JAYARAJ ANNAPACKIAM COLLEGE FOR WOMEN (AUTONOMOUS)

A Unit of the Sisters of St. Anne of Tiruchirappalli

Accredited with 'A' Grade (3rd Cycle) by NAAC

DST - FIST Supported College Since 2015

(Affiliated to Mother Teresa Women's University, Kodaikanal)

PERIYAKULAM – 625 601, THENI DT.
TAMIL NADU.

B.SC. MATHEMATICS

2017 - 2020

DEPARTMENT OF MATHEMATICS

PROGRAMME OUTCOMES - U.G.

PO. NO	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO
1.	Think critically, evaluate analytically and apply the acquired knowledge of their discipline in related scenario.
2.	Formulate hypothesis, design experiments, use appropriate tools and interpret the results.
3.	Demonstrate the precise understanding of the principles and theories of their discipline through experiments.
4.	Enhance the communicative skills and gain confidence to disseminate knowledge through oral/verbal communications effectively at various situations.
5.	Identify the different roles in an organizational structure of the work place and carry out multiple roles in social responsibilities.
6.	Increase self-awareness, set and pursue meaningful goals, and develop positive personal qualities such as self-esteem, positive attitude, self-discipline and self-motivation.

PROGRAMME SPECIFIC OUTCOMES - U.G.

PSO. NO	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO	PO MAPPED
PSO-1	Perceive the relevance of the subject in various fields such as science, technology, business and industries.	PO-3
PSO-2	Interpret the graphical and numerical data and apply the analytical, theoretical and computational skills to solve problems.	PO-1 PO-2 PO-3
PSO-3	Acquaint with the knowledge on the effects of changing conditions in real life systems to construct mathematical models and excel in various decision making tasks	PO-2 PO-3 PO-4
PSO-4	Understand mathematical ideas and foundations of mathematics to develop proficiency in Mathematics	PO-6
PSO-5	Engage in activities directly benefiting the broader community and acquire job oriented knowledge	PO-3 PO-5 PO-6

U.G. MATHEMATICS COURSE PATTERN (2017- 2020)

Sem.	Part	Code	Subject Title	Hours	Credits
I	I	17GT1GS01/ 17GH1GS01	Tamil – I/ Hindi	5	3
	II	17GE1GSA1/ 17GE1GSB1	English - I	5	3
	III	17MA1MC01	Algebra	6	4
		17MA1MC02	Calculus	5	4
		17PH1AC01	Allied Physics - Theory - I	3	3
		17PH1AP01	Allied Physics - Practical - I	2	1
	IV	17VE1GS01	Value Education	2	2
		17AE1SK01	SBE - I Communication Skills	2	2
Total				**30**	**22**
II	I	17GT2GS02/ 17GH2GS02	Tamil-II/ Hindi	5	3
	II	17GE2GSA2/ 17GE2GSB2	English - II	6	3
	III	17MA2MC03	Analytical Geometry of 3-Dimensions & Trigonometry	6	4
		17MA2MC04	Differential Equations & Vector Calculus	6	4
		17PH2AC02	Allied Physics -Theory - II	3	3
		17PH2AP02	Allied Physics - Practical - II	2	1
	IV	17MA2SK02	SBE - II MATLAB	2	2
Total				**30**	**20**
III	I	17GT3GS03/ 17GH3GS03	Tamil-III/ Hindi	5	3
	II	17GE3GSA3/ 17GE3GSB3	English - III	6	3
	III	17MA3MC05	Fourier Series & Sequences	6	5
		17MA3MC06	Linear programming	4	3
		17MA3AC03	Core Allied - Statistics - I	5	4
	IV	17ES3GS01	Environmental Studies	2	2
		17AE3SK03	SBE - III - Office Automation	2	2
Total				**30**	**22**
IV	I	17GT4GS04/ 17GH4GS04	Tamil-IV/ Hindi	5	4
	II	17GE4GSA4/ 17GE4GSB4	English - IV	6	4
	III	17MA4MC07	Mechanics	8	6
		17MA4AC04	Core Allied - Statistics - II	5	4
		17MA4CE1A/ 17MA4CE1B	Core Elective: Numerical Methods/ Fluid Dynamics	4	3
	IV	17MA4SK04	SBE - IV - Vocational Mathematics	2	2
Total				**30**	**23**

Sem.	Part	Code	Subject Title	Hours	Credits
V	III	17MA5MC08	Modern Algebra	6	5
		17MA5MC09	Modern Analysis	6	5
		17MA5MC10	Graph Theory	6	5
		17MA5MC11	Programming in C - Theory	4	4
		17MA5CP01	Programming in C - Lab	2	1
		17MA5CE2A/ 17MA5CE2B/ 17MA5CE2C/ 17MA5CE2D	Core Elective: Financial Mathematics/ Fuzzy sets and Fuzzy numbers/ Cryptography/ Transforms and Applications of Partial Differential Equations	4	3
	IV	17AE5NE01/ 17NC5NE01	NME - I Aptitude Building - I/ Organization and Health Programme in NCC	2	2
	Total			**30**	**25**
VI	III	17MA6MC12	Linear Algebra	6	5
		17MA6MC13	Complex Analysis	6	5
		17MA6MC14	Operations Research	6	5
		17MA6MC15	Programming in C^{++}- Theory	4	4
		17MA6CP02	Programming in C^{++} - Lab	2	1
		17MA6CE3A/ 17MA6CE3B/ 17MA6CE3C/ 17MA6CE3D	Core Elective: Automata Theory & Formal Languages/Combinatorics / History of Modern Mathematics/ Application of Statistics in Horticulture	4	3
	IV	17AE6NE02/ 17NC6NE02	NME - II Aptitude Building - II/ National Integration and Personality Development	2	2
		17MA6SS01	Self Study Paper: Boolean Algebra	-	2*
			Total	**30**	**25 + 2***
I - IV	V	17NP4GS01	NSS, NCC, P. Ed.	-	1
IV - V	V	17EX5GS01	Extension	-	2
Total				**180**	**140 + 2***

* **Extra credit**

ALLIED COURSES OFFERED BY THE DEPARTMENT

Allied Mathematics - I	17MA1AC01
Allied Mathematics - II	17MA2AC02

SKILL BASED ELECTIVE OFFERED BY THE DEPARTMENT

MATLAB	17MA2SK02
Office Automation	17AE3SK03
Vocational Mathematics	17MA4SK04

CERTIFICATE COURSE OFFERED BY THE DEPARTMENT

Everyday Mathematics	CCMAEM01

B.Sc. MATHEMATICS QUESTION PATTERN (EXTERNAL)

MAXIMUM: 60 MARKS **TIME: 3 HOURS**

PART A	10 questions to be answered Definition / Example / Fill in the blanks / Multiple choice questions Two questions from each unit to be asked	Each carries One mark $10 \times 1 = 10$
PART B	5 questions to be answered Either or type One question from each unit to be asked	Each carries Four marks $5 \times 4 = 20$
PART C	3 questions to be answered out of 5 questions One from each unit to be asked	Each carries Ten marks $3 \times 10 = 30$

ALLIED MATHEMATICS - QUESTION PATTERN (EXTERNAL)

MAXIMUM: 60 MARKS **TIME: 3 HOURS**

PART A	5 questions to be answered out of 8 questions. Atleast one question from each unit to be asked.	Each carries Two marks $5 \times 2 = 10$
PART B	4 questions to be answered out of 6 questions. Atleast one question from each unit to be asked.	Each carries Five marks $4 \times 5 = 20$
PART C	3 questions to be answered out of 5 questions. Atleast one question from each unit to be asked.	Each carries Ten marks $3 \times 10 = 30$

QUESTION PATTERN FOR SBE - IV VOCATIONAL MATHEMATICS (INTERNAL)

MAXIMUM: 30 MARKS **TIME: 2 HOURS**

PART A	4 questions to be answered out of 5 questions.	Each carries One mark $4 \times 1 = 4$
PART B	3 questions to be answered. Either or type.	Each carries Four marks $3 \times 4 = 12$
PART C	2 questions to be answered out of 3 questions.	Each carries Seven marks $2 \times 7 = 14$

TESTING AND EVALUATION (UG)

Evaluation of students is based on both Continuous Internal Assessment (CIA) and the Semester Examination (SE) held at the end of each Semester. The distribution of marks is indicated below

Course	Continuous Internal Assessment	Semester Examination
Theory	40%	60%
Practical	50%	50%
SBE, NME, EVS & VE	100%	--

CONTINUOUS INTERNAL ASSESSMENT (THEORY)

Continuous Assessment will be carried out by the course teachers. The components of CIA are as follows:

Components	Marks
Test - I	30
Test - II	30
Seminar / Quiz	10
Assignment	05
Attendance	05
Total	**80**

The total internal marks obtained for 80 will be converted to 40.

CONTINUOUS INTERNAL ASSESSMENT FOR SKILL BASED ELECTIVE - THEORY

Component	Marks
Test - I	30
Test - II	30
Quiz	10
Assignment	10
Open book test	10
Comprehensive test	10
Total	**100**

CONTINUOUS INTERNAL ASSESSMENT FOR SKILL BASED ELECTIVES - PRACTICAL

Component	Marks
Practical Test - I	30
Practical Test - II	30
Lab Performance	10
Lab Records	10
Quiz	10
Lab Attendance	10
Total	**100**

PART - I Tamil - தற்கால இலக்கியம்

பருவம்: ஒன்று **நேரம்: 5**

குறியீடு: 17GT1GS01 **புள்ளி: 3**

நோக்கம்:

- ❖ தற்கால இலக்கியக் கவிஞர்களைப் பற்றி அறிந்து கொள்வர்.
- ❖ இலக்கிய வரலாற்றை அறிந்து கொள்வர்
- ❖ வாழ்க்கையில் ஏற்படும் துன்பங்களை அகற்றி, வெற்றி பெறும் வழிமுறைகளைத் தெரிந்து கொள்வர்.
- ❖ கட்டுரைகள் வழி பன்முகத் தகவல்களை அறிந்து கொள்வர்.
- ❖ எழுத்து இலக்கணங்களை அறிந்து கொள்வர்.

அலகு 1: மரபுக் கவிதை

1. பாரதியார் - செந்தமிழ் நாடு
2. பாரதிதாசன் - வாழ்வில் உயர்வு கொள்!
3. குவிமணி - ஒற்றுமையே உயிர் நிலை
4. நாமக்கல் கவிஞர் - தேறிய தெளிவு

அலகு 2: புதுக்கவிதை

1. நா.காமராசன் - கடல்
2. வைரமுத்து - நம்பிக்கை ஊன்றி நட
3. சிற்பி - மூல ஒலி
4. கோவை பழநிசாமி - பெண்மையே...

அலகு 3: உரைநடை

1. டாக்டர்.எம்.எஸ். உதயமூர்த்தி - வெற்றிக்கு முதல்படி

அலகு 4: கட்டுரைகள்

1. கண்டேன் கொள்ளிப் பிசாசை-பிலோ இருதயநாத்
2. சுய முன்னேற்றக் கட்டுரை-துளைகளில்லாப் புல்லாங்குழல்-வெ.இறையன்பு
3. அறிவியல் கட்டுரை-மருந்துகளிடம் எச்சரிக்கைமுனைவர் க. பூரணச்சந்திரன் (தொகுப்பாசிரியர்)
4. வரலாற்றுக் கட்டுரை-உழுதொழில் (ந.மு.வேங்கடசாமி நாட்டார்)
5. இலக்கியக் கட்டுரை-பாரதியார் போற்றும் புதுமைப் பெண் (நிர்மலா மோகன்)

அலகு 5: இலக்கணம், இலக்கிய வரலாறு

1. இலக்கணம்: - எழுத்தும், சொல்லும்

   எழுத்து - முதலெழுத்து, சார்பெழுத்து

   சொல் - பெயர்ச்சொல், வினைச்சொல், இடைச்சொல், உரிச்சொல்

2. எம். ஆர். அடைக்கலச்சாமி - இலக்கிய வரலாறு:

(தற்கால இலக்கியம், மரபுக்கவிதை, புதுக்கவிதை, உரைநடை தொடர்பான இலக்கிய வரலாறு)

பாடநூல்கள்:

1. தொகுப்பாசிரியர் கவிஞர் பத்மதேவன் - ‘பாரதியார் கவிதைகள் ‘
காளீஸ்வரி பதிப்பகம் சென்னை - 17
இரண்டாம் பதிப்பு 2009.

2. தொகுப்பு: கீர்த்தி - ‘பாரதிதாசன் கவிதைகள்’
அருணா பப்ளிகேஷன்ஸ் சென்னை
முதல் பதிப்பு -2008.

3. கவிமணி - மலரும் மாலையும்
பூம்புகார் பதிப்பகம்,சென்னை.முதல்
பதிப்பு, 2002.

4. நாமக்கல் கவிஞர் - தமிழன் இதயம் கவிதைகள்’
முல்லை நிலையம்
சென்னை முதல் பதிப்பு - 2000

5. நா.காமராசன் - கருப்பு மலர்கள்,திருமகள் நிலையம்,
வெங்கட நாராயணா சாலை
தி.நகர்,சென்னை - 600 017
முதல் பதிப்பு - ஏப்ரல் - 1971

6. வைரமுத்து கவிதைகள் - ‘திருமகள் நிலையம்’,
16, வெங்கட்நாராயணா சாலை,
சென்னை - 17.
பத்தாம் பதிப்பு - 2009.

7. சிற்பி - சிற்பி கவிதைகள்
நியூ செஞ்சுரி புக் ஹவுஸ்
சென்னை. முதல் பதிப்பு - 2011.

8. கோவை பழநிசாமி - விளக்குகள் எரியாத வீதி
மனோண்மணி பதிப்பகம்,கோவை.
முதல் பதிப்பு - 2006

9. டாக்டர்.எம்.எஸ.உதயமூர்த்தி - வெற்றிக்கு முதல்படி
கங்கை புத்தக நிலையம்
சென்னை - 600041
முதல் பதிப்பு - 1993

10. வெ. இறையன்பு - ‘உள்ளொளிப் பயணம்’
நியூசெஞ்சுரி புக் ஹவுஸ்
சென்னை - 98
மூன்றாம் பதிப்பு - 2007

11. பூரணச்சந்திரன் - அறிவியல் கட்டுரைகள்
அறிவுப் பதிப்பகம்,சென்னை-600014
முதல் பதிப்பு - 2006

12. ந.மு.வேங்கடசாமிநாட்டார் - நாவலர் நாட்டார் தமிழ் உரைகள்
தமிழ் மண் பரிப்பகம், சென்னை-600017
முதல் பதிப்பு - 2007

13. முனைவர். நிர்மலா மோகன் - ‘இலக்கிய மலர்கள்’
மீனாட்சி புத்தக நிலையம், மதுரை - 1
முதல் பதிப்பு - 2004.

14. எம். ஆர். அடைக்கலச்சாமி - ‘இலக்கிய வரலாறு’
ராசி பதிப்பகம், சென்னை - 73.
41ஆம் பதிப்பு - 2011.

LANGUAGE THROUGH LITERATURE- I

STREAM -A

Semester: I **Hours: 5**

Code : 17GE1GSA1 **Credits: 3**

COURSE OUTCOMES:

- Develop and integrate the use of four language skills i.e. Reading, Listening, Speaking and Writing
- Analyze and interpret texts written in English, evaluating and assessing the results in written or oral arguments using appropriate support.
- Develop critical thinking capabilities.
- Become proficient in English for global competency.
- Improve and extend the communication strategies in the language.

UNIT I: PROSE **2hours**

How to be a Doctor - Stephen Leacock

Fifteen Years - R.K.Narayan

UNIT II: POETRY **1 hour**

The Lotus - Toru Dutt

Solitude - Alexander Pope

Mending Wall - Robert Frost

UNIT III: SHORT STORY **1 hour**

The Model Millionaire - Oscar Wilde

Mrs. Packletide's Tiger - Saki

UNIT IV: ONE ACT PLAYS

Monkey's Paws - W.W.Jacobs

UNIT V: COMPOSITION AND GRAMMAR **1 hour**

One Word Substitutes

Foreign Words and Phrases

Jumbled Sentences

Reading Comprehension

Tenses, Articles.

COURSE BOOK:

- 'Limelight-1', SSK Publishers and Distributors, Chennai, 2016
- Savarimuttu,J.S Rohan, and Petricia Alphine Nirmala. *English Grammar and usage –An ideal Companion For Advanced Learners .* Chennai: New Century Book House (P) Ltd, 2016.Print.

LANGUAGE THROUGH LITERATURE - I - 17GE1GSA1

QUESTION PATTERN

STREAM – A

Time: 3 hours		**Marks: 60**
I.	Choose the best answer (from units I & II)	10x1=10
II.	Answer any two of the following in a paragraph of 100 words each (two out of 4 from units I & II)	2x5=10
III.	Answer any two of the following in an essay of 300 words each (two out of 4 from units I, II, III & IV)	2x10=20
IV.	Rearrange the jumbled sentences (from Unit V)	5
V.	Give one word substitutes / foreign words for the following (from Unit V from the prescribed book)	5
VI.	Read the passage and answer the following questions. (from Unit V)	5
VII.	Fill in the blanks with suitable tenses and articles (from Unit V)	5

LANGUAGE THROUGH LITERATURE-I

STREAM – B

Semester: I **Hours: 5**

Code : 17GE1GSB1 **Credits: 3**

COURSE OUTCOMES

- Get exposed to a range of contexts where the language is used to meet a variety of real life communication needs.
- Learn good English to prosper in professional and personal lives
- Become proficient in English for global competency
- Enhance language through a task- based and learner- centric syllabus
- Carry out all the LSRW skills

UNIT I: PROSE 1 hour

Stephen Leacock	-	With the Photographer
Catherine Lim	-	Eggs
M.K.Gandhi	-	Voluntary Poverty

UNIT II: POETRY 1 hour

Alfred Noyes	-	The Highway Man
William Wordsworth	-	The Solitary Reaper
W.B.Yeats	-	The Ballad of Father Gilligan

UNIT III: SHORT STORY 1 hour

Guy de Maupassant	-	Simon's Papa
Lafcadio Hearn	-	The Living God

UNIT IV: COMMUNICATIVE EXPRESSIONS 1 hour

Greeting

Introducing

Seeking Permission

Expressing Gratitude

UNIT V: GRAMMAR & COMPOSITION 1 hour

Parts of speech (P.No. 1to6)

Articles (P.No. 67-71)

Letter Writing (Leave Application & Letter of Complaints)

BOOKS FOR REFERENCE:

- Savarimuttu,J.S Rohan, and Petricia Alphine Nirmala. *English Grammar and usage – An ideal Companion For Advanced Learners .* Chennai: New Century Book House (P) Ltd, 2016. Print.
- G.Radhakrisna Pillai, and K.Rajeevan. *Spoken English forYou.* Chennai: Emerald Publishers, 2012. Print.

