JAYARAJ ANNAPACKIAM COLLEGE FOR WOMEN (AUTONOMOUS)

A Unit of the Sisters of St. Anne of Tiruchirappalli
Accredited with 'A$^+$' Grade (Cycle 4) by NAAC
DST FIST Supported College
Affiliated to Mother Teresa Women's University,
Kodaikanal

PERIYAKULAM – 625 601, THENI DT. TAMIL NADU.

SYLLABUS 2020 - 2023

B. SC. MATHEMATICS

PG AND RESEARCH DEPARTMENT OF MATHEMATICS

U.G.PROGRAMME OUTCOMES

PO. NO.	UPON COMPLETION OF THIS COURSE 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.

U.G. PROGRAMME SPECIFIC OUTCOMES

PSO. NO.	UPON COMPLETION OF THIS COURSE 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 dataand 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 communitcy and acquire job oriented knowledge	PO-3 PO-5 PO-6

U.G. COURSE PATTERN - (2020 - 2023) (UGC/ TANSCHE/ MTU)

Sem.	Part	Code	Title of the Course	Hours	Credit
I	I	20GT1GS01/ 20GH1GS01/ 20GF1GS01	Tamil - I Hindi - I French - I	6	3
	II	20GE1GS01	English - I	6	3
	III	20MA1MC01	Algebra	5	4
		20MA1MC02	Differential Calculus	4	3
		20PH1AC01	Allied Theory - 1	3	3
		20PH1AP01	Allied Practical - 1	2	1
	IV	20MA1AE01	**Ability Enhancement Compulsory Course (AECC)- 1** Professional English	2	2
	IV	20SE1CE1B	**Skill Enhancement Compulsory Course (SECC)-1** Computer Education	2	2
	V	20STPNS01/ 20STPNC01/ 20STPPE01/ 20STPCC01/ 20STPRR01/ 20STPRC01	**Students Training Programme:** National Service Scheme/ National Cadet Corps/ Physical Education/ Consumer Club/ Red Ribbon Club/ Youth Red Cross	-	-
			Total	30	21
II	I	20GT2GS02 20GH2GS02 20GF2GS02	Tamil - II Hindi - II French - II	6	3
	II	20GE2GS02	English - II	6	3
		20MA2MC03	Analytical Geometry of 3-Dimensions	5	4
		20MA2MC04	Integral Calculus and Fourier Series	4	4
	III	20PH2AC02	Allied Theory - 2	3	3
		20PH2AP02	Allied Practical - 2	2	1
	IV	20AE2ES02	**Ability Enhancement Compulsory Course (AECC)- 2:** Environmental Studies	2	2
	IV	20SE2CB02	**Skill Enhancement Compulsory Course (SECC)-2:** Capacity Building	2	2

Sem.	Part	Code	Title of the Course	Hours	Credit
II	V	20STPNS01/ 20STPNC01/ 20STPPE01/ 20STPCC01/ 20STPRR01/ 20STPRC01	**Students Training Programme:** National Service Scheme/ National Cadet Corps/ Physical Education/ Consumer Club/ Red Ribbon Club/ Youth Red Cross	-	-
			Total	30	22
III	I	20GT3GS03 20GH3GS03 20GF3GS03	Tamil - III Hindi - III French - III	6	3
	II	20GE3GS03	English - III	6	3
	III	20MA3MC05	Sequences and Series	5	4
	III	20MA3MC06	Differential Equations	4	4
	III	20MA3AC03	Statistics - I	5	4
	III	20MA3DE1A/ 20MA3DE1B/ 20MA3DE1C	**Discipline Specific Elective - 1** Linear Programming/ History of Modern Mathematics/ Coding Theory	4	3
	V	20STPNS01/ 20STPNC01/ 20STPPE01/ 20STPCC01/ 20STPRR01/ 20STPRC01	**Students Training Programme:** National Service Scheme/ National Cadet Corps/ Physical Education/ Consumer Club/ Red Ribbon Club/ Youth Red Cross	-	-
			Total	30	21
IV	I	20GT4GS04/ 20GH4GS04/ 20GF4GS04	Tamil - IV Hindi - IV French - IV	6	3
	II	20GE4GS04	English - IV	6	3
	III	20MA4MC07	Vector Calculus and Theory of Numbers	5	4
		20MA4MC08	Numerical Methods	4	4
		20MA4AC04	Statistics - II	4	3
	III	20MA4DE2A/ 20MA4DE2B/ 20MA4DE2C	**Discipline Specific Elective - 2** Statics/ Transforms and Applications of Partial Differential Equations/ Hydrostatics	4	3

Sem.	Part	Code	Title of the Course	Hours	Credit
IV	V	20STPNS01/ 20STPNC01/ 20STPPE01/ 20STPCC01/ 20STPRR01/ 20STPRC01	**Students Training Programme:** National Service Scheme/ National Cadet Corps/ Physical Education/ Consumer Club/ Red Ribbon Club/ Youth Red Cross	-	2*
	V	20SLPEX01	**Service Learning Programme:** