ENTREPRENEURSHIP DEVELOPMENT

COURSE OUTCOMES:
1. List the characteristics of an entrepreneur, entrepreneur as well their role in the economic development of the country
2. Explain the entrepreneurial environmental factors
3. Design business plan
4. Raise funds and avail assistance through various funding and support agencies for their finance
5. Identify the factors influencing rise of small and medium entreprises.

TRAINING AND DEVELOPMENT

COURSE OUTCOMES:
1. To develop an understanding of the evolution of training & development from a tactical to a strategic function.
2. To provide an insight into what motivates adults to learn and the most appropriate methodologies to impart training
3. To understand the concept of training audit & training evaluation
4. To learn how design a training module and execute it
5. To understand the need for and concept of Performance Management

INDUSTRIAL RELATIONS AND LABOUR LAWS

COURSE OUTCOMES:
1. Use concepts in formulation of Business policies & discuss role of a Trade union in an enterprise.
2. Select a suitable grievance redressal model & disciplinary procedure in their enterprise.
3. To understand the enquiry procedures and industrial discipline
4. Plan Pay policies accommodating for EPF & ESI deductions.
5. Apply dispute settlement procedure as laid down by ID Act

EFFECTIVE EMPLOYABILITY SKILLS- II

COURSE OUTCOMES
1. To help students explore their values and career choices through individual skill assessments
2. To make realistic employment choices and to identify the steps necessary to achieve a goal
3. To explore and practice basic communication skills To learn skills for discussing and resolving problems on the work site
4. To assess and improve personal grooming

Head
Department of Business Administration
Nanji Catholic College of Arts & Science
Kaliyakkavilai - 629 153, Tamil Nadu.

Programme outcome

Department of Commerce	
B.Com.	
Program outcome	· After completing this course the students are able to gains the basic knowledge of accounting, commerce and finance. · The curriculum is based to equip the students to face the modern challenges in business. • It helps to create Entrepreneur and executive in different levels.
M.Com.	
Program outcome	· It enhances the employability skill of the students. It offers like banking, financial services, and business industry and government services.

Head
Department of Commerce
Nanjil Catholic College of Arts & Science,
Kaliyakkavilai 629 153, Tamil Nadu

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Courses outcome	
B.COM	
Courses	**Outcomes**
Part I Tamil(Semester I) Poetry	• Knowing the literary creators and works of the time and creating new works.
Grammer	• Understanding the basics of language.
Prose Literature	• Knowing the ancient cultural customs of the classical language.
Short Stories	• Assuming solutions to social problems and issues.
Literary History	• Understanding the Origin and Development of Decimal Types.
Part I Tamil(Semester II) Poetry	• Announcement of devotional norms through religious literature.
Grammer	• Practice writing letters expressing the language structure.
Prose Literature	• Expressing moral thoughts through the texts of justice.
Life History	• Teaching and directing the biographiesof the saints.
Literary History	• Introducing literature created by religions.
Part I Malayalam MalayalaKavitha	• We were able to understand different branches of poetry which deals with numerous social subjects.Poetry helps to build a very deep knowledge about todays social conditions.
GhadyaSahithyam	• The autobiographical study of different famous personalities ,the students were able to generate several good qualities.with the study of BasheersBalyakalasakhi Students were able to understand a lot more abiut cultural practices of our society.
Dhrisya kala sahithyam	• Not only watching ,but by studying about movies students were introduced to a new world were they actually allowed to understand about what they are watching on big screen.with the study of different

	branches of drama students are getting deeper knowledge about it.
Vaarthamadhyamangal(journalisam)	• By the study of jouranalism students were taken to a new path of their career.
Communicative English I	• To enhance the communicative skills of students. • To enrich the knowledge of students in grammar usage. • To simulate real life situations in the classroom to practice real English dialogues and speeches to gain English language fluency. To build up the learners confidence in oral and interpersonal communication
Communicative English II	• Helps to improve practical usage of English Grammar. • To help students overcome their fear and to speak in English in front of their peers and teachers. • To build students self-confidence through various classroom activities
Part II General English	• To develop Vocabulary and Pronunciation. • To understand various styles of writings. • To enhance his or her familiarity and fluency with the language considerably.
Part II General English	• To develop interest in and appreciation of Literature. • To develop confidential communication skill. • To learn different styles of writings, like prose, poetry and fiction. • To understand practical usage of English Grammar.
Professional English I	• To improve the level of understanding of Grammar and also how to use grammar in their comprehensions by using number of practices.
Professional English II	• To improve the level of understanding of Grammar and also how to use different styles of writings, like grammar .
Research Methodology	• To understand the basic concepts of research and its methodologies. • To organize and conduct research in a more appropriate manner.