LANGUAGE THROUGH LITERATURE – I – 17GE1GSB1

QUESTION PATTERN

Stream – B

Time: 3 hours **Marks : 60**

I.	Choose the best Answer (from units I & II)	10x1=10
II.	Answer any two of the following in a paragraph of 100 words each (two out of four from units I, II & III)	2x5=10
III.	Answer any two of the following in an essay of 300 words each (two out of four from units I, II, & III)	2x10=20
IV.	Matching the expressions. (from unit IV)	5
V.	1. Fill in the blanks. (from unit V -5 marks for identification of Parts of Speech and 5- marks for Articles) 2. Letter writing (from unit V)	10x1=10 5

ALGEBRA

Semester: I **Hours: 6**

Code : 17MA1MC01 **Credits: 4**

COURSE OUTCOMES:

- Understand different concepts and applications of Binomial theorem.
- Identify the series which can be summed up using the logarithmic series.
- Find relation between roots and coefficients of an equation.
- Promote mathematical ability in theory of equations.
- Acquire knowledge to get numerical solution using Horner's and Newton's methods.

UNIT I

Binominal theorem for a rational Index - Some important particular cases of the Binomial expansion - sign of terms in Binomial expansion - numerically greatest term - expansion using partial fractions - Application of the Binomial theorem to the summation of series - Approximate values. **(18 Hours)**

UNIT II

Exponential & Logarithmic series - exponential limit - 'e' is an incommensurable number - the Exponential theorem - Summation. **(18 Hours)**

UNIT III

The Logarithmic Series - Modification of the logarithmic Series - Euler's constant - series which can be summed up by the logarithmic series - calculation of logarithms by means of the logarithmic series - the application of exponential and logarithmic series to limits and approximations. **(18 Hours)**

UNIT IV

Theory of Equations: Remainder theorem - Fundamental theorem of Algebra - relation between roots and coefficients - symmetric function of the roots - sum of the powers of the roots of an equation - Newton's theorem on sum of powers of roots. **(18 Hours)**

UNIT V

Transformation of equations - roots with signs changed - roots multiplied by a given number - reciprocal roots - Reciprocal equations - Standard form of reciprocal equations - To increase or decrease the roots of a given equation by a given quantity - Form of the quotient and remainder when a polynomial is divided by a binomial-Removal of terms - Numerical solution by Horner's method and Newton's method. **(18 Hours)**

COURSE BOOK:

T. K. Manickavasagom Pillay, T. Natarajan & K. S. Ganapathy, Algebra, Volume - I, S. Viswanathan (Printers & Publishers) Pvt. Ltd., 2012.

Unit I	:	Chapter 3: Sections 5, 6, 7, 8, 9, 10 & 14
Unit II	:	Chapter 4: Sections 1 to 4
Unit III	:	Chapter 4: Sections 5 to 11
Unit IV	:	Chapter 6: Sections 1 to 14
Unit V	:	Chapter 6: Sections 15 to 19 & 30

CALCULUS

Semester: I **Hours : 5**

Code : 17MA1MC02 **Credits: 4**

COURSE OUTCOMES:

- Understand the fundamentals of differential calculus.
- Identify the meaning of curvature and evolute.
- Evaluate the double and triple integral
- Compute and apply Jacobian transformation.
- Identify multiple points of given curves and species of double points, cusp and node.
- Trace the curve using special points .

UNIT I

n^{th} derivative of some standard functions - Leibnitz theorem - Pedal Equation of a curve - length of the perpendicular from the pole to the tangent at P(r, θ).

(15 Hours)

UNIT II

Curvature - The length of an arc and its derivatives - Radius of curvature in different forms - Evolutes - Centre and circle of curvature - Co-ordinates of the centre of curvature. **(15 Hours)**

UNIT III

Jacobians - Multiple points - Asymptotes - Curve tracing - Tracing of curves f(x, y) = 0(cartesian co-ordinates) - tracing a curve f(r, θ) = 0(polar co-ordinates) - tracing a curve x = f (t), y = g (t) (parametric equations). **(15 Hours)**

UNIT IV

Double integrals - Evaluation of double integrals - Changing the order of integration. **(15 Hours)**

UNIT V

Triple Integrals - Change of variables in double and triple integrals. **(15 Hours)**

COURSE BOOK:

Arumugam and Isaac, Calculus (Differential and Integral Calculus), New Gamma Publishing House, 2005.

PART - I:

Unit I : Chapter 2: Sections 2.12, 2.13 & Chapter 3: Section 3.3

Unit II : Chapter 3: Sections 3.4 & 3.5

Unit III : Chapter 3: Sections 3.9, 3.10, 3.11 & 3.12

PART - II:

Unit IV : Chapter 3: Sections 3.1 & 3.2

Unit V : Chapter 3: Sections 3.3 & 3.4

ALLIED PHYSICS THEORY -I

MECHANICS, PROPERTIES OF MATTER AND THERMAL PHYSICS

Semester: I **Hours: 3**

Code : 17PH1AC01 **Credits: 3**

COURSE OUTCOMES:

- Explain fundamental laws of gravity and determine 'g'.
- Describe the types of elastic moduli.
- Discuss the concepts of viscosity and surface tension through experiments.
- Analyze the concepts of conduction, convection, radiation and their applications.
- Apply Laws of Thermodynamics and concepts of entropy to heat engines.

UNIT I: GRAVITATION

Kepler's law of planetary motion -Law of gravitation -Boy's method -Compound Pendulum-Expression for period -Experiment to find g -Variation of g with altitude, latitude & depth-Artificial satellites **(9 Hours)**

UNIT II: ELASTICITY

Elastic modulus- Poisson's ratio - Beams Determination of Young's modulus by uniform bending - I section girders - Torsion- Expression for couple per unit twist - Work done per unit twist - Torsion pendulum. **(9 Hours)**

UNIT III: VISCOSITY AND SURFACE TENSION

Derivation of Poiseuille's Formula - Poiseuille's method for determining coefficient of viscosity of a liquid - Equation of continuity - Bernoulli's Theorem - Applications of Bernoulli's Theorem - Venturimeter - Pitot Tube - Definition and unit of surface tension - Explanation of surface tension on kinetic theory - forms of liquid drops - angle of contact - Jaeger's method - drop - weight method of determining the surface tension of a liquid. **(9 Hours)**

UNIT IV: CONDUCTION, CONVECTION & RADIATION

Lee's disc method - Analogy of heat flow & current flow - Weidemann - Franz Law - Convection in atmosphere - Lapse rate - stability of atmosphere - Stefan's law - Determination of Stefan's constant - Solar constant - Measurement - Water flow Pyrheliometer - Temperature of the sun- Solar spectrum - Planck's constant with derivation- derivation of Wein's law & Rayleigh Jeans Law from Planck's Law.

(9 Hours)

UNIT V: THERMODYNAMICS

Heat Engine- Expression for the efficiency of a carnot's Engine-Efficiency - Carnot's theorem (statement only) -II Law of Thermodynamics - Entropy - Change of entropy on Carnot's cycle - Change of entropy when ice is converted to steam.

(9 Hours)

BOOKS FOR STUDY:

1. R.Murugeshan - Mechanics, properties of matter and sound - S.Chand Publication - 2006.
2. R.Murugeshan - Thermal Physics - S.Chand Publication - 2007.

DETAILED REFERENCE:

R. Murugeshan - Mechanics Properties of Matter and sound - S.Chand Publications -2006.

UNIT I: Chapter 3

UNIT II: Chapter 4

R. Murugeshan - Mechanics Properties of Matter and sound- S. Chand Publications, 2006.

UNIT III: Chapter 5

Properties of matter - R. Murugeshan, S. Chand & company Pvt.Ltd - Reprint 2015.

UNIT III: Chapter 3:3.1, 3.2, 3.5, 3.6, 3.11, 3.17

R. Murugeshan - Thermal Physics - S.Chand Publications - 2007

UNIT IV: Chapter 3, Chapter 4: 4.1 - 4.4, Chapter 5.

UNIT V: Chapter 7

BOOKS FOR REFERENCE:

1. Mechanics - D.S.Mathur - S. Chand Publications,New Delhi- Reprint- 2012.
2. Properties of matter - R. Murugeshan - S. Chand Publications,New Delhi- Reprint- 2015.
3. Heat, Thermodynamics and Statistical Physics - Brijlal and N. Subramanyam & P.S. Hemne- S.Chand Publications, New Delhi - Reprint - 2014.

ALLIED PRACTICAL - I

Semester: I **Hours: 2**

Code : 17PH1AP01 **Credit: 1**

COURSE OUTCOMES:

- Determine the moduli of elasticity through different experiments.
- Determine the parameters of mechanics through experiential learning.
- Perform and verify the fundamental laws of sound.

LIST OF PRACTICALS (Any Six)

1. Young's Modulus- Uniform Bending - Pin and Microscope.
2. Young's Modulus- Uniform Bending - Optic lever- Telescope and Scale method.
3. Young's Modulus- Non Uniform Bending -Optic Lever- Telescope and Scale method.
4. Young's Modulus- Non Uniform Bending - Pin and Microscope.
5. Torsion Pendulum- Rigidity modulus.
6. Determination of g using Compound Pendulum.
7. Lee's Disc Method.
8. Stoke's Method.
9. Sonometer - Verification of Laws.
10. Drop weight Method.
11. Capillary rise- Viscosity of liquid

VALUE EDUCATION

Semester: I **Hours: 2**

Code : 17VE1GS01 **Credit: 2**

COURSE OUTCOMES:

- Develop positive attitude towards life
- Internalize human values and sense one's personal identity and growth
- Face challenges in life positively with a knowledge on life coping skills
- Uphold the dignity of women
- Contribute more for women development and women empowerment

UNIT I

Values in Life- Personal, Social, Values in love and marriage, Spiritual and Professional - Life values - societal concerns and challenges. **(6 Hours)**

UNIT II

Life oriented skills - Self identity - self - esteem, self - concept, self - acceptance - Positive thinking - Positive attitude - Time management **(6 Hours)**

UNIT III

Motivation - Goal setting - Goal, its focus and importance - Success - obstacles to success - overcoming obstacles - Problem solving - Decision making - decision making process. **(6 Hours)**

UNIT IV

Women in society - Sex differences and sexual discrimination in society traditional bases of sexual identity - Actual Difference between the sexes - Social consequences of women's employment in modern society. **(6 Hours)**

UNIT V

Women in the Indian society - Status of women in independent India - problems of women in modern India - Rights and protection given to women by the constitution of India - Strategies for the Protection of women's rights and Rehabilitation of Women - Future Prospects **(6 Hours)**

COURSE BOOK:

- Value Education: Course Material Prepared by the Department of Foundation Courses. JAC

BOOKS FOR REFERENCE:

1. Dr. Xavier Alpphonse S.J., *"We Shall Overcome" - A Text book on Life Coping Skills,* ICRDCE Publication, Chennai, 2011
2. அருள்நிதி ஆ.மு. தாமோதரன் முதுநிலை பேராசிரியர் - இயேசு காட்டும் யோகம். அன்பு நெறி வெளியீடு திண்டுக்கல்.
3. Dennis K. Kelly, ''Achieving Unlimited Success'', Indra Publishing House, Bhopal, 2009
4. Felix Koikara, SDB., ''Live Your Values''-Teacher's Guide, Don Bosco Youth Animation Centre, Ennore, Madras, 1990
5. Elizabeth B. Hurlock, 'Personality Development, TMH Publications, New Delhi, 2004.

CONTINUOUS INTERNAL ASSESSMENT

Components	Marks
Mid Semester	30
End Semester	30
Case Study Report	20
Book/Film Review	20
Total	**100**

QUESTION PATTERN (MID AND END SEMESTER EXAM)

Three essay type questions on any current issues or challenges facing society. [3x10=30]
{Issues and current trends related to women, national importance, societal, environment or value crisis among youth}

PORTIONS FOR INTERNAL TESTS:

I & II Units - Mid Semester

III, IV & V Units - End Semester

COMMUNICATION SKILLS

Semester: I **Hours: 2**

Code : 17AE1SK01 **Credits: 2**

COURSE OUT COMES:

- Develop the four language skills
- Prepare, organize and deliver an effective oral presentation.
- Create suitable situations for role play, debate and group discussion.
- Practice in writing resume and letters.
- Utilize the concept, methodology and components of an Interview

UNIT I - PERSONAL OMMUNICATION

Intra-Personal Communication

Inter-Personal Communication

UNIT II - COMMUNICATION IN AN EDUCATIONAL ENVIRONMENT

Letter Writing

Situational Conversations

Group Discussion

UNIT III - COMMUNICATION FOR CAREER

Facing Interviews

Team Work

UNIT IV- COMMUNICATION IN A GATHERING

Presentation Skills

UNIT V - PUBLIC SPEECH

Welcome Speech

Vote of Thanks

Felicitations

Feedback

COMMUNICATION SKILLS -17AE1SK01

QUESTION PATTERN

Time: 1 Hour **Marks: 30**

I.	Write short notes on any two of the following (From Unit - I, III & IV)	2x5=10
II.	Letter Writing. (From Unit-II)	1x5=5
III.	Situational Conversation/Group Discussion. (From Unit - II)	1x5=5
IV.	Welcome Speech/Vote of Thanks. (From Unit - V)	1x5=5
V.	Felicitations/Feedback. (From Unit - V)	1x5=5

PART - I Tamil

இடைக்கால இலக்கியம்

பருவம்: இரண்டு **நேரம் : 5**

குறியீடு: 17GT2GS02 **புள்ளி : 3**

நோக்கம்:

- ❖ சைவ, வைணவ அடியார்களின் பக்தியைப் பற்றி அறிந்து கொள்வர்.
- ❖ அடியார்களின் வழி இறைவனின் அருள் தன்மையைப் புரிந்து கொள்வர்.
- ❖ செய்யுள் எழுதும் முறையைக் கற்றுக் கொள்வர்.
- ❖ வெற்றிச்சிறப்பைப் போற்றும் முறையைத் தெரிந்து கொள்வர்.
- ❖ செய்யுள் வழி உரைநடையையும், புதின மரபையும் கற்றுக் கொள்வர்.

அலகு 1: சைவம்

1. திருஞானசம்பந்தர் - திருமாகறல்

1. காலையொடுதுந்துபிகள் ...
2. துஞ்சுநறு நீலமிருள்...

2. திருநாவுக்கரசர் - திருக்கொண்டீச்சரம்

1. வரைகிலேன் புலன்கள் ...
2. தொண்டனேன் பிறந்து ...

3. சுந்தரர் - திருக்காளத்தி

1. நீறார் மேனியனே...
2. தளிர் போல் மெல்லடியாள்...

4. மாணிக்கவாசகர் - திருவாசகம்

குயிற் பத்து

அலகு 2: வைணவம்:

1. மதுரகவியாழ்வார்- 'கண்ணினுண் சிறுத்தாம்பு' - 10 பாசுரங்கள்
2. குலசேகர ஆழ்வார் - பெருமாள் திருமொழி
   வித்துவக்கோட்டு அம்மானையே வேண்டி நிற்றல் (688 முதல் 697 வரை)

அலகு 3: சிற்றிலக்கியங்கள்

1. கலிங்கத்துப்பரணி - போர் பாடியது

1. அலைகடல் போல கிளம்பின படைகள். பா.எண். 405 - 407
2. தம் நிழலைக் கண்டு தாமே பயந்து ஓடினர். பா.எண். 451 - 455
3. கலிங்கம் வென்றான் கருணாகரன். பா.எண். 469 - 472

2. நந்திக் கலம்பகம்

1. முரசு அழைக்கிறது. பா.எண்.9
2. களிறைக் கண்டனர் கண்டபடி எண்ணினர். பா.எண். 18 - 20
3. புருவமேறினால் புவியே பணியும். பா.எண். 30

அலகு 4: நாவல்

சொப்பன பூமியில் - திலகவதி

அலகு 5:

இலக்கணம்: யாப்பின் உறுப்புக்கள்

இலக்கிய வரலாறு - பக்தி இலக்கியம், சிற்றிலக்கியம் தொடர்பான பகுதிகள்

நாவலின் தோற்றமும் வளர்ச்சியும்.

பாடநூல்கள்:

1. தமிழ்த்துறை வெளியீடு - இடைக்கால இலக்கியம்,
   ஜெயராஜ் அன்னபாக்கியம் மகளிர் கல்லூரி, பெரியகுளம்
2. எம்.ஆர்.அடைக்கலசாமி - தமிழ் இலக்கிய வரலாறு, ராசி பதிப்பகம்,
   சென்னை - 73, 41 ஆம் பதிப்பு.
3. திலகவதி - சொப்பன பூமியில் , அம்ருதா பதிப்பகம், சக்தி நகர்,
   போரூர், சென்னை - 116, மூன்றாம் பதிப்பு - 200

LANGUAGE THROUGH LITERATURE - II

STREAM – A

Semester: II **Hours: 6**

Code : 17GE2GSA2 **Credits: 3**

COURSE OUTCOMES:

- Impart effective communication skills to the learners.
- Read and understand language and descriptions of topics from a variety of texts.
- Discuss and respond to the content of a text orally and in writing.
- Write effective and coherent paragraphs.
- Learn how to use the correct use of vocabulary.

UNIT I: PROSE **1 hour**

A.P.J Abdul Kalam	-	My Visions for India
A.J.Cronin	-	The Best Investment I Ever Made

UNIT II: POETRY **1 hour**

Rabindranath Tagore	-	Where the Mind is Without Fear
George Herbert	-	The Pulley

UNIT III: SHORT STORY **1 hour**

Guy de Maupassant	-	The Necklace
Leo Tolstoy	-	Little Girls Wiser than Men
R.K. Narayan	-	An Astrologer's Day

UNIT IV: ONE ACT PLAYS **1 hour**

Norman MckInnel	-	The Bishop's Candlesticks
G.B. Shaw	-	A Meeting in a Forest

UNIT V: GRAMMAR & CREATIVE WRITING **2 hours**

Concord

Active voice and Passive voice

Question Tag

Speech Writing

Advertisement Writing

Report Writing

COURSE BOOK::

- Limelight-2. SSK Publishers and Distributors, Chennai: 2016.
- Savarimuttu,J.S Rohan,G.Petricia Alphine Nirmala. English Grammar and usage – An ideal Companion For Advanced Learners .New Century Book House (P) Ltd, Chennai,2016.

