SYLLABUS

MANONMANIAM SUNDARANAR UNIVERISTY, TIRUNELVELI-12

UGCOURSES-AFFILIATEDCOLLEGES

B.Sc. Mathematics

(Choice Based Credit System) (with effect from the academicyear2021-2022 onwards)

Semester-I								
Part	Subject Status	Subject Title	Subject Code	Credit				
Ι	Language	Tamil / Other Languages	C1TL11	4				
II	Language	Communicative English	C2EN11	4				
III	Core-I Paper- I	Calculus and Classical Algebra	CMMA11	4				
	Add on major (Mandatory) Paper-II	Professional English for Physical Sciences – I	CPPS11	4				
	Allied	Allied Physics Paper-1	CAPH11	3				
	Practical	Allied Practical-I	CAPHP1	2				
IV	Common	Environmental Studies	CEVS11	2				

Nesamony Memorial Christian College, Marthandam



Total Marks: 100 Internal Exam: 25 marks + External Exam: 75 marks

A. Scheme for internal Assessment:

Maximum marks for written test: 20 marks3 internal tests, each of I hour duration shall be conducted every semester.To the average of the best two written examinations must be added the marks scored in. The assignment for 5 marks.

The break up for internal assessment shall be: Written test- 20 marks; Assignment -5 marks Total - 25 marks

B. Scheme of External Examination

3 hrs. examination at the end of the semester

- A Part : 1 mark question two from each unit
- $B-Part:\ 5$ marks question one from each unit
- C Part: 8 marks question one from each unit

> Conversion of Marks into Grade Points and Letter Grades

S.No	Marks	Letter Grade	Grade point (GP)	Performance
1	90-100	0	10	Outstanding
2	80-89	A+	9	Excellent
3	70-79	А	8	Very Good
4	60-69	B+	7	Good
5	50-59	В	6	Above Average
6	40-49	С	5	Pass
7	0-39	RA	-	Reappear
8	0	AA	-	Absent

<u>Cumulative Grade Point Average (CGPA)</u>

$$CGPA = \frac{\Sigma (GP \times C)}{\Sigma C}$$

- **GP** = Grade point, **C** = Credit
- CGPA is calculated only for Part-III courses
- CGPA for a semester is awarded on cumulative basis

Classification

a) First Class with Distinction	: CGPA $\geq 7.5^*$
b) First Class	: CGPA ≥ 6.0
c) Second Class	: CGPA \geq 5.0 and < 6.0
d) Third Class	: CGPA< 5.0



முதலாம் பருவம்

பாடத்திட்டப்பதிப்பு -2021-2022

பகுதி – ஒன்று – பொதுத்தமிழ் - முதல் தாள்

Unit:1

செய்யுள்

தமிழ்த்தாய் வாழ்த்து முதல் நாட்டுப்புறப்பாடல்கள் வரை பல்கலைக்கழக வெளியிடு, அனுசித்ரா பப்ளிகேஷன்ஸ், சென்னை-33. தொலைபேசிஎண் : 044-24743719, Email : <u>anuchitrapublications@gmail.com</u>

Unit:2

இலக்கணம் : எழுத்து இலக்கணம்

- 1. எழுத்தின் விளக்கம்
- 2. எழுத்தின் வகைகள் முதல் எழுத்துக்கள், சார்பு எழுத்துக்கள்
- 3. வினா எழுத்துக்கள், சுட்டெழுத்துக்கள்
- 4. வல்லினம் மிகும் இடங்கள், வல்லினம் மிகா இடங்கள்
- 5. ஒலிப்பு மாறுபாடுகளும் பொருள் வேறுபாடுகளும

Unit:3

உரைநடை

இலக்கியச்சாரல் - தொகுப்பாசிரியா் முனைவா் ச.அருள்மணி பிரிசாட் பப்ளிகேஷன்ஸ் சென்னை – 3

Unit:4

சிறுகதை

நவரத்தினக்கதைகள் - தொகுப்பாசிரியர் முனைவர் சு.நயினார் அறிவுப்பதிப்பகம்(பி)லிட்., சென்னை —14,தொலைபேசி எண் : 044-28482441