Income Tax Law & Practice-I	• To understand the basic concepts of income tax • To study the provisions regarding computation of first three heads of income i.e., salary, house property and business income.
Mini Project	• To enable the students to apply their conceptual knowledge in a practical situation. • To learn the act of conducting a study and presenting its findings in the form of a rational report.
Corporate accounting -II	• To know the preparation of liquidators final statement of accounts. • To prepare the final accounts of banking company in a schedule form • To train the students to prepare final accounts under double account system
Management Accounting	• To familiarise the students with the basic management accounting concepts and their applications in managerial decision-making
Industrial law	• To acquaint knowledge on industrial relations framework in our country • To study various rights and benefits available to the workmen under the legislations.
Auditing	• To know the importance of audit in commercial and non-commercial organizations. • To understand the procedures to be followed while auditing the business organizations.
Income Tax Law & Practice -II	• To know the procedure for assessment and types of assessment • To understand the computation of tax liability of individuals
Major Project	• To impart knowledge and develop understanding of research methodology and its applications • To study the methods of data collection and its interpretation to develop analytical skills in generalization of things and concepts

Courses outcome	
M.COM	
Courses	**Outcomes**
Advanced Business Statistics	- Understands basic statistical tools. - Students shall test hypothesis on their own - Understand the underlying concept of P-value. - Learn more about non-parametric tests. - Make the different conditions.
Management Concepts and Organisational Behaviour	- Ability to execute managerial tasks of planning, organizing and controlling. - Understanding of different styles of leadership and its impact on decision making process. - In-depth understanding of emotional labour and different types of emotions. - Ability to analyze challenges and opportunities in the field of organization behavior
Computer Literacy	- Microsoft Office, including Word, PowerPoint, Excel, Access, and Outlook. - Improve Keyboarding & 10-Key techniques. - Efficient Internet Research. - Spelling, Punctuation, and Grammar. - General Office Skills; File Management, Record Filing, Telephone & Email Etiquette.
Modern Marketing Mangment	- Students can identify how consumer behaves differently. - Able to understand how a product passesed from different stages. - Able to understand the difference between trademark and branding. - Able to describe the customer segmentation, target marketing and positioning. - Understand different methods of sale promotion.
Advanced Corporate Accounting	- After the completion of the course, Students will be able to - Know about the companies all accounts. - Get the Knowledge of banking system. - Learn about working format of companies.

	• Understand Mutual funds investments.
Income Tax Law and Practice	• After conclusion of study the students will be able to: • Define the procedure of direct tax assessment. • Able to file IT return on individual basis. • Able to compute total income and define tax complicacies and structure. • Able to understand amendments made from time to time in Finance Act. • Differentiate between direct and indirect tax assessment.
E-Commerce	• After the completion of the course, Students will be able to • Logically observed and experienced the main activities of E-Commerce. • Learned and evaluated about the various components of E-Commerce. • Conceptually learned the concept of online shopping and models of Electronic market. • Thoroughly learned the concepts of instant messaging and Electronic Data Exchange. • Learned about the implementation of HTTP and Secure Electronic transaction
Human Resource Management	• After the completion of the course, Students will be able to • Learn the qualities of human resource manager in an organization. • Analysis the importance of different methods of training given to the employees in organization. • Memorize the difference between on the job training and of the job training. • Learn the participant of industrial relation and recruitment of good industrial relation programme.
Research Methodology	• Able to find out a research problem and carry out research to find a solution to the problem. • Clear idea about sampling design and size is known and thereby able to select the appropriate method of sampling. • The students learns the method of data collection. • Students are able to apply statistical tools in finding out a solution.