LANGUAGE THROUGH LITERATURE- II - 17GE2GSA2

QUESTION PATTERN

STREAM – A

Time: 3 hours	**Marks : 60**
I. Choose the best answer (from units I & II)	10x1=10
II. Answer any two of the following in a paragraph of 100 words each (two out of four from units I & II)	2x5=10
III. Answer any two of the following in an essay of 300 words each (two out of four from units I, II, III & IV)	2x10=20
IV. Fill in the blanks (from Concord)	2
V. Rewrite the following sentences as directed (from Voice)	3
V. Add Question Tags for the following	5
VI. Speech writing	5
VII. Advertisement writing (OR) Report writing	5

LANGUAGE THROUGH LITERATURE - II

STREAM -B

Semester: II **Hours: 6**

Code : 17GE2GSB2 **Credits: 3**

COURSE OUTCOMES

- Select texts, expose to a range of contexts where the language is used to meet a variety of real life and communication needs.
- equip the students in the relevant English language skills necessary for success in various competitive examination.
- train the students to use the language potentials in language skills
- Enhance language through a task- based and learner- centric syllabus
- Carry out all the LSRW skills

UNIT I: PROSE 2 hours

Jawaharlal Nehru - The Ganga

Bernard Shaw - How I became a public Speaker

UNIT II: POETRY 1 hour

John Masefield - Laugh and be Merry

Rupert Brooke - Menelaus and Helen

UNIT III: SHORT STORY 1 hour

Oscar Wilde - The Selfish Giant

H.H Munro (Saki) - The Story Teller

UNIT IV: COMMUNICATIVE EXPRESSIONS 1 hour

Offering Help

Apologizing

Making Suggestions

Expressing Likes and Dislikes

UNIT V: COMPOSITION AND GRAMMAR 1 hour

1. Comprehension
2. Tense
3. Concord

BOOKS FOR REFERENCE:

- Savarimuttu,J.S Rohan,G.Petricia Alphine Nirmala. *English Grammar and usage – An ideal Companion for Advanced Learners* .New Century Book House (P) Ltd, Chennai, 2016.

LANGUAGE THROUGH LITERATURE - II - 17GE2GSB2

QUESTION PATTERN

Stream-B

Time: 3 hours **Marks: 60**

I. Choose the best Answer. (from Units I & II)	10 x1=10
II. Answer any two of the following in a paragraph of 100 words each (two out of four from Units I, II & III)	2x5=10
III. Answer any two of the following in an essay of 300 words each (two out of four from Units I, II & III)	2x10=20
IV. Matching the expressions. (from Unit IV)	5
V. a) Read the passage and answer the following questions. (from Unit V)	5
b) Fill in the blanks with suitable tense. (from Unit V)	10

ANALYTICAL GEOMETRY OF 3-DIMENSIONS AND TRIGONOMETRY

Semester: II **Hours: 6**

Code : 17MA2MC03 **Credits: 4**

COURSE OUTCOMES:

- Identify different forms of equations of plane and straight lines.
- Acquire the knowledge of coplanar lines, skew lines and its properties.
- Understand the concept of a sphere and circle to determine their equations.
- Acquaint with the expansions of circular trigonometric and hyperbolic functions.
- Determine the logarithm of complex numbers.

UNIT I

The Plane: Plane equations in various forms - angle between two planes - length of the perpendicular - bisecting plane - distance between two parallel planes.

(18 Hours)

UNIT II

The straight line: symmetrical form - image of a point - image of a line in a plane - the plane and the straight line - angle between a plane and straight line - coplanar lines - shortest distance between two lines - equations of two skew lines in a simplified form. **(18 Hours)**

UNIT III

The sphere: equation of the sphere - length of the tangent - plane section of a sphere - equation of a circle on a sphere - intersection of two spheres - equation of the tangent plane to the sphere. **(18 Hours)**

UNIT IV

Expansion of functions sin $n\theta$, cos $n\theta$, and tan $n\theta$ - examples on formation of equations - powers of sines and cosines of θ in terms of multiples of θ - expansions of $\sin\theta$, $\cos\theta$, $\tan\theta$ in a series of ascending powers of θ. **(18 Hours)**

UNIT V

Hyperbolic functions - relation between hyperbolic functions - inverse hyperbolic functions - logarithms of complex quantities. **(18 Hours)**

COURSE BOOKS:

1. T. K. Manickavasagom Pillay and T. Natarajan, A Course Book of Analytical Geometry Part II - Three Dimensions, S. Viswanathan (Printers & Publishers) Pvt. Ltd., 2011.
2. S. Narayanan & T. K. Manickavasagom Pillay, Trigonometry, S. Viswanathan (Printers & Publishers) Pvt. Ltd., 2012.

BOOK - I:

Unit I**:** Chapter 2: Sections 1 to 11

Unit II**:** Chapter 3: Sections 1 to 8

Unit III**:** Chapter 4: Sections 1 to 8

BOOK - II:

Unit IV**:** Chapters 3

Unit V **:** Chapters 4 & Chapter 5: Section 5 only

DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS

Semester : II **Hours: 6**

Code : 17MA2MC04 **Credits: 4**

COURSE OUTCOMES:

- Solve linear equations with variable coefficients.
- Understand the fundamental properties of the Laplace transforms.
- Apply the Laplace inverse transforms to solve simultaneous equations.
- Solve partial differential equations using Lagrange's method and Charpit's method.
- Evaluate line, surface and volume integrals using the concept of vector integration and differentiation.

UNIT I

Linear Equations with variable coefficients - Equations reducible to the linear equations - Simultaneous differential equations of the first order & first degree - Solutions of $dx/P = dy/Q = dz/R$ - Methods for solving $dx/P = dy/Q = dz/R$ - geometrical interpretation of $dx/P = dy/Q = dz/R$ - Simultaneous linear differential equations. **(18 Hours)**

UNIT II

Laplace transforms - theorems and problems - Laplace transform of periodic functions - Some general theorems - evaluation of integral using Laplace transform. Inverse Laplace transform - Problems on inverse Laplace transforms - solving ordinary differential equations with constant coefficient using Laplace transform - solving system of differential equations using Laplace transform - solving differential equations with variable coefficients using Laplace transform.

(18 Hours)

UNIT III

Partial differential equations of the first order - Classification of integrals - derivation of PDE - Lagrange's method of solving the linear equation - special methods - standard forms - Charpit's method. **(18 Hours)**

UNIT IV

Vector differentiation: Differentiation of vectors - a few results on differentiation of vectors - meaning of the derivative of position vector - physical applications - level surfaces vector differential operator - gradient - direction and magnitude of gradient - divergence and curl - soleniodal - irrotational vector and their properties - operators involving ∇ twice. **(18 Hours)**

UNIT V

Vector integration: Line integral and theorems - volume integral - surface integral - Gauss divergence theorems - Green's theorem (in space) other forms of Green's theorem - Stoke's theorem - Green's theorem in plane (simple problems only).

(18 Hours)

COURSE BOOKS:

1. S. Narayanan & T. K. Manickavasagom Pillay, Differential Equations and its Applications, S. Viswanathan (Printers & Publishers) Pvt. Ltd., 2011.
2. S. Narayanan and T. K. Manickavachagom Pillay, Vector Algebra & Analysis, S. Viswanathan (Printers & Publishers) Pvt. Ltd., 1995.

BOOK - I:

Unit I : Chapter 5: Sections 5 and 6 & Chapter 6: Sections 1 to 6

Unit II : Chapter 9: Sections 1 to 10

Unit III : Chapter 12: Sections 1 to 6

BOOK - II:

Unit IV : Chapter 4: Sections 1 to 12

Unit V : Chapter 6: Sections 1 to 10

ALLIED PHYSICS THEORY - II

ELECTRICITY, ELECTRONICS AND OPTICS

Semester: II **Hours: 3**

Code : 17PH2AC02 **Credits: 3**

COURSE OUTCOMES:

- Apply the laws of electricity to a.c bridges for electrical measurements.
- Discuss the working of various electronic devices.
- Design simple logic circuits using logic gates.
- Explain the phenomena of geometrical optics.
- Describe the phenomena of interference, diffraction and its applications.

UNIT I: CURRENT ELECTRICITY

Kirchhoff's law-application of wheat stone's net work- sensitiveness of bridge - carey foster bridge- measurement of resistance and temperature coefficient of resistance - principle of potentiometer - calibration of ammeter and voltmeter - low and high range - measurement of resistance using potentiometer. **(9 Hours)**

UNIT II: ELECTRONICS

Junction diode - forward and reverse bias - diode characteristics - types of diodes - (LEDand Zener) Bridge rectifier using diodes - π filter - Transistors - Characteristics (CE mode only) - Op amp and its characteristics - Virtual earth - voltage amplifier in inverting mode- Op amp as adder and subtractor. **(9 Hours)**

UNIT III: DIGITAL ELECTRONICS

Binary number system - Binary to decimal and decimal to binary conversions - Addition and subtraction of binary numbers -Logic circuits - Boolean algebra - Demorgan's theorem - gates - AND, OR, NOT, NAND, NOR gates - NAND and NOR gates as universal building blocks - Exclusive OR gate. **(9 Hours)**

UNIT IV: GEOMETRICAL OPTICS

Deviation produced by thin lens - Focal length of two thin lenses in and out of contact - Cardinal points - Refraction through a thin prism - Dispersion - Dispersive power - combination of thin prisms to produce (a) deviation without dispersion and (b) dispersion without deviation - Direct vision spectroscope - Chromatic aberration in lenses and its removal - Spherical aberration and its removal - Aplanatic surfaces - Oil immersion objectives - Theory of primary and secondary rainbows. **(9 Hours)**

UNIT-V: INTERFERENCE AND DIFFRACTION

Interference in thin films - Air wedge - Newton's rings (Reflected beam only) - Determination of wavelength - Jamin's Interferometer, principle and use. Diffraction; Theory of plane transmission grating (Normal incidence only) - Experiment to determine wavelengths. **(9 Hours)**

BOOKS FOR STUDY:

1. R.Murugesan - Electricity & Electronics - Vivekananda press -2008
2. R.Murugesan - Optics Spectroscopy & Modern Physics - Vivekananda press -2008

BOOKS FOR REFERENCE:

1. Brijlal & N Subaramaniyam - Electricity & Magnetism - S.Chand and company ltd- 2010
2. R. Murugesan - Modern Physics - Tata McGraw Hill- 2005
3. Leach & Malvino -Digital principles and applications - Tata McGraw Hill- 2005

DETAILED REFERENCES:

R.Murugesan - Electricity & Electronics - Vivekananda press -2008

UNIT I - Chapter 3 (3A)

UNIT II - Chapter 4 - 4.1 -4.12, 4.17 - 4.25

UNIT III - Chapter 5 (5A & 5B)

R.Murugesan - Optics, Spectroscopy & Modern Physics - Vivekananda press - 2008

UNIT IV - Chapter 1(All Sections)

UNIT V- Chapter 5 (All Sections)

ALLIED PRACTICALS - II

Semester: II **Hours: 2**

Code : 17PH2AP02 **Credits: 1**

COURSE OUTCOMES:

- Construct logic circuits using discrete components and IC's
- Verify Boolean laws.
- Construct adder and subtractor circuits using IC's

LIST OF PRACTICALS (Any Six)

1. AND, OR, NOT - Using discrete Components.
2. AND, OR, NOT - Using IC 74 - Series.
3. NAND, NOR -Using IC.
4. AC - Frequency Sonometer.
5. Universal Gates.
6. LCR Series Circuit.
7. Zenor Diode Characteristics.
8. Verification of Boolean theorems.
9. Half adder and Half Subtractor.
10. Newton's Rings.
11. Air wedge
12. Spectrometer - Solid Prism

MATLAB

Semester: II **Hours: 2**

Code : 17MA2SK02 **Credits: 2**

COURSE OUTCOMES:

- Formulate a better program and get more accurate solutions.
- Evaluate algebraic, trigonometric and polynomial Equations.
- Plot bar graph and pie graph for the given data.
- Execute programmes using script file.
- Use MATLAB in their project works.

1. Write a MATLAB program for evaluating the arithmetic operators addition, subtraction, multiplication, right division, left division, unary minus, unary plus and exponentiation
2. Write a MATLAB statement to calculate the sum of the series.
3. Write a MATLAB program to use various arithmetic operations on matrices such as addition,subtraction, multiplication, right division, left division and exponentiation.
4. Write a MATLAB program for some useful commands related to matrices such as determinant, rank, eigen vectors and orthogonal.
5. Write a MATLAB program for characteristic polynomial of a matrix, polynomial differentiation and polynomial integration.
6. Write a MATLAB program for polynomial addition, subtraction, multiplication, division and root of a polynomial.
7. Write a MATLAB program for solving a set of linear algebraic equations.
8. Write a MATLAB program to find the mean, median, standard deviation, cumulative sum and cumulative product of a given statistical data
9. Write a MATLAB program to plot a bar graph and horizontal bar graph for a given data.
10. Write a MATLAB program to obtain the differentiation of a given expression and evaluating the definite integral.

COURSE BOOKS:

1. Rajkumar Bansal, Ashok Kumar Goel and Manoj Kumar Sharma, MATLAB and its Applications in Engineering, Dorling Kindersley (India) Pvt. Ltd., 2009.
2. Rudra Pratap, Getting started with MATLAB - A Quick Introduction for Scientists and Engineers, Oxford University Press, 2010.

BOOK - I:

Sections 2.5.1, 2.9, 3.9, 3.10.1, 4.4, 4.5, 4.6, 4.7, 4.9, 4.10, 4.11, 6.7.4, 6.7.5, 9.3.2.1 & 9.3.2.3.

BOOK - II:

Sections 5.1.1 & 5.3.

பொதுத்தமிழ் - காப்பிய இலக்கியம்

பருவம்: மூன்று **நேரம்: 5**

குறியீடு: 17GT3GS03 **புள்ளி: 3**

நோக்கம்:

- ❖ காப்பிய இலக்கியங்களின் சிறப்புக்களை அறிந்து கொள்வர்.
- ❖ ஐம்பெரும் காப்பியங்கள், பிறகாப்பியங்களின் பக்திச்சிறப்புக்களை உணர்ந்து கொள்வர்.
- ❖ அகப்புற இலக்கியச் செய்திகளை அறிந்து கொள்வர்.
- ❖ வணிகச் செய்திகளைத் தெரிந்து கொள்வர்.
- ❖ தமிழிலக்கியத்தில் காணலாகும் அறவியல், அறிவியல் செய்திகளைத் தெரிந்து கொள்வர்.

அலகு 1

சிலப்பதிகாரம்	-	ஊர்சூழ் வரி
மணிமேகலை	-	உலக அறவி புக்க காதை
சீவகசிந்தாமணி	-	முக்தி இலம்பகம் (185 - 189) 11 பாடல்கள் சீலம், தானம்

அலகு 2

கம்பராமாயணம்	-	கிட்கிந்தா காண்டம் - ஆறு செல் படலம் 10 பாடல்கள்
தேம்பாவணி	-	மகவருள் படலம் - சூசை கைகளில் குழந்தைநாதன்
சீறாப்புராணம்	-	பாந்தள் வதைப் படலம்

அலகு 3

பொருளிலக்கணம்	-	அகத்திணை, புறத்திணை
இலக்கிய வரலாறு	-	காப்பியம் தொடர்பான இலக்கிய வரலாறு

அலகு 4

வணிகத் தமிழ் - சங்க இலக்கியங்கள் உணர்த்தும் வணிகச் செய்திகள் பக்.75-84

வணிகக் கலைச் சொல்லாக்கம் - 50 சொற்கள்

அலகு 5

அறிவியல் தமிழ் - தமிழில் அறிவியல் - பக். 27 - 40

பாட நூல்:

தமிழ்த்துறை வெளியீடு, ஜெயராஜ் அன்னபாக்கியம் மகளிர் தன்னாட்சிக் கல்லூரி, பெரியகுளம்.

பார்வை நூல்கள்:

1 பா. சரவணன் (தொ.ஆ) - சிலப்பதிகாரம், சந்தியா பதிப்பகம், சென்னை-83, 2-ஆம் பதிப்பு - 1998.

2 இராம - லட்சுமணன் (தொ.ஆ) - மணிமேகலை, உமா பதிப்பகம், சென்னை-1, 2-ஆம் பதிப்பு - ஜனவரி - 1997.

3 திரு புலவர்.அரசு (உ.ஆ) - சீவகசிந்தாமணி, கழக வெளியீடு. 1967.

4 பேரா.அ.ச.ஞானசம்பந்தன் (ப.ஆ) - கம்பராமாயணம், நியூசெஞ்சுரி புக் ஹவுஸ், சென்னை - 98.

5 ந.ம.மரியஅருட்பிரகாசம் (உ.ஆ) - தேம்பாவணி, மாவிகா அச்சகம், நொபிலி வளாகம், கோ.புதூர், மதுரை.

6 செய்குதம்பி பாவலர் (உ.ஆ) - சீறாப்புராணம், யுனிவர்சல் பிரிண்டர்ஸ், வடக்கு உஸ்மான் சாலை, சென்னை - 1. டிசம்பர் - 2014.

7 ச. திருஞானசம்பந்தம் (தொ.ஆ) - யாப்பருங்கலக்காரிகை, கதிர் பதிப்பகம், திருவையாறு, முதற் பதிப்பு. 2007

8 எம்.ஆர். அடைக்கலசாமி - இலக்கிய வரலாறு, ராசி பதிப்பகம், முதற்பதிப்பு. 1960. சென்னை- 73.

9 மணவை முஸ்தபா - காலம் தேடும் தமிழ், மீரா பதிப்பகம், சென்னை-40. 1993.

10 பொ. மா. பழனிச்சாமி - இலக்கியக் கதிர், நியூ செஞ்சுரி புக்ஹவுஸ், சென்னை-40. முதற்பதிப்பு 2010.

11 நாராயண வேலுப் பிள்ளை - உரைநடைத் தமிழ் - ஐம்பெருங் காப்பியங்கள், நர்மதா பதிப்பகம், சென்னை - 1, முதற்பதிப்பு 1999.

LANGUAGE THROUGH LITERATURE - III

STREAM - A

Semester: III **Hours: 6**

Code : 17GE3GSA3 **Credits: 3**

COURSE OUTCOMES:

- Enhance critical thinking and writing.
- understand and appreciate poetry as a literary art
- Impart effective communication skills to the learners.
- Be familiar with various writers of prose, poetry and one-act plays.
- Strengthen their writing skill.

UNIT I: PROSE **30 Hours**

Indian Women	-	Dr. S. Radhakrishnan
India Through a Traveller's Eyes	-	Pearl S. Buck

UNIT II: POETRY **30 Hours**

Lochinvar	-	Sir Walter Scott
On His Blindness	-	John Milton
Time and Love	-	William Shakespeare

UNIT III: SHORT STORY **15 Hours**

After Twenty Years	-	O'Henry
The Tiger in the Tunnel	-	Ruskin Bond
Karma	-	Kushwant Singh

UNIT IV: ONE ACT PLAYS

Hijack	-	Charles Well

UNIT V: COMPOSITION AND GRAMMAR **15 Hours**

Direct and Indirect Speech

Degrees of Comparison

Punctuation

Interviewing

Resume Writing

E-mail Writing

COURSE BOOKS:

- 'Limelight-3', SSK Publishers and Distributors, Chennai, 2016.
- Savarimuttu,J.S Rohan, and Petricia Alphine Nirmala. *English Grammar and usage – An ideal Companion For Advanced Learners.* Chennai: New Century Book House (P) Ltd, 2016. Print.