Unit:5

இலக்கிய வரலாறு

- 1. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்
- 2. சிறுகதையின் தோற்றமும் வளர்ச்சியும்
- 3. நாவலின் தோற்றமும் வளர்ச்சியும்
- 4. நாடகத்தின் தோற்றமும் வளர்ச்சியும்
- 5. நாட்டுப்புறப்பாடல்களின் தோற்றமும் வளர்ச்சியும்



PART-1 MALAYALAM

For B.Com., BCA, B.Sc. Computer Science, B.Sc. Electronics, BBA and other Job Oriented Courses, Part-1 Language will be in the first two semesters only. In that case they are supposed to study Paper-III & Paper-IV only. Other B.A. & B.Sc. Degree Course Students should study all four papers. Each paper shall divide into five units having one or two poems / prose works / parts / chapters etc for detailed study. In addition to these lessons, the teachers should brief about the Origin and History of the Literary Movements, Disciplines, Theories of Classical and Modern Theatre, Print & Visual Media.

The present Board of Studies in Malayalam is strictly adhered to the directions put forwarded by UGC & TANSCHE Govt. of Tamilnadu. Presently the language learning is closely associated with Print and Visual Media. The learner must be aware about the practicality of the language in the present scenario. That is why in the last semester media literature and art of advertising is included. The new curriculum is designed on par with the Part-1 Malayalam Syllabus of other major Universities in Kerala. The Course Structure is 75% equal in compared with other Universities

OBJECTIVE OF THE STUDY

The study of early days of Malayalam poetry, origin from Pattu movement to contemporary poetry should be introduced. The aim is to develop general knowledge about Malayalam poetry. To Develop ability to appreciate poetry and critical analysis. By understanding the history of poetry and its growth over time, one can understand the various levels associated with poetical studies and criticism.



UNIT - 1

കവിത - പ്രാചീന-മധ്യകാല കവിതകൾ

പാട്ടുപ്രസ്ഥാനം - മണിപ്രവാളഭാഷ - കവിതയിലുണ്ടായ പ്രവണതകൾ ഗാഥാപ്രസ്ഥാനം - കിളിപ്പാട്ട് - സംസ്കൃത സ്വാധീനം - ഭാഷയുടെ വളർച്ച

FOR DETAILED STUDY

1. ചെറ്റശ്ശേരി - കാളിയമർദ്ദനം (കൃഷ്ണഗാഥ) കായ്കളെക്കൊള്ളവാൻ പാഴ്മരമേറീട്ടു... ... ശാപംകൊണ്ടിങ്ങവൻ വാരായിന്നും. 2. എഴുത്തച്ഛൻ - പാർത്ഥസാരഥിവർണ്ണനം (അധ്യാത്മരാമായണം കിളിപ്പാട്ട്) നിറന്ന പീലികൾ നിരക്കവേ കത്തി കുറഞ്ഞൊരു നേരം.

3. പൂന്താനം - ജ്ഞാനപ്പാന സ്ഥാനമാനങ്ങൾ ചൊല്ലിക്കലഹിച്ചു... ... ഭ്രമിക്കുന്നിതൊക്കെയും.

<u>UNIT - 2</u>

കവിത - ആധുനിക കവിത്രയം

കവിതയിലെ ആധുനികത - രചനാപശ്ചാത്തലം - പ്രമേയം - ആഖ്യാനരീതി എന്നിവയിൽ വന്ന മാറ്റങ്ങൾ - പ്രസക്തി

FOR DETAILED STUDY

- 4. കമാരനാശാൻ ചണ്ഡാലഭിക്ഷുകി ഭാഗം രണ്ട് തൂമ തേടും തൻ പാള കിണറ്റിലി-... ...തെല്ലിട സുന്ദരി
- 5. ഉള്ളൂർ കർണ്ണഭ്രഷണം താപസമന്ത്രത്തിൻ തത്വപരീക്ഷയാം... ... പ്രാവിശ്യം മാഴ്ജിടട്ടെ.
- 6. വള്ളത്തോൾ നാരായണമേനോൻ എന്റെ ഭാഷ മിണ്ടിത്തടങ്ങാൻ ശ്രമിക്കുന്ന പിഞ്ചിളം ...

... മിന്നിച്ചു നിൽക്കുന്ന തുമുത്തുകൾ.