	• Learn to analyse the data and interpret.
Banking	• Students successfully completing this course will be able to: • Demonstrate a comprehension of the principles of banking law and its relationship to banks and customers. • Demonstrate an awareness of law and practice in a banking context. • Engage in critical analysis of the practice of banking law from a range of perspectives. • Organize information as it relates to the regulation of banking products and services.
Financial Management	• After Completion of this course the student would be able to- • Use business finance terms and concepts when communicating. • Explain the financial concepts used in making financial management decision. • Use effective communication skills to promote respect and relationship for financial deals. • Utilize information by applying a variety of business and industry software and hardware to major financial function. • Demonstrate a basic understanding of financial management.
Quantitative Techniques for Decision Making	• Find out solution for practical decision making issues using linear programming. • Acquire knowledge to solve business problems using transportation and assignment. • Assist to mange projects using queing theory. • Help to replace asset using quantitative models.
Corporate Legal Frame Work	• Can able to learn the conditions of partnership act. • Critically evaluate conditions and warranties of sale of goods act. • Aware about rights to information. • Can able to use negotiable instrument in practical life.
	• After conclusion of study the students will be able to: • Define various elements internal as well as external

Business Environment	affecting business environment. • Explain the techniques like SWOT analysis. • Define the terms like inflation, GDP, etc. • Define the consequences with regard to BOP. • Explain the economic trends and effect of Govt. policies as LPG.
Retail Management	• Knowledge about retailing practices followed in India. • Ability to understand behavior of Retail shopper. • Basics of Retail Merchandising and Merchandising Planning Process. • Familiar with Merchandise Procurement and Retail pricing issues
Entrepreneurship Development	• Student will able to understand the basic development of entrepreneurship as a profession. • Student will have a basic knowledge of human resource management for small business. • Student will able to identify and implement systems for collecting and analyzing information to monitor the performance of a new firm • Student will able to understand the differences between an entrepreneurial venture and an ongoing business operation. • Student will able to understand the critical roles of marketing research, competitive analysis, consumer-value proposition, and market-entry strategy in the development of a business plan. • Student will able to describe examples of entrepreneurial business and actual practice, both successful and unsuccessful, and explain the role and significance of entrepreneurship as a career, in the firm, and in society. • Student will able to understand the importance and role of ethical, sustainability, innovation and global issues for strategic decision making.
Advanced Cost Accounting	• After conclusion of study the students will be able to: • Define the various components of total cost of a product i.e. direct & indirect cost and fixed & flexible cost. • Determine various levels of material i.e. reorder level, minimum level, maximum level & EOQ for managing

	working capital. • Use methods of time-keeping & time-booking and manage idle & overtime. • Define the features of overhead or indirect cost of production and basis of allocation and apportionment. • Use cost-sheet to compute unit cost of product.
Indirect Taxation	• Students will get an understanding on indirect taxation system in India. • Students will get working knowledge on GST • Students will able to compute GST • Students will prepare and submit returns for GST.
Financial Markets	• Students shall understand the mechanism of financial markets • Students shall acquire knowledge on different securities traded in Stock Exchange • The learners shall apply different valuation techniques to determine share prices. • By the end of the course students shall be able to assess the risk and return associated with financial assets. • Students shall be able to frame an optimal mix of debt and equity financing
Computerised Accounting Package –Tally 9	• After successfully qualifying the practical examination, students will be able to work on the software independently. • Students shall possess required skill needed to become a data operator in companies. • Students shall by their own create company, enter voucher entries, etc., in software.
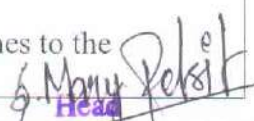
Head
Department of Commerce
Nanjil Catholic College of Arts & Science
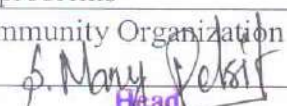
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Department of social work	
MSW	
Programme outcome	• Developing competent and effective specialized clinical social workers who value and respect diversity, anchor economic and social justice as central to their practice, and seek to use their knowledge, values, and skills to improve human well-being.
Programme Specific Outcome	• On successful completion of the programme the students will demonstrate ethical and professional behaviour. • Engage with individuals, families, groups, organizations and communities • Intervene with individuals, families, groups, organizations, and communities • develop mastery over the advance knowledge of Social issues and theories related to social developments • provide guidance and Counselling to the target individual/group/community • To conduct research studies