LANGUAGE THROUGH LITERATURE - III - 17GE3GSA3

QUESTION PATTERN

STREAM A

Time: 3 Hours **Marks: 60**

I. Choose the best answer 10x1=10
(From Unit I & II)

II. Answer any two of the following in a paragraph of 100 words each 2x5=10
(Two out of 4 from Unit I & II)

III. Answer any two of the following in an essay of 300 words each 2x10=20
(Two out of 4 from Unit I, II, III & IV)

IV. Rewrite as directed (From Unit V)

a) Direct/ Indirect speech. 2x1=2

b) Degrees of Comparison 3x1=3

V. Rewrite with right punctuation 5x1=5
(From Unit V)

VI. Answer the following (From Unit V) 2x5=10

1. Resume writing
2. Email writing

LANGUAGE THROUGH LITERATURE - III

STREAM B

Semester: III **Hours: 6**

Code : 17GE3GSB3 **Credits: 3**

COURSE OUTCOMES:

- Use language for aesthetic effect.
- Arrange and apply activities to improve their skills.
- Develop a positive attitude towards language learning.
- Bring out oral practice effectively.
- Interact and facilitate language learning process.

UNIT I: PROSE **30 Hours**

My Greatest Olympic Prize	-	Jesse Owens
When You Dread Failure	-	A. J. Cronin

UNIT II: POETRY **15 Hours**

Good Bye Party To Miss Pushpa T.S	-	Nissim Ezekiel
A Bird Came Down the Walk	-	Emily Dickson

UNIT III: ONE - ACT PLAY **15 Hours**

Bishop's Candle Sticks	-	Norman Mckinnel
Never Never Nest	-	Cedric Mount
The Pie and the Tart	-	Hugh Chesterton

UNIT IV: COMMUNICATION SKILLS **15 Hours**

CONVERSATIONS:

1. At a bank
2. In the library
3. Reservation status
4. At the sweet shop
5. At the poly clinic
6. On the bus

UNIT V: COMPOSITION **15 Hours**

1. Writing Advertisement
2. Story Completion

GRAMMAR

1. Question with answers 'Yes' or 'No'.
2. Active Voice & Passive Voice

BOOKS FOR REFERENCE:

1. Siva, Anthony, Dr. Gunasekaran. "Six One-Act Plays". Chennai: Pavai Publications, Royapettah, 2009.
2. Kaleem, Nafeesa. "Six One Act-Plays". Chennai: Anu Chitra Publications, West Mambalam, 1985.
3. Effective Communication in English. Board Of Editors, 2013.
4. Savarimuttu,J.S Rohan, and Petricia Alphine Nirmala. *English Grammar and usage – An ideal Companion For Advanced Learners .* Chennai: New Century Book House (P) Ltd, 2016.Print.

LANGUAGE THROUGH LITERATURE - III - 17GE3GSB3

STREAM B

QUESTION PATTERN

Time: 3 Hours	**Marks: 60**
1. Choose the best answer (from Unit I & II)	10 x1=10
2. Match the following (from Unit I based on vocabulary)	5 x 1=5
3. Answer any two of the following in a paragraph of 100 words each. (Two out of 4 from unit I, II &III)	2 x 5=10
4. Answer any two of the following in an essay of 300 words each (Two out of 4 from unit I, II &III)	2 x 10=20
5. Answer any one of the following questions. (One out of 3 from unit IV)	5
6. Answer any one of the following questions.(unit-V)	5
a) Writing Advertisement Or b) Story Completion	
7. Rewrite as directed: (unit-V)	
a) Questions with answers ' Yes'/ 'No'.	3X1=3
b) Active Voice and Passive Voice.	2X1=2

FOURIER SERIES & SEQUENCES

Semester: III **Hours: 6**

Code : 17MA3MC05 **Credits: 5**

COURSE OUTCOMES:

- Understand the fundamental principles of Analysis.
- Identify convergence and divergence of series.
- Apply various tests to find the limit of a series.
- Compute the radius of convergence of the power series.
- Acquire skill in expanding an integral as an infinite sum using fourier series.

UNIT I

Introduction - sequences - bounded sequences - monotonic sequences - convergent sequence - divergent and oscillating sequences - the algebra of limits - behaviour of monotonic sequences. **(18 Hours)**

UNIT II

Some theorems on limits - subsequences - limit points - Cauchy sequences - the upper and lower limits of a sequence. **(18 Hours)**

UNIT III

Series of positive terms - infinite series - comparison test - Kummer's test - root test and condensation test - integral test. **(18 Hours)**

UNIT IV

Alternating series - absolute convergence - tests for convergence of series of arbitrary terms - rearrangement of series - Riemann's theorem (statement only) - multiplication of series - Merten's theorem (statement only) - power series.

(18 Hours)

UNIT V

Fourier series - Definition - Expansion in $[-\pi, \pi]$ - the cosine and sine series in $[-\pi, \pi]$. **(18 Hours)**

COURSE BOOKS:

1. **S. Arumugam and A. Thangapandi Isaac, Sequences and Series**, New Gamma Publishing House, 2015.
2. **S. Arumugam, A. Thangapandi Isaac and A. Somasundaram**, **Trigonometry and Fourier Series,** New Gamma Publishing House.

Unit I : Chapter 3: Sections 3.1 - 3.7 (Book 1)
Unit II : Chapter 3: Sections 3.8 - 3.12 (Book 1)
Unit III : Chapter 4: Sections 4.1 - 4.5 (Book 1)
Unit IV : Chapter 5: Sections 5.1 - 5.6 (Book 1)
Unit V : Chapter 5 (Book 2)

LINEAR PROGRAMMING

Semester: III **Hours: 4**

Code : 17MA3MC06 **Credits: 3**

COURSE OUTCOMES:

- Formulate the real life problems as Linear programming problem.
- Use Simplex method to solve Linear programming problems.
- Identify degeneracy in transportation problem.
- Calculate the optimal solution from the feasible solution using MODI method.
- Obtain the optimal solution for Assignment problems.

UNIT I

The Linear Programming problem: Introduction - Graphical solution method - General L.P.P. - Slack and surplus variables - Reformulations of general L.P.P - Matrix formulation of general L.P.P. - Characteristics of the standard form of L.P.P. - Some important definitions - Characteristics of solutions of an L.P.P. **(12 Hours)**

UNIT II

The Simplex Method - Solving L.P.P by Simplex method I - An important Definition - Artificial variables - Charnes Big - M method - Two phase simplex method - Unrestricted variables. **(12 Hours)**

UNIT III

Duality in linear programming - The primal - Dual problems - Fundamental theorem of duality - Duality and simplex method - Solution of LPP by dual simplex method. **(12 Hours)**

UNIT IV

The Transportation problem - General form of T.P - Existence of Feasible solution by (i) North - West corner rule (ii) Vogel's approximation method - Moving towards optimality (MODI Method) - Degeneracy in T.P - Unbalanced T.P.

(12 Hours)

UNIT V

The Assignment problem - Mathematical formulation of Assignment problem - Assignment algorithm - Rule for finding the optimal assignment - Unbalanced Assignment problem - Travelling Salesman problem. **(12 Hours)**

COURSE BOOK :

P. K. Gupta and S. Manmohan, Linear Programming and Theory of Games, Sultan Chand & Sons, Ninth Edition 2000.

Unit I : Chapters 2 & 3
Unit II : Chapter 4
Chapter 5: Sections 5.1 - 5.4
Unit III : Chapter 6
Unit IV : Chapter 11: Sections 11.1 - 11.11
Unit V : Chapter 12

STATISTICS - I

Semester: III **Hours: 5**

Code : 17MA3AC03 **Credits: 4**

COURSE OUTCOMES:

- Calculate mean, median and mode.
- Be familiar with elementary statistical methods of analysis of data and interpret them.
- Understand the concept of correlation and regression.
- Relate Binomial, Poisson and Normal distributions.
- Develop problem solving skill on applying statistical methods to real problems.

UNIT I

Central Tendencies - Introduction - Arithmetic mean - Partition values (Median, Quartiles, Deciles and Percentiles) - Mode - Geometric mean and Harmonic mean - Measures of dispersion. **(15 Hours)**

UNIT II

Moments - Skewness and Kurtosis - Curve fitting: Introduction - Principle of Least Squares - Fitting a straight line - Fitting a second degree parabola. **(15 Hours)**

UNIT III

Correlation - Introduction - Correlation - Karl Pearson's Coefficient of correlation - Rank Correlation - Regression - Correlation Coefficient for a Bivariate frequency distribution - Probability - Conditional probability. **(15 Hours)**

UNIT IV

Random variables - Discrete random variable - Continuous random variable - Mathematical expectations - Moment Generating function - Characteristic function. **(15 Hours)**

UNIT V

Some special distributions - Binomial distribution - Poisson distribution - Normal distribution - Some more continuous functions. **(15 Hours)**

COURSE BOOK:

S. Arumugam and A. Thangapandi Issac, Statistics, New Gamma Publishing House, Palayamkottai, 2015.

Unit I : Chapter 2 : Sections 2.0 - 2.4
Chapter 3 : Section 3.1
Unit II : Chapter 4 : Sections 4.1 & 4.2
Chapter 5 : Sections 5.0 & 5.1
Unit III : Chapter 6 : Sections 6.0 - 6.4
Chapter 11: Sections 11.1 & 11.2
Unit IV : Chapter 12: Sections 12.1 - 12.6
Unit V : Chapter 13: Sections 13.1 - 13.4

ENVIRONMENTAL STUDIES

Semester: III **Hours: 2**

Code : 17ES3GS01 **Credits: 2**

COURSE OUTCOMES:

- Recall the components of our planet earth.
- Elucidate and understand the importance of Natural resources.
- Summarise the energy status of the environment.
- Acquire knowledge on the conservation of our environment.
- Analyse the significance of water and climate towards sustainable development.

UNIT I: MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance - Need for public awareness **(2 Hours)**

UNIT II: NATURAL RESOURCES

Classification of Resources: Renewable and non - renewable resources - Forest resources, water resources, mineral resources, food resources, energy resources, Land resources - associated problems; Role of an individual in conservation of natural resources - Equitable use of sources for sustainable life styles. **(8 Hours)**

UNIT III: ECOSYSTEMS

Concept of an ecosystem - Structure and function of an ecosystem - producers, consumers and decomposers - Energy flow in the ecosystem - Food chains, food webs and ecological pyramids - Introduction, types, characteristic features, structure and function of the following Eco system: Forest, grass land, desert and aquatic. **(6 Hours)**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition, Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards, Solid waste management, Role of an individual in prevention of pollution.

(8 Hours)

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENTS

From unsustainable to sustainable development - Urban problems related to energy Water conservation, rain water harvesting, water shed management, Resettlement and rehabilitation of people, its problem and concerns, case studies, Environmental ethics, Climate change, global warming, acid rain and ozone layer depletion, nuclear accidents and holocaust, case studies. Waste land reclamation. Environmental protection act, air act, water act, wild life protection act.

(6 Hours)

FIELD WORK

Visit to local area to document environmental assets- river/forest/ grassland/hill/ mountain.

COURSE BOOK:

Murugeshan, R., (2007). Environmental science and Engineering, Millenium publication, Madurai.

UNIT I : Section - 1.1 & 1.2

UNIT II : Section - 1.3 to 1.37

UNIT III : Section - 2.1 to 2.7 & 2.10 to 2.27

UNIT IV : Section - 3.1 to 3.37

UNIT V : Section - 4.1 to 4.17

Note: Tamil Version for Tamil Literature and History Tamil Medium Students.

OFFICE AUTOMATION (Stream B)

Semester: III **Hours: 2**

Code : 17AE3SK03 **Credits: 2**

LEARNING OUTCOME:

- Handle the tools of MS office
- Create animations, presentations and documents.
- Prepare spreadsheets using MS Excel for various applications.
- Develop computational skills
- Use DTP skills to become an Entrepreneur.

MICROSOFT OFFICE 2017

MS WORD:

1. Formatting
2. Table Creation
3. Mail Merge
4. Preparation of advertisement using drawing tool

MS EXCEL:

5. Excel Function (statistical)
6. Data filtering and sorting
7. Mark sheet, pay bill Preparation
8. Data analysis using chart

MS ACCESS:

9. Database Creation & Mark Sheet Preparation
10. Forms and Reports Creation

MS POWERPOINT:

11. Theme - based presentation with Animation Effects

MS OUTLOOK:

12. Personalized Email and Account creation, sending mails with attachments

COURSE BOOK:

Study Material prepared by Mathematics, Physics and Chemistry.

BOOKS FOR REFERENCE:

1. D. P. Nagpal - Computer Fundamentals - S. Chand & Company Ltd, New Delhi - 1999.
2. V. Rajaraman - Fundamentals of Computers, 3rd edition - Prentice Hall of India Private Limited - 2001.
3. B. Ram - Computer Fundamentals, 3rd edition - New Age International Pvt. Ltd - 2010.

பொதுத்தமிழ் - பழந்தமிழ் இலக்கியம்

பருவம்: நான்கு **நேரம்: 5**

குறியீடு: 17GT4GS04 **புள்ளி: 4**

நோக்கம்:

- ❖ பழந்தமிழ் இலக்கிய வளங்களை அறிந்து கொள்வர்.
- ❖ பழந்தமிழ் இலக்கியங்களின் சமூகநிலையைப் புரிந்து கொள்வர்.
- ❖ பழந்தமிழ் இலக்கியத்தின் தனித்தன்மையை அறிந்து கொள்வர்.
- ❖ பழந்தமிழ் இலக்கியத்தில் காணப்படும் நயங்களைத் தெரிந்து கொள்வர்.
- ❖ பழந்தமிழ் இலக்கிய ஆசிரியர்களை அடையாளம் காண்பர்.

அலகு 1: சங்க இலக்கியங்கள் - எட்டுத்தொகை

1. நற்றிணை (2 பாடல்கள்)

"சுரும்புண விரிந்த கருங்கால்..." - குறிஞ்சி

"தொல்கவின் தொலையத்..." - பாலை

2. குறுந்தொகை (4 பாடல்கள்)

"மாசறக் கழீஇய..." - குறிஞ்சி
"ஐயவி யன்ன சிறுவீ..." - மருதம்
"கடும்புனல் தொடுத்த..." - நெய்தல்
"முட்டு வேன்கொல்.." - பாலை

3. கலித்தொகை (1 பாடல்)

"வேங்கை தொலைத்த வெறிபொறி....."- குறிஞ்சிக்கலி தோழிகூற்று

4. அகநானூறு (2 பாடல்கள்)

"வயங்கு வெள்....." குறிஞ்சி

'கார்பயம் பொழிந்த....." முல்லை

5. புறநானூறு (2 பாடல்கள்)

"கழிந்தது பொழிந்தென....."

"பன்மீன் இமைக்கும்....."

அலகு 2: பத்துப்பாட்டு

முல்லைப்பாட்டு முழுவதும்

அலகு 3: நீதி நூல்கள்

1. திருக்குறள் : அறத்துப்பால் - பொறையுடைமை, அழுக்காறாமை

2. நாலடியார் : அறத்துப்பால்

துறவு: "விளக்குப்புக....."

ஈகை: "இல்லா விடத்தும்....."

அலகு 4: இலக்கணம்

வல்லெழுத்து மிகும் இடம், மிகா இடம்

இலக்கிய வரலாறு

சங்க காலம், சங்கம் மருவிய காலம் தொடர்பான இலக்கிய வரலாறு.

அலகு 5: வணிகத்தமிழ் -அறிவியல் தமிழ்

கடல் நாகரிகம் - கடல் வாணிபம் - பக்: 233-241
உடல் அறிவியல் - பக்: 75-88

பாடநூல் :

தமிழ்த்துறை வெளியீடு, ஜெயராஜ் அன்னபாக்கியம் மகளிர் கல்லூரி. பெரியகுளம்.

பார்வைநூல்கள்:

1. வ.த. இராமசுப்பிரமணியம் (உ.ஆ) - நற்றிணை, திருமகள் நிலையம், சென்னை-17. முதற்பதிப்பு - 2009.
2. புலவர் துரைஇராசாராம் (உ.ஆ) - குறுந்தொகை, முதற்பதிப்பு 2008. திருமகள் நிலையம், சென்னை - 17.
3. முனைவர்.அ.விசுவநாதன் (உ.ஆ) - கலித்தொகை, நியூசெஞ்சுரி புக்ஹவுஸ், சென்னை - 98. முதற்பதிப்பு 2007.
4. வ.த. இராமசுப்பிரமணியம் (உ.ஆ) - அகநானூறு, திருமகள் நிலையம், சென்னை -17. முதற்பதிப்பு 2009.
5. வ.த. இராமசுப்பிரமணியம் (உ.ஆ) - புறநானூறு, திருமகள் நிலையம், சென்னை - 17. முதற்பதிப்பு 2008.
6. முனைவர்.இரா.மோகன் (உ.ஆ) - பத்துப்பாட்டு, பாவைபிரிண்டர்ஸ், சென்னை 14, முதற்பதிப்பு - 2004.
7. எஸ். கௌமாரீஸ்வரி (ப.ஆ) - திருக்குறள் பரிமேலழகர் உரை சாரதா பதிப்பகம், சென்னை - 600 014, முதற்பதிப்பு - 2002.
8. எஸ். கௌமாரீஸ்வரி (ப.ஆ) - பதினெண்கீழ்க்கணக்கு நூல்கள் சாரதா பதிப்பகம், சென்னை - 14, முதற்பதிப்பு - மார்ச் - 2009.
9. எம்மார். அடைக்கலசாமி - தமிழ் இலக்கிய வரலாறு ராசிபதிப்பகம், சென்னை - 73, பதிப்பு 35. 2002.
10. மாத்தளை சோமு - வியக்கவைக்கும் தமிழர் அறிவியல், உதகம், திருச்சி முதற்பதிப்பு 2005.
11. மணவை முஸ்தபா - காலம் தேடும் தமிழ், மீரா பதிப்பகம், சென்னை - 40, 1993.

LANGUAGE THROUGH LITERATURE - IV

STREAM A

Semester: IV **Hours: 6**

Code : 17GE4GSA4 **Credits: 4**

COURSE OUTCOMES:

- Employ knowledge of literary traditions to produce imaginative writing
- Analyze and interpret literature
- Develop their English language skills continuously
- Develop their appreciation for the purpose and pleasure of poetry and drama
- Conduct self-evaluation about their own language learning processes

UNIT I: PROSE **30 Hours**

1. Character is Destiny - S.Radhakrishnan
2. Why the Sea is Salt - Great Legends

UNIT II: POETRY **30 Hours**

1. La Belle Dame Sans Merci - John Keats
2. The Last Ride Together - Robert Browning.
3. Goodbye Party for Miss. Puspha T.S - Nissim Ezekiel

UNIT III: SHORT STORY **15 Hours**

1. Valiant Vicky - Flora Annie Steel
2. The Conjurer's Revenge - Stephen Leacock

UNIT IV: ONE ACT PLAYS

1. Mother's Day - J.B. Priestly
2. The Game of Chess - Kenneth Sawyer Goodman

UNIT V: WRITING SKILLS **15 Hours**

1. Minutes Writing
2. Book Review
3. Essay Writing
4. Prepositions
5. Conjunction

COURSE BOOKS:

1. Limelight - 4 (An Anthology of Prose, Short Story and One Act Plays)
2. Savarimuttu,J.S Rohan, and Petricia Alphine Nirmala. *English Grammar and usage – An ideal Companion For Advanced Learners.* Chennai: New Century Book House (P) Ltd, 2016.Print.