UNIT-3

കവിത - ആധുനികപൂർവ്വ-ആധുനികഘട്ടം

ആധുനിക കവിതകളുടെ പ്രോദ്ഘാടനം - പ്രത്യേകതകൾ - കൈകാര്യം ചെയ്ത വിഷയങ്ങൾ - മാനവികത



FOR DETAILED STUDY

7. വൈലോപ്പിള്ളി ശ്രീധരമേനോൻ - ജലസേചനം 8. എൻ. വി. കൃഷ്ണവാരിയർ - എലികൾ

UNIT - 4

ആധുനികഘട്ടം

കവിതയിൽ കൈകാര്യം ചെയ്യുന്ന പ്രമേയം - രൂപഘടന - മാറ്റങ്ങൾ - വിവിധ രീതികൾ

FOR DETAILED STUDY

9. അയ്യപ്പപ്പണിക്കർ - കാടെവിടെ മക്കളേ 10. ബാലചന്ദ്രൻ ചുള്ളിക്കാട് -സന്ദർശനം

<u>UNIT - 5</u>

ആധുനിക-ആധുനികാനന്തരഘട്ടം പ്രസക്തി - സാംസ്കാരിക - സാമ്മഹിക ഇടപെടൽ

FOR DETAILED STUDY

11. വിജയലക്ഷ്മി - കൗസല്യ

12. എ. അയ്യപ്പൻ - അത്താഴം

REFERENCE BOOKS

മലയാള കവിതാസാഹിതൃചരിത്രം - ഡോ. എം. ലീലാവതി വർണ്ണരാജി - ഡോ. എം. ലീലാവതി കൈരളിയുടെ കഥ - പ്രൊഫ. എൻ. കൃഷ്ണപിള്ള തെരഞ്ഞെടുത്ത പ്രബന്ധങ്ങൾ - ഡോ. എം. അച്യൂതൻ നവോത്ഥാനന്തരകവിത - എസ്. രാജശേഖരൻ കടലിൽ തങ്ങിയ കാന്തഭൂമി - ഡോ. ബി. വി. ശശികുമാർ



ഭാവഗീതത്തിന്റെ അടയാളങ്ങൾ മലയാളകവിതയിൽ - ഡോ. ആർ. എസ്. രാജീവ് ഉത്തരകാവൃകാന്തി - പ്രകാശനവിഭാഗം, കേരള സർവ്വകലാശാല കവിതാപഥം - പ്രകാശനവിഭാഗം, കേരള സർവ്വകലാശാല പദ്യസാഹിതി - പ്രകാശനവിഭാഗം, കേരള സർവ്വകലാശാല കാവ്യമാലിക - പ്രകാശനവിഭാഗം, കേരള സർവ്വകലാശാല



PART II ENGLISH

Unit I

- 1. Listening and Speaking
 - a. Introducing self and others
 - b. Listening for specific information
 - c. Pronunciation (without phonetic symbols)
 - i. Essentials of pronunciation
 - ii. American and British
 - iii. pronunciation
- 2. Reading and Writing
 - a. Reading short articles newspaper reports / fact based articles
 - I. Skimming and scanning
 - II. Diction and tone
 - III. Identifying topic sentences
 - b. Reading aloud: Reading an article/report
 - c. Journal (Diary) Writing
- 3. Study Skills 1
 - a. Using dictionaries, encyclopaedias, Thesaurus
- 4. Grammar in Context:
 - Naming and Describing
 - Nouns & Pronouns
 - Adjectives

Unit II

- 1. Listening and Speaking
 - a. Listening with a Purpose
 - b. Effective Listening
 - c. Tonal Variation
 - d. Listening for Information
 - e. Asking for Information
 - f. Giving Information
- 2. Reading and Writing
 - 1. a. Strategies of Reading:
 - Skimming and Scanning
 - b. Types of Reading :
 - Extensive and Intensive Reading
 - c. Reading a prose passage
 - d. Reading a poem
 - e. Reading a short story
 - 2. Paragraphs: Structure and Types
 - a. What is a Paragraph?
 - b. Paragraph structure
 - c. Topic Sentence

Nesamony Memorial Christian College, Marthandam



- d. Unity
- e. Coherence
- f. Connections between Ideas: Using Transitional words and expressions
- g. Types of Paragraphs

3. Study Skills II:

Using the Internet as a Resource

- a. Online search
- b. Know the keyword
- c. Refine your search
- d. Guidelines for using the Resources
- e. e-learning resources of Government of India
- f. Terms to know
- 4. Grammar in Context
 - Involving Action-I
 - a. Verbs
 - b. Concord