I Semester	
Courses	**Courses outcomes**
Foundations of Social Work	• Thorough knowledge on the history, philosophy and different Methods of Social Work, fields of Social Work and development of Social Work profession and Social Work education • Understand the context of emergence of social work as a profession • Demonstrate understanding of the various methods and • Settings of practice in which social workers perform their functions. • Appraise the Social Work Education in terms of the theory and the field practicum. • Examine and Familiarize the core values and philosophy of Social work profession and enable them to imbibe these • Analyze the importance of social work profession and other related terms • Critically analyze the social problems
Psychology for Social work practice	• Remember the concepts, scope and nature of psychology as a discipline • Understand evolution of personality across individual life span • Record, describe and identify the various developmental stages of human life • Demonstrate the appropriate milestones to the developmental period

Head
Department of Social Work
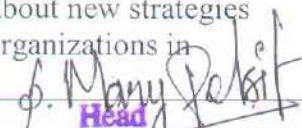Nanjil Catholic College of Arts & Science
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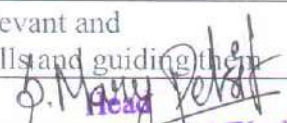|	
	• Analyze the human emotion and perception and its applications • Construct the personality theories into the practice • Formulate estimate and measure the personality using the techniques
Working with individuals	• Remember the knowledge of the principles, methods assumptions and limitations of Social Case Work • Enhance different skills and techniques in practicing the Different process, approaches and methods of social case work in dealing with Individuals' issues and problems. • Examine the various steps in Social Case Work process. • Interpret the Case Work interview and communication Components. • Compare and contrast the various therapies and techniques in working with individuals • Develop appropriate skills and attitudes to work with individuals and families • Appraise the different Social Case Work practice settings
Skill Enhancement Course (Concurrent Field Work – I)	• Rapport building • Communication • Assessment • Observation • Critical thinking • Facilitation (Group discussion) Organize • Developing an action plan Evaluation Documentation
II Semester	
Working with groups	• To understand the concept, methods, Historical development of the practice of group work as a profession and its issues • Demonstrate the process of working with groups. • Assess the roles and skills of social group worker • Discriminate the various skills and roles of group worker • Prepare an understanding on the theories for Social Group Work • Indicate an understanding on the therapeutic interventions in Social Group Work • Estimate the Social Group Work Practice in different Settings • To develop different Skills and Techniques in practicing the different process, Approaches, and Methods of Social Group Work in dealing with individual in group's issues and problems
Working with Community and Social Action	• Acquire basic knowledge on Community Organization and

	- Social Action Methods - Discuss the nature of Community Power structure and Community dynamics. - Understand the Historical development of the Practice of Community Organization and Social Action as a Profession and its Issues/Programmes. - Examine the Models and Methods of Community - Develop different skills and techniques in practicing the different process, approaches, and methods of Community - Organization and Social Action in dealing with communities
Social work research	- Recall and recognize the concepts and scope of Social Work Research and Statistics, Synthesis and evaluate the process of scientific research - Formulate and choose suitable sample methods for the Study. - Analyse the different Process and Methodology of the Scientific Social Work Research. - Develop different Skills and technique in formulating Research, Proposal, Collection, Analysis, Interpretation and Reporting of data pertaining to individuals, groups, communities and Institutions of their Social issues and problems. - Calculate and measure the statistical techniques to make accurate inferences
Skill enhancement Course (Concurrent Fieldwork – II)	- To appreciate the role of social work profession empowering individuals, groups and communities and in facilitating social change, To provide opportunities to accept challenges and respond to them To understand the nature of social work practice in different specializations ensuring human rights and social justice.
Social welfare Administration & Legislations	- To understand the different functions and programmes of different social welfare agencies - To enhance different practical skills and techniques in carrying out specific programme of social welfare agencies
Summer placement	- To develop an understanding of the agency's organizational structure and relevant factors which impact the provision of service to clients. - To develop the ability to work collaboratively with other professionals and the community at large in their role as a professional social worker.
III Semester	
Health and hygiene	- To familiarize on balance diet and communicable diseases - To enhance knowledge on different practical techniques and strategies in application of health and