LANGUAGE THROUGH LITERATURE - IV-17GE4GSA4

STREAM A

QUESTION PATTERN

Time: 3 Hours **Marks: 60**

I. Choose the best answer 10X1=10

(From Unit I and II)

II. Answer any two of the following in a Paragraph of 100 words each. 2X5=10

(Two out of four from Unit I, & II)

III. Answer any two of the following in an essay of 300 words each. 2X10=20

(Two out of four from Unit I , II, III & IV)

IV. Answer any two of the following questions from unit V 2x5=10

1. Minutes Writing
2. Book Review
3. Essay Writing

V. Fill in the blanks.

1. Prepositions 5x1=5
2. Conjunction 5x1=5

LANGUAGE THROUGH LITERATURE - IV

STREAM B

Semester: IV **Hours: 6**

Code : 17GE4GSB4 **Credits: 4**

COURSE OUTCOMES:

- Read and understand language and description of topics from a variety of texts.
- Write describing impressions, feelings and experiences and to write about familiar topics.
- Understand familiar topics and be able to understand speech on a variety of subjects such as work, school, leisure and the main points when listening to current affairs.
- Talk about familiar topics and to give explanations and reasons for opinions, past actions and future plans.
- Understand and apply in everyday contexts, including the use of nouns, adjectives, verbs, prepositions, tenses, sentence structure and phrases.

UNIT I: PROSE **30 Hours**

1. C. Rajagopalachari - First Anniversary of Gandhiji's Death
2. J.C. Hill - Good Manners
3. James Thurber - University Days

UNIT II: POETRY **15 Hours**

1. Sarojini Naidu - Conquest
2. D.H. Lawrence - Money Madness
3. Robert Frost - Mending Wall

UNIT III: DRAMA **15 Hours**

Select Scenes from "The Merchant of Venice" by William Shakespeare.

1. The Opening Scene
2. The Casket Scene
3. The Trial Scene

UNIT IV: GRAMMAR **15 Hours**

1. Question Tag
2. Negative Sentences

UNIT V: COMMUNICATION SKILLS **15 Hours**

Information Transfer and E Language Communication

COURSE BOOKS:

1. "Variety of English for Effective Communication" - Book IV - Ed. Dr. A. Shanmugakani, Madurai: Manimekala Publishing House, 2012.
2. Savarimuttu, J.S Rohan, and Petricia Alphine Nirmala. *English Grammar and usage – An ideal Companion For Advanced Learners.* Chennai: New Century Book House (P) Ltd, 2016. Print.

LANGUAGE THROUGH LITERATURE - IV - 17GE4GSB4

STREAM B

QUESTION PATTERN

Time: 3 Hours **Marks: 60**

I. Choose the best answer 10x1=10

(From Unit I and II)

II. Match the Following 5x1=5

(Vocabulary items from Unit I)

III. Answer any two of the following in a Paragraph of 100 words each. 2x5=10

(Two out of four from Unit I, II & III)

IV. Answer any two of the following in an essay of 300 words each 2x10=20

(Two out of four from Unit I, II & III)

V. Rewrite the following as directed. (From Unit IV)

1. Question Tag 2X1=2
2. Negative Sentences 3X1=3

VI. Answer the following questions 2x5=10

(From unit V)

a) Interpreting charts and making observations.

b) Reading passage and putting the information in graphic form.

MECHANICS

Semester: IV **Hours: 8**

Code : 17MA4MC07 **Credits: 6**

COURSE OUTCOMES:

- Understand the action of forces on rigid bodies.
- Analyze the concept of equilibrium of strings under the action of gravity.
- Compute equation of central orbit.
- Determine the path and range of a projectile in any direction.
- Acquire the knowledge about collision of elastic bodies.

UNIT I

Forces acting at a point - Parallelogram law of forces - Triangle law of forces - Converse of the Triangle law of forces - Polygon of forces - Lami's Theorem - Resolution of a force - Components of a force - Theorem on Resolved parts - Parallel forces - Resultant of two like parallel forces - Unlike parallel forces - Conditions of equilibrium - Moments - Varignon's theorem - Generalised theorem of moments. **(24 Hours)**

UNIT II

Couples - Equilibrium of two couples - Couples in Parallel Planes - Resultant of Coplanar Couples - Resultant of a Couple and a force. Three forces acting on a rigid body - Conditions of equilibrium - Trigonometric theorems - Problems - Coplanar Forces - Reduction of any number of Coplanar forces - Conditions of equilibrium. **(24 Hours)**

UNIT III

Friction - Laws of friction - Angle of friction - Coefficient of friction - Cone of Friction - Equilibrium of a body on a rough inclined plane under a parallel force and any force - Simple problems - Equilibrium of strings - Equation of common catenary - Tension at any point - Geometrical properties of the common catenary. **(24 Hours)**

UNIT IV

Projectiles - Definition - Path of a projectile - Characteristics - Maximum horizontal Range - Velocity of the projectile at the end of time t - Range on an inclined plane - Greatest distance - Enveloping parabola - Simple Harmonic Motion - Simple harmonic motion in a straight line - General solution of the S.H.M. equation - Geometrical representation - Change of origin - Composition of two simple harmonic motions of the same period and in the same straight line - Composition of two simple harmonic motions of the same period and in two perpendicular directions. **(24 Hours)**

UNIT V

Collision of Elastic bodies - Definition - Laws of Impact - Impact - Direct and Oblique impact - Newton's Experimental laws - Impact of a Smooth Sphere on a smooth plane - Impact of two Smooth Spheres - Loss in Kinetic energy - Oblique impact of two smooth spheres - Loss in Kinetic energy - Motion Under the action of Central forces - Velocity & Acceleration in Polar coordinates - Equation of motion - Motion under a central force - Differential Equation of central orbit - Pedal equation - Velocity in a central orbit. **(24 Hours)**

COURSE BOOKS :

1. **M. K. Venkatraman, Statics**, Agasthiar Publications 12th Edition, 2007.
2. **M. K. Venkatraman, Dynamics**, Agasthiar Publications 13th Edition, 2009.

Unit I : Chapter 2 : Sections 1 - 13 (Book 1)

Chapter 3 : Sections 1 - 13 (Book 1)

Unit II : Chapter 4 : Sections 1- 10 (Book 1)

Chapter 5 : Sections 1 - 6 (upto exercise in page no. 108) (Book 1)

Chapter 6 : Sections 1 - 12 (Book 1)

Unit III : Chapter 7 : Sections 1 - 12 (Book 1)

Chapter 11: Sections 1 - 6 (Book 1)

Unit IV : Chapter 6 : Sections 6.1 - 6.17 (Book 2)

Chapter 10 : Sections 10.1 - 10.7 (Book 2)

Unit V : Chapter 8 : Sections 8.1 - 8.8 (Book 2)

Chapter 11: Sections 11.1 - 11.10 (Book 2)

STATISTICS - II

Semester: IV **Hours: 5**

Code : 17MA4AC04 **Credits: 4**

COURSE OUTCOMES:

- Understand the statistical techniques used in the theory of attributes and index numbers.
- Estimate the parameters of population on the basis of given information.
- Make decision using t- test and F- test.
- Analyze the association between two or more groups and populations.
- Create ANOVA table.

UNIT I

Attributes - Consistency of data - Independence and Association of data - Index numbers Simple index numbers - Weighted index numbers - Consumer price index numbers - Conversion of Chain base index number into fixed base index and conversely. **(15 Hours)**

UNIT II

Sampling - Sampling distribution - Testing of hypothesis - Procedure for testing of hypothesis for large samples - Tests of significance for large samples.

(15 Hours)

UNIT III

Test of significance based on t-distribution(t - test) - Test of significance based on F-test - Test for significance of an observed sample correlation. **(15 Hours)**

UNIT IV

Test based on χ^2- distribution - χ^2- test - Introduction - χ^2- test to test the goodness of fit - χ^2- test for independence of attributes. **(15 Hours)**

UNIT V

Analysis of Variance - One criterion of classification - Two criteria of classification - Three criteria of classification Latin Square. **(15 Hours)**

COURSE BOOK:

S. Arumugam and A. Thangapandi Issac, Statistics, New Gamma Publishing House, 2015.

Unit I : Chapter 8 : Sections 8.1 - 8.3
Chapter 9 : Sections 9.1 - 9.3
Unit II : Chapter 14 : Sections 14.1 - 14.5
Unit III : Chapter 15 : Sections 15.1 - 15.3
Unit IV : Chapter 16 : Sections 16.0 - 16.3
Unit V : Chapter 17 : Sections 17.1 - 17.3

NUMERICAL METHODS

Semester: IV **Hours: 4**

Code : 17MA4CE1A **Credits: 3**

COURSE OUTCOMES:

- Solve simultaneous linear equations
- obtain approximate solutions of algebraic and transcendental equations
- Analyze and evaluate the accuracy of common numerical methods
- Solve Numerical methods using Mat Lab
- Compare different numerical methods

UNIT I

Algebraic and Transcendental Equations - Introduction - Errors in numerical computation - Iteration method - Bisection method (Bolzano method) - Regula Falsi method - Newton - Raphson method. **(12 Hours)**

UNIT II

Simultaneous Equations: Introduction - Simultaneous Equations - Back substitution - Gauss Elimination method - Gauss Jordan Elimination method - Interpolation - Newton's Interpolation Formulae - Central Difference Interpolation formula - Gauss forward interpolation formula - Gauss Backward interpolation formula - Sterling's formula - Bessel's formula - Laplace Everette's formula - Lagrange's Interpolation formula - Divided differences - Newton's Divided Difference Formula - Inverse Interpolation. **(12 Hours)**

UNIT III

Numerical Differentiation and Integration - Introduction - Derivatives using Newton's Forward Difference Formula - Derivatives using Newton's Backward Difference formula - Derivatives using central difference formula. **(12 Hours)**

UNIT IV

Numerical Integration - Newton - Cote's Quadrature formula - Trapezoidal rule - Simpson's one-third rule - Simpson's three eighth rule - Weddle's rule - Romberg's method. **(12 Hours)**

UNIT V

Numerical Solution of Ordinary Differential Equations - Introduction - Taylor's series method - Picard's method - Euler's method - Modified Euler's method - Runge - Kutta methods - First order R-K method - Second order R-K method - Third order R-K method - Fourth order R-K method. **(12 Hours)**

COURSE BOOK :

S. Arumugam, A. Thangapandi Isaac and A. Soma Sundaram, Numerical Methods, SciTech Publications (India) Pvt. Ltd., Second Edition, 2010.

Unit I : Chapter 3 : Sections 3.1 - 3.5

Unit II : Chapter 4 : Sections 4.1 - 4.4

Chapter 7 : Sections 7.1 - 7.6

Unit III : Chapter 8 : Sections 8.1 - 8.3

Unit IV : Chapter 8 : Section 8.5

Unit V : Chapter10 : Sections 10.1 - 10.4

FLUID DYNAMICS

Semester: IV **Hours: 4**

Code : 17MA4CE1B **Credits: 3**

COURSE OUTCOMES:

- Understand the kinematics of fluids in motion
- Impart knowledge about equations of motion
- Discuss three - dimensional flows
- Acquire the knowledge about vortex motion
- Compute complex velocity potentials for standard two - dimensional flows

UNIT I

Kinematics of Fluids in Motion - velocity of a fluid particle at a point - stream lines and path lines - steady and unsteady flows - the vorticity vector - local and particle rates of change - equation of continuity - worked examples - acceleration of a fluid - conditions at a rigid body. **(12 Hours)**

UNIT II

Euler's equations of motion - Bernoulli's equation - Pitot tube - Venturi tube. **(12 Hours)**

UNIT III

Some three dimentional flows - sources - sinks - doublets - images in a rigid infinite plane. **(12 Hours)**

UNIT IV

Vortex motion - vorticity vector - vortex line - vortex tube - Axi-symmetric flow - stokes stream function. **(12 Hours)**

UNIT V

Some two - dimentional flows - meaning of two - dimentional flows - use of cylindrical polar coordinates - the stream function - Complex velocity potentials for standard two - dimentional flows. **(12 Hours)**

COURSE BOOK :

F. Chorlton, COURSE BOOK of Fluid Dynamics, CBS Publications 1985.

Unit I : Chapter II : Sections 2.1 - 2.10

Unit II : Chapter III : Sections 3.4 - 3.6

Unit III : Chapter IV : Sections 4.1 - 4.3

Unit IV : Chapter IV : Section 4.5

Unit V : Chapter V : Sections 5.1 - 5.3 & 5.5

VOCATIONAL MATHEMATICS

Semester: IV **Hours: 2**

Code : 17MA4SK04 **Credits: 2**

COURSE OUTCOMES:

- Develop numerical ability.
- Solve coding, decoding and reasoning problems.
- Complete the sequence of numbers and solve problems using Venn diagram.
- Understand the depth of Arithmetical ideas.
- Enhance their reasoning potential to crack competitive exams.

UNIT I

Classification - Choosing the odd numeral - Choosing the odd letter group.

(6 Hours)

UNIT II

Coding - Letter Coding - Number / Symbol coding - substitution. **(6 Hours)**

UNIT III

Verbal reasoning - Series completion - Alphabet series - Analogy - Completing the analogous pair - Number analogy . **(6 Hours)**

UNIT IV

Non-Verbal reasoning - Series (classification) choosing the odd figure - choosing a similar figure - finding figures with same characteristics. **(6 Hours)**

UNIT V

Arithmetical Reasoning - Calculation based problems - Venn diagram based problems. **(6 Hours)**

COURSE BOOK:

Course material is prepared by the Department.

MODERN ALGEBRA

Semester: V **Hours: 6**

Code : 17MA5MC08 **Credits: 5**

COURSE OUTCOMES:

- Acquire the knowledge of elementary concepts in Modern Algebra.
- Use appropriate techniques and reasoning to prove the properties of groups.
- Extend the results of groups to rings and fields.
- Compare the Unique Factorization Domain and Principal Ideal Domain.
- Determine the irreducibility of polynomials.

UNIT I

Permutation groups - Sub groups - Cyclic groups - Order of an element.

(18 Hours)

UNIT II

Cosets and Lagrange's theorem - Normal subgroups and Quotient groups.

(18 Hours)

UNIT III

Group Isomorphism - Group Homomorphisms. **(18 Hours)**

UNIT IV

Rings - Definition and examples - Elementary properties of rings - Isomorphism - Types of rings - Characteristic of a ring - Sub rings - Ideals - Quotient rings - Homomorphism of Rings - Field of quotients of an integral domain. **(18 Hours)**

UNIT V

Unique factorization domain(U.F.D) - Euclidean domain - Every principal ideal domain is a unique factorization domain - Polynomial rings - Polynomial rings over U.F.D - Polynomials over Q. **(18 Hours)**

COURSE BOOK:

S. Arumugam and A. Thangapandi Issac, Modern Algebra, Scitech Publications (India) Pvt. Ltd., 2008.

Unit I : Chapter 3: Sections 3.4 - 3.7

Unit II : Chapter 3: Sections 3.8 & 3.9

Unit III : Chapter 3: Sections 3.10 & 3.11

Unit IV : Chapter 4: Sections 4.1 - 4.8, 4.10 & 4.11

Unit V : Chapter 4: Sections 4.13 - 4.18

MODERN ANALYSIS

Semester: V **Hours: 6**

Code : 17MA5MC09 **Credits: 5**

COURSE OUTCOMES:

- Acquaint with the real number system, functions and inequalities.
- Acquire the knowledge on countable and uncountable sets.
- Analyze the basic concepts of limits and continuity.
- Understand the concepts of completeness and connectedness in metric spaces.
- Be familiar with the characterization of compactness.

UNIT I

Countable sets - Uncountable sets - Inequalities of Holder and Minkowski - Inequalities - Triangle inequalities - the arithmetic, geometric and harmonic means - Cauchy - Schwarz inequality. **(18 Hours)**

UNIT II

Metric spaces - Definition and examples - Bounded sets in a metric space - Open ball in a metric space - Open sets - Subspaces - Interior of a set - Closed sets - Closure - Limit point - Dense sets. **(18 Hours)**

UNIT III

Complete metric spaces - Introduction - Completeness - Baire's Category theorem - Contraction mapping - Definition and examples - Contraction mapping theorem. **(18 Hours)**

UNIT IV

Introduction - Continuity - Homeomorphism - Uniform continuity - Connectedness definition and examples - Connected subsets of R - Connectedness and continuity. **(18 Hours)**

UNIT V

Compactness - Introduction - Compact metric spaces - Compact subsets of R equivalent characterizations for compactness - Compactness and continuity. **(18 Hours)**

COURSE BOOKS:

1. **S. Arumugam and A. Thangapandi Issac, Modern Analysis**, New Gamma Publishing House, 2010.
2. **S. Arumugam and A. Thangapandi Isaac, Sequences and Series,** New Gamma Publishing House, 2015.

Unit I : Chapter 1: Sections 1.2 - 1.4 (Book 1)

Chapter 2: Sections 2.1 - 2.5 (Book 2)

Unit II : Chapter 2: Sections 2.1 - 2.10 (Book 1)

Unit III : Chapter 3: Sections 3.0 - 3.2 (Book 1)

Chapter 8: Section 8.1 (up to theorem 8.2) (Book 1)

Unit IV : Chapter 4: Sections 4.0 - 4.3 (Book 1)

Chapter 5: Sections 5.0 - 5.3 (Book 1)

Unit V : Chapter 6: Sections 6.0 - 6.4 (Book 1)

GRAPH THEORY

Semester: V **Hours: 6**
Code : 17MA5MC10 **Credits: 5**

COURSE OUTCOMES:

- Understand the basic concepts of Graph.
- Design models using Euler and Hamiltonian graphs.
- Discover solutions to real life problems using matchings.
- Utilize algorithms in coloring of graphs.
- Identify the platonic bodies.