Unit III

- 1. Listening and Speaking
 - a. Giving and following instructions
 - b. Asking for and giving directions
 - c. Continuing discussions with connecting ideas
- 2. Reading and writing
 - a. Reading feature articles (from newspapers and magazines)
 - b. Reading to identify point of view and perspective (opinion pieces, editorials etc.)
 - c. Descriptive writing writing a short descriptive essay of two to three paragraphs.
- 3. Grammar in Context:
 - Involving Action II
 - a. Verbals Gerund, Participle, Infinitive
 - b. Modals

Unit IV

- 1. Listening and Speaking
 - a. Giving and responding to opinions
- 2. Reading and writing
 - a. Note taking
 - b. Narrative writing writing narrative essays of two to three paragraphs
- 3. Grammar in Context:

Tense



- a. Present
- b. Past
- c. Future

Unit V

- 1. Listening and Speaking
 - a. Participating in a Group Discussion
- 2. Reading and writing
 - a. Reading diagrammatic information interpretations maps, graphs and pie charts
 - b. Writing short essays using the language of comparison and contrast
- 3. Grammar in Context:

Voice (showing the relationship between Tense and Voice)



CORE – I CALCULUS & CLASSICALALGEBRA

Objectives:

- To explain the curvature and radius of curvature in polar coordination and cartesian coordinates.
- To find the roots of the equation by Various methods.

Course Learning Outcomes: It enables the students to

- get clear idea about the curvature, radius of curvature and centre of curvature.
- understand the concept of finding roots of the equation.

UNIT – 1:

Curvature, Radius of Curvature and Centre of curvature in Cartesian and polar Co- ordinates-Pedal equation–Involute and volute.

UNIT – 2:

Double and Triple Integrals – Changing the order of integration–Jacobians and change of variables.

UNIT – 3:

Beta and Gamma functions – Applications of Beta and Gamma Functions in evaluation of Double and Triple Integrals.

UNIT – 4:

Theory of Equations – Formation of equations –Relation between roots and coefficients –symmetric function of the roots. Sum of the powers of the roots of an equation – Newton's theorem.

UNIT – 5:

Reciprocal equation-Transformation of equations-Descarte's rule of signs.

Text Books:

- 1. NarayananSandT.K.ManickavasagamPillai Calculus VolumeI(2004), VolumeII(2004), S.Viswanathan Printer Pvt. Ltd.
- 2. Manickavasagam Pillai .T.Kand S. Narayanan-Algebra– Viswanathan Publishers and Printers Pvt. Ltd., 2004.



Books for Reference:

- 1. Kandasamy P and K. Thilagavathi -Mathematics for B.Sc., Volume II 2004, S.Chand&Co., New Delhi.
- 2. Kandasamy P and K. Thilagavathi Mathematics for B.Sc., 2004, Volume I and Volume IV, S.Chand & Co., New Delhi.
- 3. Apostol T.M. Calculus, Vol. I (4th edition)JohnWileyandSons,Inc.,Newyork1991.
- 4. Apostol T.M. Calculus, Vol. II (2nd edition)John Wiley and Sons,Inc.,NewYork1969)





Allied –I ALLIED PHYSICS– I

PREAMBLE:

To understand the concept of strength of materials, viscous properties of liquids, heat transformation from one place to another converting heat to do mechanical work and basic properties of light such as interference and diffraction

Unit I:

Elasticity and bending moment

Hooke's law – Elastic moduli – Relation between elastic constants – Work done in stretching a wire–Expression for bending moment-uniform bending-Experiment to determine Young's modulus using pin and microscope-Twisting couple of a wire – Expression for couple per unit twist–Work done in twisting – Experimental determination of rigidity modulus of a wire using Torsion pendulum with theory

Unit II:

Surface tension and Viscosity

Surface tension – Definition– Examples –Molecular interpretation– Expression for excess of pressure inside a synclastic and anticlastic surface-Application to spherical and cylindrical drops and bubbles Viscosity: Coefficient of viscosity – Rate of flow of liquid in a capillary tube (Poisueuille's formula) –Analogy between liquid flow and current flow– Stokes' formula for highly viscous liquid (Dimension method) – Experimental determination of viscosity of highly viscous liquid (stokes' method)

Unit III:

Sound

Simple harmonic motion – Free, damped, forced vibrations and resonance – Composition of two SHMs along a straight line and in perpendicular direction – Melde's string experiment –Determination of frequency of tuning fork (both longitudinal and transverse mode)

Unit IV :

Thermal physics

Mean free path- Expression for mean free path (Zero order approximation) – Transport phenomena – Expression for viscosity and thermal conductivity – Conduction in solids – coefficient of thermal conductivity – Lee's disc method to determine thermal conductivity of a bad conductor –Wiedmann–Franz's law– Convection : Newton's law of cooling – Experimental verification – Radiation : Black body radiation – Distribution of energy in black body spectrum –Important features.



