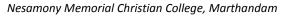MANONMANIAM SUNDARANAR UNIVERISTY,
TIRUNELVELI-12
SYLLABUS
UG - COURSES – AFFILIATED COLLEGES
Course Structure for B. Sc. Maths
(Choice Based Credit System)

(with effect from the academic year 2023-2024 onwards)

		Semester-IV		
Part	**Subject Status**	**Subject Title**	**Subject Code**	**Credit**
I	LANGUAGE	TAMIL/MALAYALAM/HINDI		3
II	ENGLISH	ENGLISH		3
III	CORE	SEQUENCES AND SERIES		4
III	CORE	FOURIER SERIESAND INTEGRAL TRANSFORMS		4
III	ELECTIVE	STATISTICS II		4
IV	SEC 5	GEOGEBRA		2
IV		VALUE BASED EDUCATION		2
IV	NAAN MUDHALVAN	SUBSTITUTE COURSE: OFFICE AUTOMATION		2

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

A. **Scheme for internal Assessment**:
    Maximum marks for written test: **20 marks**
    3 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	O	10	Outstanding
2	80-89	A+	9	Excellent
3	70-79	A	8	Very Good
4	60-69	B+	7	Good
5	50-59	B	6	Above Average
6	40-49	C	5	Pass
7	0-39	RA	-	Reappear
8	0	AA	-	Absent

➢ **Cumulative Grade Point Average (CGPA)**

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

- **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 $\geq$ 6.0
   c) Second Class   : CGPA $\geq$ 5.0 and $<$ 6.0
   d) Third Class   :   CGPA $<$ 5.0

Part 1 TAMIL
பொதுத்தமிழ் 4 - தமிழும் அறிவியலும்

அலகு 1: தமிழரின் அறிவியல் சிந்தனைகள்
1. அறிவியலும் மனித வாழ்வும்
2. ஐந்திணைப் பகுப்பும் சூழலியலும்
3. தொழில்நுட்ப மேலாண்மை
4. நேர் நிலம் மேலாண்மை

அலகு 2: பழந்தமிழ் இலக்கியங்களில் அறிவியல் சிந்தனைகள்
1. நிலவியல்
2. உலோகவியல்
3. வானவியல்
4. உயிரியல்
5. உளவியல்

அலகு 3: இடைக்கால இலக்கியங்களில் அறிவியல் சிந்தனைகள்
1. காப்பியங்களில் அறிவியல்
2. சிற்றிலக்கியங்களில் அறிவியல்
3. உரைநூல்களில் அறிவியல்

அலகு 4: இணையத் தமிழ்
1. இணையத் தமிழ் பயன்பாடு - அறிமுகம்
2. இணையத் தமிழ் கல்விக்கழகம்
3. இணைய நூலகம்
4. செயற்கை நுண்ணறிவியல்
5. தமிழ்நாட்டு அறிவியல் ஆளுமைகள்

அலகு 5: கடிதம் எழுதுதலும் கட்டுரை எழுதுதலும்
1. உறவு முறைக் கடிதப் பயிற்சி
2. அலுவலகக் கடிதப் பயிற்சி
3. விண்ணப்பப் படிவம் எழுதும் பயிற்சி
4. தன் விவரப் படிவம் எழுதும் பயிற்சி
5. கருத்து விளக்கக் கட்டுரைகள் எழுதும் பயிற்சி
6. பத்திரிகைகளுக்குக் கட்டுரை எழுதும் பயிற்சி

Text Books;
1. அறிவியல் தமிழ் இன்றைய நிலை - இராதா செல்லப்பன், உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை
2. மாணவ முஸ்தபா. தமிழில் அறிவியல் படைப்பிலக்கியம், மணவை பூப்பிளிகேஷன், சென்னை.
3. கலைச்சொல்லாக்கம் - மங்கை, ரங்கராசபுரம், சென்னை

Reference Books:
1. தமிழர் மேலாண்மை மரபுகள் - இல). செ. கந்தசாமி
2. சங்க இலக்கியத்தில் வேளாண் சமுதாயம், பொ. மாதையன், நியூ செஞ்சுரி புக் ஹவுஸ்

Websites:
1. https://www.chennailibrary.com/
2. முகப்பு - சிறுகதைகள்
3. www.tamilvirtualuniversity.org
4. Buy tamil books online 10% to 50% discount, Tamil Novels, Tamil Audio Books online – Buy tamil books online – Established 2010
5. www.katuraitamilblogspot.com

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Part I MALAYALAM
DESKTOP PUBLISHING AND PRINTING IN MALAYALAM

UNIT I
This unit introduces basics of the printing technology, History of Malayalam printing-publishing-Newspapers-Journals-Social commitment -Propagation of ideas- Social struggle against invasion product of industrialization-printing in new era- - Data entry, DTP, editing, layout and Book publishing, e-publishing -: Significance of ISBN and ISSN..