UNIT I

Basics - Graphs - Pictorial representation - Sub graphs - Isomorphism and degrees - Walk and connected graphs - Cycles in graphs - Cut-vertices and cut-edges. **(18 Hours)**

UNIT II

Eulerian, Hamiltonian graphs - Eulerian graphs - Fleury's algorithm - Hamiltonian graphs - weighted graphs - Bipartite graphs - Marriage Problem - Trees. **(18 Hours)**

UNIT III

Planar graphs - Euler formula - Platonic solids - Dual of a plane graph - Characterization of planar graphs - Colourings - Vertex colouring - Edge colouring - An algorithm for vertex colouring. **(18 Hours)**

UNIT IV

Directed Graphs - Connectivity in digraphs - Strong orientation of graphs - Eulerian digraphs - Tournament. **(18 Hours)**

UNIT V

Labellings - Predecessor and successor - Algorithm - Graceful graphs - Sequential functions - Application - Magic graphs. **(18 Hours)**

COURSE BOOKS :

1. **S. A. Choudum, A First Course in Graph Theory**, Macmillan India Ltd., 2011.
2. **M. Murugan, Graph Theory and Algorithm**, Muthali Publishing House, Chennai, I Edition.

Unit I : Chapter 1: Sections 1.1 - 1.7 (Book I)
Unit II : Chapter 2 : Sections 2.1 - 2.2 (omitting theorem 2.5), 2.3 & 2.4 (Book I)
Chapter 3: Sections 3.1 - 3.3 (Book I)
Unit III : Chapter 5: Sections 5.1 - 5.5 (Book I)
Chapter 6: Sections 6.1 - 6.3 (Book I)
Unit IV : Chapter 7: Sections 7.1 - 7.5 (Book I)
Unit V : Chapter 10: Sections 10.1 - 10.6 (Book 2)

PROGRAMMING IN C - THEORY

Semester: V **Hours: 4**

Code : 17MA5MC11 **Credits: 4**

COURSE OUTCOMES:

- Understand the basic structure of C Programs.
- Acquire the knowledge of constants, variables, arrays and data types.
- Identify C operators and expressions.
- Analyze decision making and looping.
- Write and execute programs using pointers and functions.

UNIT I

Introduction to C - Importance of C - Sample C programs - Basic structure of C programs. Constants, variables and data types - Introduction - C character set - C tokens - Keywords and identifiers, constants, variables, data types, declaration of variables, assigning values to variables - Defining symbolic constants. Operators & expressions - Arithmetic operators - Relational operators - Logical operators - assignment operators - Increment and decrement operators - Conditional operators - Bitwise operators - Special operators - Arithmetic expressions - Evaluation of expressions - Precedence of arithmetic operators - Some computational problems - Type conversions in expressions - Operator precedence and associativity - Mathematical functions. **(12 Hours)**

UNIT II

Managing input and output operators - Introduction - Reading a character - Writing a character - Formatted input - Formatted output. Decision making and Branching - Introduction - Decision making with If statement - The If Else statement - Nesting of If … Else statements - The Else If ladder- The switch statement - The ?: Operator - The GOTO statement. Decision making and Looping- Introduction - The While statement - The Do statement t - The for statement - Jumps in loops. **(12 Hours)**

UNIT III

Arrays - Introduction - One dimensional arrays - Declaration of one-dimensional arrays - initialization of one-dimensional arrays - Two-dimensional arrays - Initializing two-dimensional arrays - Multi-dimensional arrays - Dynamic arrays - more about arrays. Character Arrays and Strings - Introduction - Declaring and initializing string variables - Reading strings from terminal - Writing strings to screen - Arithmetic operations on Characters - Putting strings together - Comparison of two strings - String handling functions - Table of strings.**(12 Hours)**

UNIT IV

User- defined Functions - Introduction - Need for user- defined functions - A multi-function program - Elements of user-defined functions - Definition of functions - Return values and their types - Function calls - Function declaration - Category of functions - No arguments and no return values - Arguments and but no return values - Arguments with return values - No arguments but returns a value - Functions that return multiple values - Nesting of functions - Recursion - Passing arrays to functions - Passing strings to functions - The scope, visibility and life time of variables - Multifile programs. **(12 Hours)**

UNIT V

Structures and Unions - Defining a structure - Declaring structure variables - Accessing structure members - Structure initialization - Copying and comparing structure variables - Operations on individual members - Arrays of structures - arrays within structures - Structures within structures - Structures and functions - unions - Size of structures - Bit fields - Pointers - Introduction - Understanding pointers - Accessing the address of a variable - Declaring pointer variables - initialization of pointer variables - Accessing a variable through its pointer - chain of pointers - Pointer expressions - Pointer increments and scalar factor - Pointers and arrays - Pointers and character strings - Array of pointers - Pointers as function arguments - Functions returning pointers - Pointers to functions.

(12 Hours)

COURSE BOOK :

E. Balagurusamy, Programming in ANSI C, Tata Mcgraw Hill Education Private Limited, New Delhi, Sixth Edition.

Unit I : Chapter 1: Sections 1.1 - 1.8,

Chapter 2: Sections 2.1 - 2.11

Chapter 3

Unit II : Chapters 4, 5 & 6

Unit III : Chapter 7

Chapter 8: Sections 8.1 - 8.9

Unit IV : Chapter 9

Unit V : Chapter 10: Sections 10.1 - 10.14

Chapter 11: Sections 11.1 - 11.15

PROGRAMMING IN C - LAB

Semester: V **Hours: 2**

Code : 17MA5CP01 **Credits: 1**

COURSE OUTCOMES:

- Understand the basic structure of C Programs.
- Acquire the knowledge of constants, variables, arrays and data types.
- Identify C operators and expressions.
- Analyze decision making and looping.
- Write and execute programs using pointers and functions.

1. Write a program to find the simple interest and compound interest.
2. Write a program to solve the quadratic equation using switch statement.
3. Write a function subprogram to calculate the factorial of a number and find nCr and nPr.
4. Write a program to arrange the strings alphabetically.
5. Write a program to find the product of two matrices and find the determinant value of the resultant matrix.
6. Write a program to calculate the mean and variance.
7. Write a program to convert the given text of characters to upper case and count the number of vowels in the given sentence.
8. Write a program to calculate the correlation coefficient for the given data.
9. Write a program to fit a straight line y = ax + b for the given data.
10. Write a program to read a positive integer and determine whether
    (a) the integer is prime (b) the integer is Fibonacci number.
11. Write a program to calculate the root of a function using Bisection Method and Newton - Raphson Method.
12. Write a program to calculate the value of the given integral using Trapezoidal Rule and Simpson's 1/3 rule.

FINANCIAL MATHEMATICS

Semester: V **Hours: 4**

Code : 17MA5CE2A **Credits: 3**

COURSE OUTCOMES:

- Acquire the knowledge of simple annuities and life insurance policies.
- Compute the yield rate of bonds.
- Familiar with capital budgeting and depreciation.
- Apply statistical tools to calculate contingent payments.
- Use mathematical methods to solve financial problems.

UNIT I

Simple annuities - Definition and notations - Accumulated value of an Ordinary Simple Annuity - Discounted Value of an Ordinary Simple Annuity Other simple Annuities - Finding the term of an Annuity - Finding the interest rate. **(12 Hours)**

UNIT II

Bonds - Introduction to Terminology - Purchase price to yield a given investment rate - Callable bonds - Premium and Discount - Price of a bond between Bond interest Dates - Finding the yield rate . **(12 Hours)**

UNIT III

Capital budgeting and depreciation - Net present Value - Internal rate of Return - Capitalized cost and Capital Budgeting - Depreciation. **(12 Hours)**

UNIT IV

Contingent payments - Introduction - Probability - Mathematical Expectation - Contingent payments with time value. **(12 Hours)**

UNIT V

Life annuities and Life insurance - Introduction - Mortality Tables - Pure endowments - Life annuities-Life insurance - Annual Premium Policies. **(12 Hours)**

COURSE BOOK :

Peter Zima and Robert L. Brown, Mathematics of Finance, Tata Mcgraw- Hill Second Edition, 1999.

Unit I : Chapter 5 : Sections 5.1 - 5.6

Unit II : Chapter 8 : Sections 8.1 - 8.6

Unit III : Chapter 9 : Sections 9.1 - 9.4

Unit IV : Chapter 10: Sections 10.1 - 10.4

Unit V : Chapter 11: Sections: 11.1 - 11.6

FUZZY SETS AND FUZZY NUMBERS

Semester: V **Hours: 4**

Code : 17MA5CE2B **Credits: 3**

COURSE OUTCOMES:

- Relate concepts between classical sets and fuzzy sets.
- Acquaint with membership functions.
- Acquire knowledge of basic operations on fuzzy sets.
- Critique the properties and principles of fuzzy sets.
- Develop arithmetical ability on fuzzy numbers.

UNIT I

From classical (crisp) sets to Fuzzy sets - Introduction - Crisp sets: An overview - Fuzzy sets: Basic types - Fuzzy sets: Basic concepts. **(12 Hours)**

UNIT II

Fuzzy sets verses crisp sets - Additional properties of α-cuts - Representations of fuzzy sets - Extension principle for fuzzy sets. **(12 Hours)**

UNIT III

Operations on fuzzy sets - Types of operations - Fuzzy complements - Fuzzy intersections: t-Norms. **(12 Hours)**

UNIT IV

Fuzzy unions : t-Conorms - Combinations of operations - Aggregation operations.

(12 Hours)

UNIT V

Fuzzy numbers - Linguistic variables - Arithmetic operations on intervals - arithmetic operations on fuzzy numbers - Lattice of fuzzy numbers - Fuzzy equations. **(12 Hours)**

COURSE BOOK :

George J. Klir / Bo Yuan, Fuzzy sets and Fuzzy Logic, **Theory and Applications**, Prentice Hall of India Pvt. Ltd., New Delhi, 2008.

Unit I : Chapter 1: Sections 1.1 - 1.4

Unit II : Chapter 2: Sections 2.1 - 2.3

Unit III : Chapter 3: Sections 3.1 - 3.3

Unit IV : Chapter 3: Sections 3.4 - 3.6

Unit V : Chapter 4: Sections 4.1 - 4.6

CRYPTOGRAPHY

Semester: V **Hours: 4**

Code : 17MA5CE2C **Credits: 3**

COURSE OUTCOMES:

- Encrypt and decrypt the hidden messages
- Compare asymmetric and symmetric encryption
- Analyze the structure and design of Advanced Encryption System
- Develop an algorithm for decryption and encryption
- Apply the basic techniques to protect data in computer and communication environment

UNIT I

Data Encryption Techniques - Introduction - Encryption Methods - Cryptography - Cryptanalysis - Substitution Ciphers - Transposition Ciphers - Steganography.

(12 Hours)

UNIT II

Data Encryption Standards - Block Ciphers - Block Ciphers Modes of Operation - Feistel Ciphers - Data Encryption Standard - Triple DES - DES Design Criteria - Side Channel Attacks - Other Block Ciphers - Differential Cryptanalysis - Linear Cryptanalysis. **(12 Hours)**

UNIT III

Advanced Encryption Standard - Introduction - Advanced Encryption Standard - Overview of Rijndael - Optimization of the Cipher - Advantages and Limitations of Rijndael - Comparison of AES with Other Ciphers . **(12 Hours)**

UNIT IV

Symmetric Ciphers - Blowfish Encryption Algorithm - RC5 - RC4 - RC6 - Comparison between RC6 and RC5 - Idea . **(12 Hours)**

UNIT V

Public Key Cryptosystems - Introduction - Public Key Encryption - The RSA Algorithm - Timing Attacks . **(12 Hours)**

COURSE BOOK:

V.K. Pachghare, Cryptography and Information Security, PHI Learning Private Limited 2010

UNIT I	:	Chapter 2: Sections 2.1 - 2.7
UNIT II	:	Chapter 3: Sections 3.1 -3.10.
UNIT III	:	Chapter 4: Sections 4.1 - 4.6
UNIT IV	:	Chapter 5 :Sections 5.1 - 5.6
UNIT V	:	Chapter 7 :Sections 7.1 - 7.4

TRANSFORMS AND APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS

Semester: V **Hours: 4**

Code : 17MA5CE2D **Credits: 3**

COURSE OUTCOMES:

- Demonstrate the concept of fourier transforms.
- Apply fourier transform to solve Partial Differential Equations.
- Identify the wave and heat equation.
- Explain Z-transform.
- Evaluate inverse Z-transform using cauchy's Residue theorem and long division method

UNIT I

Fourier Transform - Introduction-Integral Transforms - Fourier Cosine and Sine Integral- Fourier Transform-Properties of Fourier Transforms-Solution of Differential Equations by Fourier Transform. **(12 Hours)**

UNIT II

Fourier Sine & Cosine Transform - Fourier Cosine Transform - Fourier Sine Transform - Properties of Fourier Cosine and Sine Transforms - Finite Fourier Transforms - Solution of Partial Differential Equations by Fourier Transform.

(12 Hours)

UNIT III

Applications of Partial Differential Equations - Solution of the Wave Equation - One Dimensional Heat Equations. **(12 Hours)**

UNIT IV

Z - Transforms - Definition of Z - Transform - Z - Transforms of some basic functions

(12 Hours)

UNIT V

Inverse Z-Transform - Inverse Z-Transform - Method I: Using convolution theorem - Method II: Long division method - Method III: By using Cauchy's residue theorem - Method IV: Partial Fractions Method. **(12 Hours)**

COURSE BOOK:

Transforms and Partial Differential Equations.K.Vairamanikam, Nirmala P. Ratchagar, S. Tamilselvan, Scitech Publications India Pvt. Ltd.

UNIT I : Chapters: 2, Sections 2.1 - 2.6
UNIT II : Chapters: 2, Sections 2.7 - 2.11
UNIT III : Chapters: 4, Sections 4.6 & 4.7
UNIT IV : Chapters: 5, Sections 5.1 & 5.2
UNIT V : Chapters: 5, Sections 5.3 & 5.7

APTITUDE BUILDING - I

Semester: V **Hours: 2**

Code : 17AE5NE01 **Credits: 2**

COURSE OUTCOMES:

- Understand the basic concepts of numerical ability.
- Gain mastery over logical reasoning through concise thinking.
- Have command over English Language.
- Acquaint with general knowledge and current affairs.
- Develop sufficient confidence to face competitive exams and clear it.

UNIT I

Numerical Ability: Numbers - Highest common factor & Least common multiple of numbers - average - Problems on numbers - percentages - Problems on ages - Percentage - Profit and loss - ratio and proportion - Time & work.

UNIT II

Reasoning: Series completion - analogy - coding & decoding - puzzle test - direction sense test - alphabet test - alpha - numeric sequence puzzle - arithmetic reasoning - inserting missing character - logical sequence of words.

UNIT III

English Language: Spotting errors: Articles, Tenses, Nouns, Pronouns, Adjectives, adverbs, Prepositions - Selecting the most suitable word - Synonyms, Antonyms - Spell check - Double blanks in a sentence.

UNIT IV

General knowledge: Computer awareness: Classification, Elements of computing process, Programming languages, Computer memory, Software & Hardware, Operating systems - Banking awareness: Banking Regulation act, Reserve Bank of India, Commercial banks, e-banking, Currency system, Money Market, Banking and Finance, Indian Monetary Policy.

UNIT V

Current affairs: National & International Current Affairs: Economy, Sports, Science & Technology, Polity.

COURSE BOOK:

Course Material prepared by the Staff.

BOOKS FOR REFERENCE:

1. IBPS - VI, Institute of Banking Personnel Selection, Bank Po, Probationary officers/Management trainees Arihant Publications (India) Limited, 2015.
2. A.P. Bhardwaj, General English for Competitive Examinations, Dorling Kindersley (India) Pvt Ltd, New Delhi, 2013.
3. Dr. R.S. Aggarwal, Quantitative Aptitude, S.Chand & Company PVT.LTD, New Delhi, 2013.
4. Dr. R.S. Aggarwal, A Modern Approach to Verbal & Non - Verbal Reasoning, S. Chand & Company PVT.LTD, New Delhi, 2009.

LINEAR ALGEBRA

Semester: VI **Hours: 6**

Code : 17MA6MC12 **Credits: 5**

COURSE OUTCOMES:

- Analyze finite and infinite dimensional vector spaces over a field.
- Determine the linear independency of vectors.
- Familiar with the concepts of basis of a vector space.
- Use the characteristic polynomial to find the eigen vectors of a square matrix.
- Reduce quadratic form to diagonal form.

UNIT I

Vector spaces - Introduction - Definition and examples - Subspaces - Linear transformations - Span of a set. **(18 Hours)**

UNIT II

Linear independence - Basis and dimension - Rank and nullity - Matrix of a linear transformation. **(18 Hours)**

UNIT III

Inner product spaces - Introduction - Definition and examples - Orthogonality - Orthogonal complement. **(18 Hours)**

UNIT IV

Theory of matrices: Introduction - Algebra of matrices - Types of matrices - The inverse of a matrix - Elementary transformations - Rank of a matrix - Simultaneous linear equations. **(18 Hours)**

UNIT V

The characteristic equation and Cayley Hamilton theorem - Eigen values & Eigen vectors - Bilinear forms - Quadratic forms. **(18 Hours)**

COURSE BOOK :

S. Arumugam and A. Thangapandi Isaac, Modern Algebra, Scitech Publications (India) Pvt. Ltd., 2008.

Unit I : Chapter 5: Sections 5.0 - 5.4

Unit II : Chapter 5: Sections 5.5 - 5.8

Unit III : Chapter 6: Sections 6.0 - 6.3

Unit IV : Chapter 7: Sections 7.0 - 7.6

Unit V : Chapter 7: Sections 7.7 & 7.8
Chapter 8: Sections 8.0 - 8.2

COMPLEX ANALYSIS

Semester: VI **Hours: 6**

Code : 17MA6MC13 **Credits: 5**

COURSE OUTCOMES:

- Acquire the knowledge of complex numbers and its properties.
- Determine the analyticity of complex functions.
- Evaluate complex integrals.
- Identify the regular and singular points of a function.
- Use residue theorem to evaluate definite integrals.

UNIT I

Analytic functions - Cauchy-Riemann equations - Sufficient conditions - Harmonic functions - Cauchy - Riemann equations in polar co-ordinates - Milne Thomson's method. **(18 Hours)**

UNIT II

Expansion of functions in power series - Taylor's theorem - Taylor's series and Laurent's series - Singular points - Essential singularity - Study of the function for the infinite value of Z - Argument Principle - Rouche's theorem - Fundamental theorem of algebra. **(18 Hours)**

UNIT III

Circles and straight lines - Bilinear transformation - Invariant points - Cross ratio - Transformation $w = z + \lambda$ - Transformation $w = \mu z$ - Transformation $w = \frac{1}{z}$ - Special bilinear transformations - The bilinear transformation which transforms - the real axis into itself - the unit circle $|z| = 1$ in the z-plane to the unit circle $|w| = 1$ in the w-plane - the upper half plane into the unit circle $|w| = 1$ - The bilinear transformation with - Two finite invariant points - One finite and an infinite invariant point - Infinity as the only invariant point. **(18 Hours)**

UNIT IV

Complex integration - Cauchy's integral theorem - Cauchy's integral formula - Derivatives of analytic functions - Morera's theorem - Cauchy's inequality - Liouville's theorem - Fundamental theorem of algebra. **(18 Hours)**

UNIT V

Residues - Evaluation of residue at a pole - Residue theorem - Evaluation of definite integrals - Integration of the Integral $\int_0^{2\pi} F(\cos\theta, \sin\theta)d\theta$ - Integrals between the limits $-\infty$ to ∞ - Extension of the theorem - Jordan's lemma.