Unit V:

Optics

Interference: Condition for interference-Air wedge-determination of thickness of a thin wire by air wedge method

Diffraction: Fresnel & Fraunhofer diffraction-Plane diffraction grating- theory and experiment to determine wavelength (normal incidence)

Polarization: Double refraction- half wave and quarter wave plate – Production and detection of plane, elliptically and circularly polarized light.

Books for study

1. Optics-Brijlal & Subramanian

- 2. Properties of matter R.Murugesan
- 3. Heat & Thermodynamics D.S.Mathur

Books for Reference

- 1. Heat and thermodynamics –Brijlal & Subramanian, S Chand & Co., New Delhi
- 2. Fundamentals of Optics by Jenkins A Francis and White E Harvey, McG Raw Hill Inc., New Delhi, 1976.
- 3. Elements of Properties of Matter by Mathur D S, Shyamlal CharitableTrustNew Delhi, 1993



Allied Practical – I

ALLIED PRACTICAL - I

(6 experiments compulsory)

- 1. Young's modulus non uniform bending pin and microscope
- 2. Young's modulus uniform bending optic lever and telescope
- 3. Torsional pendulum Rigidity modulus
- 4. Co-efficient of viscosity Stoke's method
- 5. Thermal conductivity of a bad conductor -Lee's disc method.
- 6. Spectrometer–dispersive power
- 7. Spectrometer-grating—normal incidence method.
- 8. Air wedge thickness of a wire



ENVIRONMENTAL STUDIES

PART IV-COMPULSORY PAPER

UNIT I:

THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems:

- a) Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people.
- b) Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
- c) Mineral resources: Use and exploitation, environmental effects.
- d) Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.
- e) Energy resources: Growing energy needs, renewables and non-renewable energy sources, alternate energy sources.
- f) Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.
- g) Role of an individual in conservation of natural resources.
- h) Equitable use of resources for sustainable lifestyles.

UNIT II:

ECOSYSTEMS

- a) Forest Ecosystem
- b) Grassland Ecosystem
- c) Desert ecosystem
- d) Aquatic Ecosystem (Ponds rivers, oceans, estuaries)

Food Chains, Food Webs and Ecological Pyramids Energy flow in the ecosystem

Ecological succession

UNIT III :

BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity. Bio geographical classification of India Values of Biodiversity

Biodiversity at global, national and local levels India as a mega-diversity nation Hot-Spots of biodiversity Threats to biodiversity

Endangered and endemic species of India

Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.



UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-

a) Air Pollution
b) Water Pollution
c) Soil Pollution
d) Marine Pollution
e) Noise Pollution.
f) Thermal Pollution
Solid Waste Management

Disaster Management: Floods, earthquake, cyclone and landslides.

UNI TV:

SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion. Wasteland reclamation Consumerism and Waste products, use and through plastics Environment Protection Act Air (Prevention and Control of Pollution Act Water (Prevention and Control of Pollution) Act Wildlife Protection Act Forest Conservation Act Population Explosion — Family Welfare Programme Human Rights

REFERENCES:

- 1. Vijayalakshmi, G. S., A. G. Murugesan and N. Sukumaran.2006. Basics of Environmental Science, Manonmaniam Sundaranar University Publications, Tirunelveli, pp.160
- 2. Agarwal. K. C.2001.Environmental Biology, Nidi Publications Limited, Bikaner.
- 3. A.K. De.1999. Environmental Chemistry, Wiley Eastern Limited, India.
- 4. Jadhav, H. and Bhosale, V.M. 1995. Environmental Protection and Laws, Himalaya Publishing House, Delhi. pp284.
- 5. Odum, E.P.1971. Fundamentals of Ecology, W.B.Saunders Co., USA.pp.574.