UNIT II e -Malayalam – Malayalam in cyber space Detailed Study :
1. Malayalam computing-charithravalokanam.Dr.Mahesh Mangalatt ,Cyber Malayalam Sunitha T.V.(Ed)
2. Vayana, Ezhuthu, prasadhanam digital yugathil Dr.B.Iqbal(Grandhalokam- June 2013)

UNIT III e-Vayana- Reading in digital era Detailed Study :
1. E.vayana innathe Vayana– E-malayalam.Sunitha T.V State Institute of Languages.Thiruvananthapuram
2. Malayalam wiki media samrambhangal.Shiju Alex Cyber Malayalam .Sunitha T.V (Ed).Current Books.
3. Web magazinukal-Ini Vayana E Vayana.V.K Adarsh D C Books

UNIT IV Modern Media
Tools in Cyber space-editing tools
Unicode- Fonts- Drawing Tools, Painting tools. M S Paint- File Types (jpg ,IMG, XMP, Gif, PNG)
Resolution-Layers-Palattes, Greyscale, image, image recognition, Colour space, image transformation- image preview.
Detailed Study:
Unicode – Ini vayana e vayana – V.K Adarsh - D C Books

UNIT V
Proof reading techniques and cataloguing, cover designing, blurb writing
Detailed study:
> Proof thiruthal.Vanijyaparamaya kathidapadukal.G.R.Pilla,
> State Institute of Languages.Thiruvananthapuram

Reading List (Print and Online)
1. https://www.amazon.com/Desktop-publishing-Bittukumar/dp/9350570130
2. Computer parichayavum prayogavum.Dr.Achythsankar S Nair State Institute of languages.Thiruvananthapuram
3. Malayalam computing parimithikalum sadhyathakalum (Combiled.) Dr.Smitha K Nair
4. Sankethika patham-kerala University Publications
5. Computer Gurukulam-DTP ,Kairali Publications Thiruvananthapuram
6. Pusthaka nirmaanam - The state Institute of languages, Thiruvananthapuram
7. Proof reading - The state Institute of languages
8. Printing A to Z - K.J. Sam kutti
9. Ini vayana e vayana- V.K. Adarsh, D.C. books.
10. 1Printing Technology and Compositing- The State institute of Language s . T Thiruvananthapuram
11. Navamadhyamangal Bhaasha sahityam samskaram- Jose K Manuel, N B S
12. Cyber aadhunikata @ Malayalam – Jose K Manuel ,Athma Books
13. Bookstalgia- P.K. Rajasekharan- Mathrubhumi books
14. Pusthakam Untakunnathu- V.K. Haridas, Poorna publications, Kozhikode
15. An Introduction to Book Publishing D,Raghavan
16. Copy Editing- Judith Butcher
17. E Malayalam –Sunitha T.V- The State Institute of Language s

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PART I HINDI
Hindi Bhasha aur Computer

Course Objectives
The Main Objectives of this course are to:
- Knowing about computer in Hindi
- Understanding Technical Hindi
- E-Learning and its aspects
- Hindi application with the Technical tools

Unit I
Computer aur Hindi

- Computer ka Parchay aur Vikas
- Computer mein Hindi ke Vividh Prayog

Unit II
Proudyogiki aur Hindi

- Unicode
- Dewanagari Lipi
- Hindi ki Vibhinna Website – Ek Parichay

Unit III
Computer ke madhyam se Hindi shikshan

- Vibhinna Shikshan Takkini ki
- Sarkari aur gair sarkari sansthao mein prayukt Hindi Bhasha

Unit IV
Vividh Paksh

- Internet par Hindi Bhasha
- Hindi SMS
- Hindi Tankan
- Hindi ke Vibhinna Prayukthi

Unit V
Pratiyogi priksha par aadharit Computer sambandhit prashikshan Karya

- Hindi mein Powerpoint banana
- Hindi mein Google Document thaiyar karna
- Hindi mein Google form taiyar karna
- Vibhinna pratiyogi parikshao ke bare mein suchna pradan karna