(18 Hours)

COURSE BOOKS:

1. **S. Arumugam, A. Thangapandi Issac and Somasundaram, Complex Analysis,** New Gamma Publishing House, 1993.

2. **S. Narayanan and T. K. Manicavasagam Pillay, Complex Analysis**, S. Viswanathan Printers & Publishers Pvt. Ltd., 1997.

Unit I : Chapter 1: Sections 5 & 11 (Book 2)

Unit II : Chapter 4: Sections 1 - 5 (upto 5.4) (Book 2)

Unit III : Chapter 1: Section 1.7 (Book 1)

Chapter 2 : Sections 2.1 - 2.7 (Book 2)

Unit IV : Chapter 3 : Sections 1 - 11(Book 2)

(Omitting Section 12 - Maximum Modulus theorem)

Unit V : Chapter 5: Sections 1 - 7 (Book 2)

OPERATIONS RESEARCH

Semester: VI **Hours: 6**

Code : 17MA6MC14 **Credits: 5**

COURSE OUTCOMES:

- Solve problems in game theory.
- Analyze and interpret results in sequencing and replacement problems using iterations.
- Determine Queuing models.
- Understand the inventory models and time of replenishment.
- Apply modeling in optimization problems.

UNIT I

Theory of games - Introduction - Two Person Zero-Sum games - The Maximin Minimax Principle - Games without saddle points - Mixed strategies - Graphical solution of 2 × N and M × 2 games - Dominance Property - Reducing the game problem to a L.P.P. - Minimax and saddle point theorems (without proof).

(18 Hours)

UNIT II

Queuing Theory - Introduction - Queuing system - Characteristics of Queuing system - Symbols and notations - Poisson process and exponential distribution - Classification of queues - Definition of transient and steady states - Poisson Queues - (M/M/1) model, (∞/FIFO), (∞/SIRO), (N/FIFO) models. **(18 Hours)**

UNIT III

Sequencing - Introduction - Sequencing Problem - Problems with n-jobs and two machines - Optimal sequence algorithm - Problems with n-jobs and three-machines - Problems with n-jobs and m -machines - Graphic solution - Replacement Problem -Introduction - Replacement of items that Deteriorate with time - Replacement of items that fail completely. **(18 Hours)**

UNIT IV

Inventory Management - Introduction - Inventory control - Techniques of inventory control with selective control - Techniques of inventory control with known demand - Economic Lot Size problems - Problem of EOQ with shortage - Multi-item deterministic problem - Techniques of inventory control with uncertain demand. **(18 Hours)**

UNIT V

Network Scheduling by PERT/CPM - Introduction - Basic Concepts - Constraints in network - Construction of the network - Time calculations in network - Critical Path method - PERT - PERT Calculations - Resource levelling by Network Technique. **(18 Hours)**

COURSE BOOK:

Kanti Swarup, P. K. Gupta and Man Mohan, Operations Research, Second Greatly Improved Enlarged Edition (1984), Sultan Chand & Sons Publishers.

Unit I : Chapter 8: Sections 8.1 - 8.8

Unit II : Chapter 15: Sections 15.1 - 15.8.1.3

Unit III : Chapter 16: Sections 16.1 -16.6

Chapter 18: Sections 18.1 - 18.3.

Unit IV : Chapter 17: Sections 17.1 - 17.8

Unit V : Chapter 20: Sections 20.1 - 20.9

PROGRAMMING IN C++ - THEORY

Semester: VI **Hours: 4**

Code : 17MA6MC15 **Credits: 4**

COURSE OUTCOMES:

- Master in object oriented programming.
- Review the concepts of C++ functions and functions.
- Familiarize with constructors and destructors.
- Analyze the C++ control structures.
- Write programs on I/O operations and work with C++ files.

UNIT I

Software crisis - Software evolution - Basic concepts of object oriented programming - Beneifit of Oop - object oriented Languages - Application of Oop - application of C++ - More C++ statements - Structure of C++ programme - Creating source file - Compiling and linking - Tokens - Keyword and identifiers - Basic data type - User defined data type - Derived data type - Symbolic constants - Type compatibility - Declaration of variables - Operators of C++ - Manipulators - Type cost operator - Expression and Implicit conversions - operator overloading - control structures. **(12 Hours)**

UNIT II

The main functions - Function prototyping - Inline functions - Function overloading - Friend and virtual functions. Specifying a class - Defining member functions - Making a outside function inline - Nesting of member function - Static member function - Private member function - Array with in a class - Memory allocation for objects - Static data members - Array of objects - Objects as a function argument - Friendly Functions - Returning object constant member functions - Pointer to members. **(12 Hours)**

UNIT III

Constructors & Destructors - Parameterized constructors - Multiple constructors in a class - Constructors with default arguments - Dynamic initialization of objects - Copy constructors - Constructing two dimensional arrays - Destructors. Operator overloading - Defining operator overloading - Overloading unary operator - Binary operators - Overloading binary operators using friends - Manipulation of strings using operators - Rules for overloading operators - Type Conversion.

(12 Hours)

UNIT IV

Inheritance - Defining derived classes - Simple inheritance - Making a private member inheritable - Multilevel inheritance - Hybrid inheritance - Virtual base classes - Abstract classes - Constructor in derived class pointers - Virtual functions and polymorphism. Pointers to objects - The pointer - Pointers to derived classes - Virtual functions - Pure Virtual Functions. **(12 Hours)**

UNIT V

Managing Console I/O operators - Stream - C++ stream classes - unformatted I/O Operations - Managing output with manipulators. Working with files - Classes of file stream operations - Opening and closing a file. **(12 Hours)**

COURSE BOOK:

E. Balagurusamy, Object Oriented Programming with C++, Tata MaGraw Hill Publishing Company Ltd.

Unit I : Chapters 1, 2 & 3

Unit II : Chapters 4 & 5

Unit III : Chapters 6 & 7

Unit IV : Chapters 8 & 9

Unit V : Chapter 10

Chapter 11: Sections 11.1 - 11.3

PROGRAMMING IN C++ - LAB

Semester: VI **Hours: 2**

Code : 17MA6CP02 **Credit: 1**

COURSE OUTCOMES:

- Master in object oriented programming.
- Review the concepts of C++ functions and functions.
- Familiarize with constructors and destructors.
- Analyze the C++ control structures.
- Write programs on I/O operations and work with C++ files.

1. Write a program to print the following using for loop

   1
   2 2
   3 3 3
   4 4 4 4 so on.

2. Write a program to find the simple interest using default arguments.
3. Write a program to find the volume of a cube, cylinder, and cuboids using function overloading.
4. Write a program to multiply complex numbers using operator overloading.
5. Write a program to multiply a vector by a scalar using operator overloading.
6. Write a program using class to maintain a bank account.
7. Write a program to maintain library details using constructor and destructors.
8. Write a program for shopping list using classes.
9. Write a program to concatenate two strings using new operators.
10. Write a program to overload unary minus operator.
11. Write a program to maintain employee details using single inheritance.
12. Write a program to find the result of students using the class student and test through multilevel inheritance.
13. Write a program to create a file to prepare mark statement.

AUTOMATA THEORY & FORMAL LANGUAGES

Semester: VI **Hours: 4**

Code : 17MA6CE3A **Credits: 3**

COURSE OUTCOMES:

- Explore the concepts of grammars and languages.
- Describe regular languages by means of languages.
- Equip with the methods of transforming grammars.
- Develop parsing algorithms for context-free languages.
- Determine the decidability of context-free languages.

UNIT I

Introduction to three basic concepts - Languages, Grammars and Automata - finite Automata - Deterministic finite accepters and Non-deterministic finite accepters. **(12 Hours)**

UNIT II

Regular Languages Regular grammars - Regular expressions - Connection between Regular expressions and Regular languages, Regular grammars. **(12 Hours)**

UNIT III

Properties of Regular Languages - Closure properties of Regular Languages, elementary questions about regular languages, Identifying non regular languages - A Pumping lemma. **(12 Hours)**

UNIT IV

Context-free Languages - Context-free Grammars - Simplification of context free Grammars. Normal form - Methods for transforming Grammars - Two important normal forms - Chomsky Normal form - Greibach Normal form. **(12 Hours)**

UNIT V

Pushdown Automata - Non-deterministic Pushdown Automata - The Language accepted by pushdown Automata and Context-free Languages - Context-free Grammars for pushdown Automata. **(12 Hours)**

COURSE BOOK:

Peter Linz, An introduction to Formal Languages and Automata, Narosa Publications, Third Edition, 2008.

Unit I : Chapter 1: Section 1.2
Chapter 2: Sections 2.1 & 2.2.
Unit II : Chapter 3: Sections 3.1 - 3.3.
Unit III : Chapter 4: Sections 4.1 - 4.3
Unit IV : Chapter 5: Section 5.1
Chapter 6: Sections 6.1 & 6.2.
Unit V : Chapter 7: Sections 7.1 & 7.2.

COMBINATORICS

Semester: VI **Hours: 4**

Code : 17MA6CE3B **Credits: 3**

COURSE OUTCOMES:

- Familiar with various combinatorial numbers.
- Construct generating functions using recurrence relations and symmetric functions.
- Apply inclusion and exclusion principles in multinomials.
- Understand the concept of permutations with forbidden positions to solve the problem of Fibonacci.
- Apply combinatorial techniques in real life problems.

UNIT I

Basic Combinatorial Numbers - Stirling numbers of the second kind - Recurrence formula for $P_n m$. **(12 Hours)**

UNIT II

Generating functions - recurrence relations - symmetric functions. **(12 Hours)**

UNIT III

Multinomials - Multinomial theorem - Inclusion and Exclusion principle.

(12 Hours)

UNIT IV

Permutations with forbidden positions - the ménage problem - problem of Fibonacci. **(12 Hours)**

UNIT V

Necklace problem - G-equivalence - Burnside's lemma cycle index of a permutation group. **(12 Hours)**

COURSE BOOK:

V. Krishnamurthy, Combinatorics Theory and Applications, East West Press, 1985, I Edition

Unit I : Part I : Section 1

Unit II : Part I : Sections 2 & 3

Unit III : Part I : Sections 4 & 5

Unit IV : Part I : Section 6

Unit V : Part II: Sections 1 & 2

HISTORY OF MODERN MATHEMATICS

Semester: VI **Hours: 4**

Code : 17MA6CE3C **Credits: 3**

COURSE OUTCOMES:

- Know the development of Number System
- Informative about the Mathematicians who determined the methods of solving of equations
- Know the applications of Calculus
- Familiar with the introduction and progress of Geometry.
- Correlate Probabilities and Least squares

UNIT I

Theory of Numbers - Irrational and Transcendent Numbers - Complex Numbers - Quaternions and Ausdehnungslehre -Theory of Equations. **(12 Hours)**

UNIT II

Substitutions and Groups - Determinants - Quantics. **(12 Hours)**

UNIT III

Calculus - Differential Equations - Infinite Series. **(12 Hours)**

UNIT IV

Theory of Functions - Probabilities and Least Squares. **(12 Hours)**

UNIT V

Analytical Geometry - Modern Geometry - Elementary Geometry - Non-Euclidean Geometry. **(12 Hours)**

COURSE BOOK:

History of Modern Mathematics, David Eugene Smith, MJP Publishers, 2008.

UNIT I : Chapters: 2, 3, 4, 5 & 6

UNIT II : Chapters 7, 8 & 9

UNIT III: Chapters: 10, 11 & 12

UNIT IV : Chapters 13 & 14

UNIT V : Chapters 15, 16, 17 & 18

APPLICATION OF STATISTICS IN HORTICULTURE

Semester: VI **Hours: 4**
Code : 17MA6CE3D **Credits: 3**

COURSE OUTCOMES:

- Acquire skills in statistical analysis
- Calculate statistical values both manually and using statistical Packages
- Identify the applications of statistics in agriculture
- Acquire skills in statistical analysis manually and using statistical packages and interpretation of data collected from agricultural experiments
- Apply various design of experiments in horticulture field

THEORY

UNIT I

Sampling theory - population - sample - parameter and statistic - sampling vs complete enumeration - deliberate sampling - simple random sampling - selection using random numbers. **(8 Hours)**

UNIT II

Tests of significance - large sample test - single mean and difference between two means - single proportion and difference between two proportions. Small sample tests - t-test for testing the significance of single mean - independent t-test (equal variances only) and paired t test - chi square test for testing the association of a 2 x 2 contingency table. **(12 Hours)**

UNIT III

Analysis of variance (ANOVA) - assumptions - one way ANOVA - two way ANOVA. Experimental designs - randomization, replication and local control - completely randomised design (CRD) (for equal replications) - randomised block design (RBD) - latin square design (LSD). **(10 Hours)**

PRACTICAL

UNIT IV

Measures of central tendency - calculation of arithmetic mean, geometric mean, harmonic mean, median and mode for raw data - Measures of dispersion - calculation of standard deviation and variance for raw data - computation of coefficient of variation (CV) - calculation of the above measures using MS Excel functions. Probability distributions - simple problems in binomial, poisson and normal distribution - sampling theory - selection of simple random sample using random numbers. Testing of hypothesis - large sample test - single mean and difference between two means - single proportion and difference between two proportions - small samples test - t-test for testing the significance of single mean - testing the significance of two means for independent samples (equal variance only) and paired t test - chi square test for testing the association of a 2 x 2 contingency table. **(15 Hours)**

UNIT V

Correlation - computation of correlation coefficient - regression - fitting of simple linear regression equation - correlation and regression using MS Excel functions. Experimental designs - analysis of completely randomised design (CRD) (for equal replications only), randomised block design (RBD) and latin square design (LSD) - analysis of CRD, RBD and LSD using software package (AGRES).**(15 Hours)**

PRACTICAL SCHEDULE:

1. Computation of arithmetic mean, geometric mean, harmonic mean, median and mode for raw data
2. Computation of range, standard deviation, variance, coefficient of variance for raw data - calculation of the above measures using MS Excel functions
3. Simple problems in Binomial distribution and Poisson distribution
4. Simple problems in Normal distribution
5. Selection of sample using simple random sampling method
6. Large sample test - test for single proportion and difference between two proportions
7. Large sample test - test for single mean and difference between two means
8. Small samples test - t-test for single mean - t test for difference between two samplemeans (equal variances only)
9. Paired t-test
10. Chi square test for testing the association of a 2 x 2 contingency table
11. Computation of Karl Pearson's correlation coefficient
12. Fitting of simple linear regression equation y on x - correlation and regression using MS Excel functions
13. Analysis of Completely Randomised Design (CRD) - for equal replications only
14. Analysis of Randomised Block Design (RBD)
15. Analysis of Latin Square Design (LSD) - analysis of CRD, RBD and LSD using statisticalpackage (AGRES).
16. Field visit
17. Final practical examination

COURSE BOOKS:

1. G. Nageshwara Rao , 2007, Statistics for Agricultural Sciences, BS Publications, Andhra Pradesh.
2. Rangaswamy, R. 2009, A Text book of Agricultural Statistics, Wiley Eastern Limited, New Delhi.

BOOKS FOR REFERENCE:

1. S.C. Gupta & V.K. Kapoor, Fundamentals of Applied Statistics, 2006, Sultan Chand & Sons, New Delhi.
2. Chandel, S.R.S., 1999, A hand book of Agricultural Statistics, Achal Prakashan Mandhir, Kanpur.
3. Gomez, K.A. and Gomez, A.A., 1984, Statistical Procedures for Agricultural Research, John Wiley and Sons, New York.
4. Sahu P.K, 2009, Agriculture and Applied Statistics-I and II, Kalyani Publishers, Ludhiana.
5. K.P. Dhamu and K. Ramamoorthy, 2007, Statistical Methods, Agrobios (India), Jodhpur.

E - REFERENCE

1. http://www.statistics.com/resources/glo.ssary/
2. www.statsoft.com
3. http://www.iasri.res.in/ebook/EB_SMAR/index.htm
4. www.stats.gla.ac.uk/steps/glossary/index.html
5. http://davidmlane.com/hyperstat/
6. http://www.stattrek.com/
7. http://www.businessbookmall.com/Statistics Internet Library.htm
8. http://www.stat-help.com/
9. www.statsci.org/jourlist.html

APTITUDE BUILDING - II

Semester: VI **Hours: 2**

Code : 17AE6NE02 **Credits: 2**

COURSE OUTCOMES:

- Understand the concepts of numerical ability other than basic.
- Gain mastery over logical reasoning through concise thinking to advanced level.
- Have good command over English Language.
- Acquaint with general knowledge and current affairs with complete framework.
- Develop sufficient confidence to face advanced level competitive exams and clear it.

UNIT I

Numerical Ability: Time and distance - problems on trains - simple interest - compound interest - area - probability - true discount - bankers' discount - data interpretation - tabulation - bar charts - pie charts.

UNIT II

Reasoning: Logic - statements & arguments, statement & assumptions, statement & course of action - statement & conclusions - deriving conclusions from passage.

UNIT III

English Language: Choosing the appropriate filler - Phrase substitution - Ordering of jumbled sentences - Cloze test / Passages - Comprehension passages.

UNIT IV

General knowledge: Educational institutions - National days & awards - Indian freedom struggle - Books & Authors - Who's Who.

UNIT V

Current affairs: National & International affairs: Economy, Sports, Science & Technology, Polity.

COURSE BOOK:

- Course Material prepared by the Staff.

BOOKS FOR REFERENCE:

1. IBPS - VI, Institute of Banking Personnel Selection, Bank Po, Probationary officers / Management trainees Arihant Publications (India) Limited, 2015.
2. A.P. Bhardwaj, General English for Competitive Examinations, Dorling Kindersley (India) Pvt. Ltd, New Delhi, 2013.
3. Dr. R.S. Aggarwal, Quantitative Aptitude, S. Chand & Company PVT. LTD, New Delhi, 2013.
4. Dr. R.S. Aggarwal, A Modern Approach to Verbal & Non - Verbal Reasoning, S. Chand & Company PVT. LTD, New Delhi, 2009.