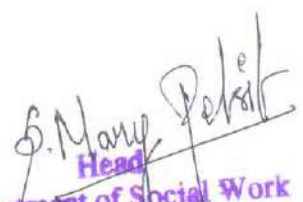|	
	hygiene care
Mental health	• Respond empathically to mental illness and psychological distress in all medical and broader settings.
	• Knowledge regarding different mental illness and its treatment
	• Demonstrate an understanding of mental health legislation and organizational policies and guidelines relevant to mental health practice.
Medical social work	• Facilitating adaptive coping patterns and adjustment to chronic illness or Helping people facing illness, trauma-related crises, or disability
	• To understand and manage the psychosocial impact on their lives and on significant relationships and to make decisions and plan for the future. Inability and assisting with reintegration or adaptation to new environments.
Labour welfare	• To demonstrate the Acts and Regulations regarding the labour welfare schemes.
	• To identify the need of labour welfare with the changed context of economic reform, such as globalization, privatization and liberalization.
Labour legislation 1	• Students will know the development and the judicial setup of Labour Laws.
	• Students will learn the laws relating to Industrial Relations, Social Security and Working conditions and also learn the enquiry procedural and industrial discipline.
Human Resource Management	• Demonstrate a basic understanding of different tools used in forecasting and planning human resource needs recruitment, selection, and retention plans and processes.
	• Contribute to the development, implementation, and evaluation of employee recruitment, selection, and retention plans and processes.
Skill Enhancement Course (Concurrent Field Visit 3)	• To appreciate the role of social work profession empowering individuals, groups and communities and in facilitating social change.
	• To provide opportunities to accept challenges and respond to them.
	• To understand the nature of social work practice in different specializations ensuring human rights and social justice.
Study tour	• To expose to a wide range of government and nongovernment organizations in different parts of the country
	• Enables to acquire information about new strategies and trends practiced in various organizations in relation to different issues.

	• Information about employment opportunities and conditions in various places
IV Semester	
Psychiatric social work	• To understand the therapeutic intervention in psychiatric illness and counselling • To demonstrate skills and intervention techniques for psycho social treatment and rehabilitation of patients
Hospital administration	• To evaluate the culturally diverse healthcare environment. • To analyse the inter professional relationships within a healthcare setting.
Counselling – Theory and Practice	• Realize the significance of counselling • Assess the skills and qualities of a good counsellor • Differentiate between guidance and counselling • Identify and appreciate the various roles of a counsellor • Realize the importance of ethics in the counselling profession
Industrial relations	• Be aware of the present state of Industrial relations in India. • Be acquainted with the concepts, principles and issues connected with trade unions, • collective bargaining, workers participation, grievance redress, and employee discipline
Labour legislations II	• Students will know the development and the judicial setup of Labour Laws. • Students will learn the laws relating to Industrial Relations, Social Security and Working conditions and also learn the enquiry procedural and industrial discipline.
Organizational behaviour	• to identify the processes used in developing communication and resolving conflicts • To identify the various leadership styles and the role of leaders in a decision making process.
Skill Enhancement Course (Concurrent Field Visit 3)	• To appreciate the role of social work profession empowering individuals, groups and communities and in facilitating social change • To provide opportunities to accept challenges and respond to them. • To understand the nature of social work practice in different specializations ensuring human rights and social justice.
Research Project	• Identify and demonstrate appropriate research methodologies and know when to use them. • To conduct indepth study on any social problems, and areas of specialization.
Block placement	• Equipping the students with relevant and conceptualized professional skills and guiding their

	towards a bright future. • Provide an appropriate, positive working environment which is conducive to learning and provides opportunities for identifying good practice;