Reference Books
1. Social Networking: Naye Samay ka Samvad – Ed. Sanjay Dwivedi
2. Jansanchar aur Maas Culture – Jagdeeshwar
3. Media: Bhumandalikaran aur Samaj – Ed. Sanjay Dwivedi
4. Naye Jamane ki Patrakarita – Sourabh Shukla
5. Patrakarita se Media tak – Manoj Kumar

Related Online Contents (MOOCs, SWAYAM, NPTEL, YouTube, Websites, etc.)
1. https://techshindi.com/%E0%A4%AB%E0%A4%BC%E0%A5%89%E0%A4%A8%E0%A5%8D%E0%A4%9F%E0%A4%95%E0%A5%8D%E0%A4%AF%E0%A4%BE-%E0%A4%B9%E0%A5%88%E0%A4%82-%E0%A4%94%E0%A4%B0-%E0%A4%AF%E0%A5%87-%E0%A4%95%E0%A4%BF%E0%A4%A4%E0%A4%A8/
2. https://www.techyukti.com/2020/12/computer-font-kya-hai.html
3. https://chti.rajbhasha.gov.in/pdf/Chap4HindiShabadSansadhan2ndEditionPart2.pdf

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Part II ENGLISH

UNIT I GOAL SETTING (UNICEF)
Life Story
> 1.1 From Chinese Cinderella – Adeline Yen Mah
> 1.2 Why I Write - George Orwell

Short Essay
> 1.3 On Personal Mastery – Robin Sharma
> 1.4 On the Love of Life – William Hazlitt

UNIT II INTEGRITY
Short Story
> 2.1 The Taxi Driver – K.S. Duggal
> 2.2 Kabuliwala - Rabindranath Tagore
> 2.3 A Retrieved Reformation – O Henry

Extract from a play
> 2.4 The Quality of Mercy (Trial Scene from the Merchant of Venice - Shakespeare)

UNIT III COPING WITH EMOTIONS
Poem
> 3.1 Pride – Dahlia Ravikovitch
> 3.2 Phenomenal Woman – Maya Angelou

Reader's Theatre
> 3.3 The Giant's Wife A Tall Tale of Ireland –William Carleton
> 3.4 The Princess and the God : A Tale of Ancient India

UNIT IV Language Competency Sentences
> 4.1 Simple Sentences
> 4.2 Compound Sentences
> 4.3 Complex Sentences

Direct and Indirect Speech

UNIT V Report Writing
> 5.1 Narrative Report
> 5.2 Newspaper Report

Drafting Speeches
> 5.3 Welcome Address
> 5.4 Vote of Thanks

Text Books (Latest Editions)
1. Oxford Practice Grammar , John Eastwood, Oxford University Press
2. Cambridge Grammar of English , Ronald Carter and Michael McCarthy
3. George Orwell Essays, Penguin Classics

Web Resources
1. http:/www.gradesaver.com/George-orwell-essays/study/summary
2. O' Henry. A Retrieved Reformation.
   https://americanenglish.state.gov/files/ae/resource_files/a-retrieved-reformation.pdf
3. Maya Angelou. Phenomenal Woman.
   https://www.poetryfoundation.org/poems/48985/phenomenal-woman
4. The Quality of Mercy, https://poemana1ysis.com
5. https://www'.oxfordscho1ar1yeditions.coin/disp1ay/10.1093/actrade/9780199235742.book.1/actrade-9780199235742-div1-106-William Hazilitt

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SEQUCNCES AND SERIES

Objectives of the Course

- Identify and characterize sets and functions and Understand, test and analyze the convergence and divergence of sequences, series.

UNIT I: Sequences - Bounded sequences - Monotonic Sequences – Convergent Sequences –Divergent and Oscillating Sequences – The Algebra of limits. (Chapter 3: Sections - 3.1to3.7)

UNIT II: Behaviour of Monotonic Sequences – Some theorem on limits – Subsequences –Limit points – Cauchy sequences. (Chapter 3:Sections - 3.8to3.12)

UNIT III: Series of positive terms: Infinite series – Comparison test. (Chapter 2: Sections -4.1, 4.2)

UNIT IV: Kummer‟s test – Root test – Integral Test. (Chapter 4: Sections -4.3 to4.5)

UNIT V: Series of Arbitrary terms: Alternative series – Absolute convergence – Tests for convergence of series of arbitrary terms. (Chapter 5: Sections - 5.1to5.3)