BOOLEAN ALGEBRA

Semester: VI **Credits: 2***

Code : 17MA6SS01

COURSE OUTCOMES:

- Understand the concepts of Posets and Lattices
- Link Lattices in other areas of Mathematics
- Discuss the concepts in Boolean Algebra
- Familiar with basics of Boolean Rings
- Get motivation on self learning

UNIT I

Posets - Definition and examples - Diagrammatical representation of a poset - Isomorphisms - Duality - Product of two posets - Lattices: Definition and examples. **(12 Hours)**

UNIT II

Theorems on Lattices - Lattice as an Algebra - Semi lattices- Complete lattices - Sub lattices - Modular Lattice: definition and examples. **(12 Hours)**

UNIT III

Theorems on Modular Lattices -Ideal lattice - Isomorphism theorem - Necessary and sufficient condition on Modular Lattices - Distributive lattices. **(12 Hours)**

UNIT IV

Boolean Algebra: Definitions and examples - Representation of a finite Boolean algebra - Ideals in a Boolean algebra. **(12 Hours)**

UNIT V

Boolean rings - Boolean functions: Definitions and examples - Disjunctive normal form - Conjunctive normal form. **(12 Hours)**

COURSE BOOK:

Vijay K. Khanna, Lattices and Boolean Algebras, Vikas Publishing House Pvt. Ltd.,1997.

Unit I : Chapter 2: Page No. 11- Page No. 23

Unit II : Chapter 2: Page No. 24 - Page No. 36
Chapter 4: Page No. 68 - Page No. 70

Unit III : Chapter 4: Page No. 71 - Page No. 92

Unit IV : Chapter 5: Page No. 93 - Page No. 104

Unit V : Chapter 5: Page No. 104 - Page No. 121.

CERTIFICATE COURSE IN EVERYDAY MATHEMATICS

Semester: II **Hours: 2**

Code : CCMAEM01 **Credit: 2**

COURSE OUTCOMES:

- Acquire the knowledge to solve problems involving ratio and proportion
- Evaluate reasoning problems
- Develop numerical ability and logical thinking
- Compute velocity and acceleration of a particle
- Calculate simple and compound interest

UNIT I

Average: Average of prime numbers - even numbers - average speed - average weight. Time and Distance: Speed - time - Distance - Simple Problems. **(6 Hours**)

UNIT II

Ratio and proportion: Ratio of two quantities - finding third proportion - fourth proportion - comparison - duplicate ratio. **(6 Hours)**

UNIT III

Percentage: Express percentage as fraction, decimal - problems on population - depreciation. **(6 Hours)**

UNIT IV

Interest: Simple interest - Compound interest - amount - compound interest calculated annually, half yearly, quarterly. **(6 Hours)**

UNIT V

Calendar: Leap year - ordinary year - odd days - clock. Problems on ages: Calculating the age with the given data. **(6 Hours)**

COURSE BOOK:

Course Material prepared by the Department.

PART I - HINDI - COURSE PATTERN (2017- 2020)

Part	Sem.	Code	Title of the Paper	Hours	Credits
I	I	17GH1GS01	Paper - I - Prose, Short Story and Grammar- I	5	3
	II	17GH2GS02	Paper - II - Novel, One act Play, and Grammar - II	5	3
	III	17GH3GS03	Paper - III Poetry and History of Hindi Literature, Alankar	5	3
	IV	17GH4GS04	Paper IV - General Essay, Technical Hindi, Translation, and Letter Writing	5	3
		Total		**20**	**12**

TESTING AND EVALUATION

Course	Continuous Internal Assessment	Semester Examination
Hindi	40%	60%

Continuous Internal Assessment

Continuous Assessment will be carried out by the Course Teachers. The components of CIA are as follows:

Components	Marks
Test -I	30
Test -II	30
Seminar/Quiz	10
Assignment	05
Attendance	05
Total	***80**

* The total internal marks obtained for 80 will be converted into marks obtained for 40.

HINDI - EXTERNAL QUESTION PATTERN

Time: 3 Hours **Marls: 60**

Section A: (One Word / Sentence) 10 x 1 = 10 Marks

Section B: (Paragraph / Annotation) 4 x 5 = 20 Marks

Section C: (Essay) 3x 10 = 30 Marks

PAPER I - PROSE, SHORT STORY AND GRAMMAR - I

Semester: I **Hours: 5**

Code : 17GH1GS01 **Credits: 3**

COURSE OUTCOMES:

- ❖ Develop the reading and writing skill in Hindi.
- ❖ Learn the concept of "Bhakthi" through Hindi Poems.
- ❖ Inculcate the Value and Morals through short stories in Hindi
- ❖ Improve the grammatical knowledge and enable the students to communicate effectively.
- ❖ Appreciate the literary contribution of various writers through short stories and poems.

1. Prose : Naveen Hindi Patamala Part-3

Published by Dakshina Bharathi Hindi Prachar Sabha,

Thyagaraya Nagar, Chennai - 600 017.

The following Lessons have been prescribed

a) Shiraj Ki Gurubhakthi

b) Shri Krishn

c) Gupth Rupya

d) Karmaveer Kamaraj

2. Short Story : Kahani Manjari

Edited by : Dakshin Bharath Hindi Prachar Sabha,

Thyagaraya Nagar, Chennai - 600 017.

The following short stories have been priscribed

a) Badegar kee beti	-	Premchand
b) Thayee	-	Vishwamranava Shrama Kaushik
c) Paanch minute	-	Mohanlalji Mahato yogi
d) Usne Kaha tha	-	Chandra dharshama Guleri

3. Grammar 1 : Vyakaran Pradeep Published by Ramdev, Hindi Bhaan,

63, Tagore Nagarm Allahabad -2

The following topics have been prescribed

a) Noun b) Gender and Number

c) Pronoun d) Adjectives

PAPER II - NOVEL, ONE ACT PLAY AND GRAMMAR - II

Semester: II **Hours: 5**

Code : 17GH2GS02 **Credits: 3**

COURSE OUTCOMES:

- Analyse the impact of social references among women through the novel of 'Nirmala'.
- Demonstrate the creative skill through one Act play.
- Inculcate the values of patriotism among students through the one Act play of Doorshra Din.
- Formulate the approach of Hindi linguistic and grammar
- Analyse on literary critism in Hindi literature.

1. **Novel** : Nirmala (Abridged version)

   by Premchand, Hamsa Prakashan Allahabad

2. **One Act Play** : Aadarsh Ekanki

   Published by Dakshina Bharath Hindi Prachar Sabha,

   Thyagaraya Nagar, Chennai - 600 017.

   The following Ekankies have been prescribed

   a) Doosra din - Kanchanlatha sabbarval

   b) Rajpoothri Ka badla - Divjendralal Rai

3. **Grammar** : Ramdev, Published by Hindi Bhavan,

   63 Tagore Nagar, Allahabad - 2

   The following topics have been prescribed

   a) Verb

   b) Tense and Voice

   c) Adverb

   d) Prepositions

   e) Conjunctions

   f) Interjunctions

PAPER III - POETRY AND HISTORY OF HINDI LITERATURE, ALANKAR

Semester: III **Hours: 5**

Code : 17GH3GS03 **Credits: 3**

COURSE OUTCOMES:

- Understand the spiritual and social values through Dona of Kabir, Tulasi, Rahim and Bihari.
- Analyse the literary approach of various Hindi Poems.
- Analyse the history of Hindi Literature.
- Develop the knowledge regarding Alankkar in Hindi Literature.
- Apply Alankkar to enhance the beauty of literature.

1. POETRY:

Kavya Saurab Published by Dakshina Bharatha Hindi Prachar Sabha, T. Nagar, Chennai - 600 017.

The following poems have been prescribed

1. Sachche Devtha - Ayodhya Singh Upadhyay Harioudh
2. Murjhaphool
3. Vivshtha
4. Badal - Sumitranandan Panth
5. Vasanth Aayaa
6. Deep Koi jal raha hai
7. Kabir Ke Dohe - 5 numbers
8. Tulasi Ke Dohe - 5 numbers
9. Raheem Ke Dohe - 5 numbers
10. Bihari Ke Dohe - 5 numbers

2. HISTORY OF HINDI LITERATURE:

Hindi Sahitya Ka Ithas by Rajanath Sharma Vinod Pushhak Mandir, Agra - 2

The following topics have been prescribed Salient features of Aadikl Bakthikal (Gyan marg, Premmag, Rambakthi, Krishnabakthi and Reethika.

Short Notes from Adunikkal**:** Chayavad, Pragathivad, Mythili Sharan, Gupta, Dinkar Premchand Pant Prasad, Ramachandra Shukla

3. ALANKAR:

Ras chand Alankar Chandrika Karnataka Mahila Hindi Seva Samithi, Chamarajpet, Bangalore - 560 008. The following Alankars have been prescribed Anupras, Yamak, Vakrokthi, Upama, Virodabhas.

PAPER - IV - GENERAL ESSAY, TECHNICAL HINDI, TRANSLATION AND LETTER WRITING

Semester: IV **Hours: 5**

Code : 17GH4GS04 **Credits: 3**

COURSE OUTCOMES:

- ❖ Write argumentative essay using appropriate style, structure and voice.
- ❖ Harness the critical thinking abilities by reading essay.
- ❖ Improve the proficiency in Hindi and English translation.
- ❖ Imbibe the knowledge of technical terms in Hindi and its application in daily life.
- ❖ Learn the forms and convention of different types of letter.

1. General Essay:

Nibandh Praveshika, Dakshin Bharath Hindi Prachar Sabha T.Nagar, Chennai - 600 017

The following Sahityotar (General) essay have been prescribed

a. Anushashan
b. Parishram Ka Mahatva
c. Paropkar
d. Bharat Ki Kalatmak Ekta
e. Nari Ka Karthavye Aur Adhikaar

2. Translation: Anuvad Abyas - III (1-5 Lessons) English to Hindi, Hindi to English Published by Dakshina Bharath Hindi Prachar Sabha T.Nagar, Chennai - 600 017.

3. Technical Hindi: Karyalaya Sahayika, Kendriya Sachivalaya Hindi Parishad NewDelhi, Hindi Vathayan Dr. K. Chandra Mohan, Viswa Vidyalaya Prakashan Varanashi

Banking Terms	:	50 only
Nemikaryalaya Tippani	:	50 only
Name of the Ministries	:	33 only

4. Letter Writing: Pramanik Alekan Aur Tippan Prof Viraj M.A. Kashmirgate, Delhi - 110 006

PaariVarik Patra, Avedan Patra, Sampathak ke naam Patra, Padhadhikariyon ke naam Patra.

NATIONAL CADET CORPS

NON MAJOR ELECTIVE

Sem.	Part	Code	Title of Paper	Hours	Credits
V	IV	17NC5NE01	Organization and health programme in NCC	2	2
VI	IV	17NC6NE02	National integration and personality development	2	2

INTERNAL COMPONENTS

Internal - I	:	30 marks
Internal - II	:	30 marks
Component - I	:	10 marks
Component - II	:	10 marks
Component - III	:	10 marks
Component - IV	:	10 marks
Total	**:**	**100 marks**

ORGANIZATION AND HEALTH PROGRAMME IN NCC

Semester: V **Hours: 2**

Code : 17NC5NE01 **Credits: 2**

UNIT I: INDIAN MILITARY AND NCC ORGANIZATION

History of Indian Military - Paramilitary forces - BSF- CRPF and CISF - NCC Organization and History - Aims and Objectives of NCC - Motto of NCC - DG's Four Cardinal Principles of NCC - NCC Song- Ranks in Army, Air force and Navy - Certificate Examination in NCC- Honours and Awards. **(6 Hours)**

UNIT II: MAP READING

Map and its features - kinds of north - Service protractor and Compass-bearing - Conversion of bearings - Conventional signs - Setting of map - Finding own position - Map to ground - Ground to map - Night March chart. **(6 Hours)**

UNIT III: HYGIENE AND SANITATION

Personal Hygiene - Sanitation - Methods of purification of drinking water -Latrine types - Urinal Types. **(6 Hours)**

UNIT IV: TYPES OF DISEASE AND POLLUTION

Define Health - Types of Health - Communicable and Non communicable Disease - Pollution and its type. **(6 Hours)**

UNIT V: FIRST AID

Aims of First Aid - Principle of First Aid - Motto of First Aid - List of items in First aid Box - Types of Bandages - Types of Fracture - Dislocation - Types of Wounds - Burns and Scalds - Sprain - Strain - Asphyxia - Drowning - Poison - Shock - Snake bite - Sun and Heat Stroke - Insect bite - Dog bite - Hanging - Artificial Respiration - Haemorrhage. **(6 Hours)**

BOOK FOR REFERENCE:

Mishra R.C., **A Handbook of NCC,** Kanti Prakashan, Etawah, 2000.

NATIONAL INTEGRATION AND PERSONALITY DEVELOPMENT

Semester: VI **Hours: 2**

Code : 17NC6NE02 **Credits: 2**

UNIT I: NATIONAL INTEGRATION

Motto of National Integration - Importance of National Integration Culture and heritage of Tamil Nadu. **(6 Hours)**

UNIT II: CIVIL AFFAIRS

Aim of aid to civil authority - Role of NCC Cadets during natural calamities - Types of disaster - Essential services during natural calamities **(6 Hours)**

UNIT III: CIVIL DEFENCE AND SELF DEFENCE

Civil Defence - Organization - Aims and services - Aid to Civil authorities in emergency - Self Defence -Aims of Self Defence - Women and Self Defence **(6 Hours)**

UNI IV: LEADERSHIP AND PERSONALITY DEVELOPMENT

Leadership - Types and traits - Man Management in NCC - Duties of a Good Citizen - Role of Youth in Nation Building - Morale - Factors which affect morale - Factors which develop high morale Personality Development - Factor influencing Personality-Time Management . **(6 Hours)**

UNIT V: SOFT SKILLS

Soft skills - interview skill - influencing skill - social skill - communication skill - self motivation - self esteem - body language. **(6 Hours)**

BOOK FOR REFERENCE:

Mishra R.C., **A Handbook of NCC,** Kanti Prakashan, Etawah, 2000.

INTERNAL QUESTION PATTERN

Time: 2 hours **Marks: 30**

PART - A

Answer Any 4 out of five 4 x 2 = 8

PART- B

Two either or questions (one from each) 2 x 4 = 8

PART - C

Two either or questions (one from each) 2 x 7 = 14

PHYSICAL EDUCATION

COURSE PATTERN (2017 - 2020)

(PART V)

Sem.	Code	Title of the Paper	Hours	Credits
I & II	17NP4GS01	Yoga and Rhythmic Activities	120	-
III & IV		Fundamentals of Physical Education	120	1
		Total	**240**	**1**

YOGA AND RHYTHMIC ACTIVITIES

Semester: I & II **Hours: 120**

Code : 17NP4GS01

COURSE OUTCOMES:

- Recall the principle of Asnas
- Classify Pranayama for different needs
- Appraise the application and effects of Suryanamaskar for human wellness
- Execute the techniques in Free Hand Exercise
- Construct Pyramids based on the underlying principles

UNIT I: ASNAS

Sitting Postures - Standing Posture - Prone Posture - Supine Postures.

(24 hours)

UNIT II: PRANAYAMA

Pranayama - Suga Pranayama - Chandra bethana - Nadi Sudhi - Ujjayee - Seethali - Seethakari - Brahmari. **(24 hours)**

UNIT III: SURYANAMASKAR

Suryanamaskar: 12 Postures - 12 Postures & Breathe consioius - 12 Postures With manthra - Relaxation Techiniques. **(24 hours)**

UNIT IV: CALLISTHENICS (FREE HAND EXERCISE)

Standing series - Bending series - Sitting series - Twisting series - Dumb - bells - Indian Clubs - Lezium - Hoops. **(24 hours)**

UNIT V: AEROBICS & PYRAMIDS

Aerobics: Aerobic Basics - Aerobic Movements - Aerobic With Rhythm - Aerobic Programme

Pyramids: Basics of Pyramids - Types of Pyramids. **(24 hours)**

BOOKS FOR REFERENCE:

1. Wuest Jeborah,A and Charles A. Bucher (1987), 'Foundation of Physical Education, B.I Publication Pvt.Ltd., New Delhi.
2. Elangovan.R, (2002), 'Utarkalvi Oru Arimugam', Ashwin Publication, Triunelveli.
3. Chandrasekaran.K, (1999), 'Sound Health through Yoga, Prem Kalyan Publication, Sedapatti.
4. Iyengar, B.K.S,'Lights on Yoga', Unwin Hyman Company, London

FUNDAMENTALS OF PHYSICAL EDUCATION

Semester: III & IV **Hours: 120**

Code : 17NP4GS01 **Credits: 1**

COURSE OUTCOMES:

- Familiarize the fundamentals of Physical Education
- Illustrate different rules for different games and athletic events
- Examines the need for good nutrition
- Synthesis the relation between hygiene and health
- Apply the first aid techniques

UNIT I: PHYSICAL EDUCATION

Definition, need, scope, aims and objectives of physical education. **(24 hours)**

UNIT II: GAMES AND ATHLETEIC EVENTS

History of Games: Basketball, Volley Ball, Kho-Kho, Kabaddi, Badminton and Ball Badminton - Rules and regulation of the Games and Athletic Events. **(24 hours)**

UNIT III: NUTRITION

Balanced Diet, Daily Energy Requirement, Nutrient Balance, Nutrition Intake, Diet and Competition, Nutritional Tips, Your Ideal Weight. **(24 hours)**

UNIT IV: HEALTH EDUCATION

Meaning of health education, Definition of health education, Personal Hygiene, Communicable Diseases **(24 hours)**

UNIT V: FIRST AID

First Aid: Injuries to bones and Muscles, Sprain, Strain, Muscle Cramp and joints Dislocation and Fractures Snake-bite, Dog bite Poisoning, Artificial Respiration, (Drowning) **(24 hours)**

BOOKS FOR REFERENCE:

1. Sathyanesan, R.C., 'Hand Broken Physical Education, 'Gheena Publishers, Madurai.
2. Thirunarayanan,C and Hariharan,s, 'Analytical History of physical Education 'South India Press, Karaikudi.
3. St. John Ambulance Association, 'First Aid to the Injured' New Delhi.
4. Prabhakar Eric, (1995), 'The way to Atheletic Gold', Affliated East West Pvt. Ltd., New Delhi.

SCHEME OF EVALUATION

1.	Summative Examination (2 hours)	:	40 marks
2.	Continuous Internal Assessment	:	60 marks
	Total	**:**	**100 marks**

SCHEME OF EVALUATION FOR CONTINUOUS INTERNAL ASSESSMENT

1.	Attendance (240 hrs)			:	20 marks
	❖ Theory Class	:	120 hrs		
	❖ Games	:	60 hrs		
	❖ Field Work	:	60 hrs		
2.	Performance in any one Game			:	10 marks
3.	Performance in any one of Athletic event			:	10 marks
4.	Performance in Yoga / Rhythmic activities			:	10 marks
5.	Assignment			:	10 marks
	Total			**:**	**60 marks**

QUESTION PATTERN FOR SUMMATIVE EXAMINATION

Total marks: 40 **Time: 2 hours**

SECTION - A

Answer All Questions (5x1=5)

(Choose the best Answer)

SECTION - B

Answer any four questions (4x2=8)

(Four question out of six)

SECTION - C

Answer any Four out of Six questions (4x5=20)

(Four question out of six)

SECTION - D

Answer any one question (1x7=7)

(One question out of two)