Recommended Text

1. S. Arumugam, A. Thangapandi Isaac and A. Somasundaram, Sequence and Series, Yes Dee Publications, 2021.

Reference Books

1. Richard R. Goldberg, Methods of Real Analysis: Oxford and IBH Publishing, 2020.
2. Ethan D. Bloch, The Real Numbers and Real Analysis, Springer, 2011.
3. G.M. Fikhtengol‟ts, The Fundamentals of Mathematical Analysis, Vol I. Pergamon Press, New York, 1965.
4. T.M.Apostol, Calculus (Vol.I), John Wiley and Sons (Asia)P. Ltd., 2002.
5. R. G. Bartle and D. R Sherbert, Introduction to Real Analysis, John Wiley and Sons (Asia) P. Ltd., 2000.
6. E.Fischer, Intermediate Real Analysis, Springer Verlag, 1983.
7. K. A. Ross, Elementary Analysis - The Theory of Calculus Series - Undergraduate Texts in Mathematics, Springer Verlag, 2003.

Website and e-Learning Source

1. https://nptel.ac.in

FOURIER SERIES AND INTEGRAL TRANSFORMS

Objectives of the Course

- To study the concept of Fourier Series and to solve problems by making use of it
- To acquire knowledge about Laplace Transform and its inverse and understanding of how Differential Equations can be solved by Laplace Transformation.

UNIT I: Fourier Series–Definition – Fourier coefficients and Fourier series for a given periodic function with period 2π and $2l$, odd and even functions – Convergence of Fourier series. (Book 1 - Chapter 1: Sections - 1.4 to 1.8)

UNIT II: Half range Fourier series – Parseval"s theorem – Root-Mean square value of a function – Harmonic analysis – Complex form of Fourier series. (Book 1 - Chapter 1: Sections - 1.9 to 1.12)

UNIT III: Fourier Transforms – Fourier Integral theorem – Fourier sine and cosine transforms – Properties of Fourier transform – Convolution theorem – Parsavel"s Identity. (Book 1 -Chapter 2: Sections - 2.2 to 2.6))

UNIT IV: Laplace Transforms – Definition – Results – Laplace transform of periodic functions – Some general Theorems – Evaluation of certain integrals. (Book 2 - Chapter 9: Sections -1 to 5)

UNIT V: The Inverse Transform – Results – Solving ordinary differential equations with constant coefficients, simultaneous linear differential equations and differential equations with variable coefficients by Laplace Transform. (Book 2 - Chapter 9: Sections -6 to 10)

Recommended Text

1. T. Veerarajan, Engineering Mathematics, Tata McGraw-Hill, New Delhi, 2001.
2. S. Narayananand T.K. ManicavachagomPillay, Differential equations and its application,S. Viswananthan Printers Pvt. Ltd., 2012.

Reference Books

1. M.K. Venkataraman and Manorama Sridhar, Vector Calculus and Fourier Series, The National Publishing Company, Chennai-1, 2002.
2. J.Ray Hanna, FourierSeries, Transforms and Boundary value Problems, Dover Publications, NewYork,2008.
3. P. R. Mittal, Differential Equations, Fourier and Laplace Transforms, Probability, Margham Publications, Chennai, 2012.
4. S. Arumugam A. Thangapandi Issac, Trigonometry and Fourier Series.

Website and e-Learning Source

1. https://nptel.ac.in

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STATISTICS II

Objectives of the Course
- To introduce the concepts of Random Variables and Distribution of Random Variables.
- To give a good grip on concepts of Mathematical Expectation and Variance.
- To provide a sound knowledge about some Standard Distributions.

UNIT I: Random variables and Distribution functions: Introduction –Distribution functions–Discrete random variable(One dimensional) – Probability mass function and Distribution function– Continuous random variable (one dimensional) – Probability density function – Various measure of central tendency – Continuous distribution function – Problems. (Chapter 5: Sections - 5.1 to 5.4)

UNIT II: Mathematical Expectation: Introduction– Mathematical Expectation– Expected value of function of Random variable – Properties – Variance – Properties – Covariance – Problems. (Chapter 6: Sections - 6.1 to 6.6)

UNIT III: Generating functions and Law of large numbers: Moment Generating functions – Cumulants – Characteristic function – Properties – Problems. (Chapter 7: Sections - 7.1 to 7.4)

UNIT IV: Special Discrete Probability Distributions: Binomial Distribution – Poisson Distribution – Properties and Problems. (Chapter 8: Sections - 8.4, 8.5)

UNIT V: Some Continuous Probability Distributions: Normal distribution – Uniform distribution– Properties and Problems. (Chapter 9: Sections - 9.3, 9.8)

Recommended Text
1. S.C. Gupta S.C. and V. K. Kapoor V.K, Fundamentals of Mathematical Statistics, 12th Edition, Sultan Chand & Sons, New Delhi, 2021.

Reference Books
1. S. C. Gupta andV. K. Kapoor, Elements of Mathematical Statistics, 3rd Edition, Sultan Chand & Sons, New Delhi, 2001.
2. P. R. Vittal, Mathematical Statistics, Margham Publications,
2. Chennai, 2020.
3. S. Arumugam and A. Thangapandi Isaac, Statistics, New Gamma Publication, 2016.

Website and e-Learning Source
1. https://nptel.ac.in

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GEOGEBRA

Objectives of the Course

- To Acquire the knowledge of drawing figures using GeoGebra package

UNIT I: Installation and Introduction of GeoGebra - Drawing versus Geometric Construction. (Chapters: 1 and 2)

UNIT II: Practice Block I – Basic Algebraic Input, Commands and Functions. (Chapters: 3 and 4)

UNIT III: Export of Pictures to the Clipboard – Practice Block II – Inserting Pictures into the Graphics View. (Chapters:5, 6 and 7)

UNIT IV: Inserting Text into the Graphics View – Practice Block III. (Chapters: 8 and 9)

UNIT V: Combining Spreadsheet View & Graphics View - Creating Static Instructional Materials – Creating Dynamic Worksheets. (Chapters: 10, 11 and 12)

Recommended Text

1. Judith and Markus Hohenwarter, Introduction to GeoGebra, 2011.

Reference Books

1. Steve Phelps, An Introduction to GeoGebra, 2011.

Website and e-Learning Source

1. https://nptel.ac.in

VALUE BASED EDUCATION

Unit-I Introduction to Value based Education

    a. Value: meaning and Classification

    b. Value based Education: Meaning, Characteristics, Components and Contents

    c. Value Erosion and Inculcation: Value crises in social life, economic life, and political life - Value inculcation: need and importance - Role of Parents and Teachers in inculcating values

Unit-II Harmony in Being and Living

    a. Harmony of the self (I) with the body: Nurturing of the body- Understanding myself as co-existence of the self and the body- Understanding needs of self

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and needs of the body- Understanding the activities in the self and activities in the body.

b. Harmony in the Family, Society and Nature: Family as a basic unit of human interaction and values in relationships - Affection, care, guidance, reverence, Glory, gratitude, and love – Harmony in society: Justice preservation, Production Work, Exchange Storage Harmony in nature: four orders in nature- The holistic perception of harmony in existence.

Unit III: Social Issues, Social Justice and Human Rights

Social issues – causes and magnitude - alcoholism, drug addiction, poverty, unemployment

Social Justice: Definition and need – factors responsible for social injustice: caste and gender – contributions of social reformers.

Human Rights: Concept and Principles of human rights – human rights and Indian constitution – Rights of Women and children – violence against women

Unit IV: Values and Mass Media

Mass media: Meaning, functions and characteristics – Effects and Influence on youth and children – **Media Power** – socio, cultural and political consequences of mass mediated culture - consumerist culture – Globalization – new media- prospects and challenges – Role of media in value building

Unit V: Ethics

Ethics: Meaning and importance

Social ethics: tolerance, equity, justice for all, sensitivity towards mankind, love for nature and creatures, nationalism-love for nation, pride for nation, Honour to the law, Indian culture and traditions – Civic Sense: Being a good civilian

Professional Ethics: Dedication to work and duty – Commitment to the Profession

References:

1. Allport, G.W., Vermon, P.E., and Lindzey, G. (1970) study of values, Buston: Houghton Mifflin.
2. Central Board of Secondary Education (1997), Value Education: A Handbook for Teachers, Delhi: Central Board of Secondary Education.
3. Delors, J. (1996), Learning: The Treasure within- Report of the International Commission on Education for the Twenty-First Century, Paris: UNESCO.
4. Morris, Charles W. (1956). Varieties of Human Values. Chikago: University of Chicago Press.
5. Shukla, R.P. (2005). Value Education and Human Rights. Sarup& Sons,

New Delhi

6. Satchidananda. M.K. (1991), "Ethics, Education, Indian Unity and Culture" – Delhi, Ajantha Publications

7. Saraswathi. T.S. (Ed) 1999. Culture", Socialisation and Human Development: Theory, Research and Application In India" – New Delhi Sage Publications.

8. Venkataiah. N (Ed) 1998, "Value Education" New Delhi Ph. Publishing Corporation.

9. Chakraborti, Mohit (1997) "Value Education: Changing Perspectives" New Delhi: Kanishka Publications.

Web Resources

1. https://testbook.com/ugc-net-paper-1/value-education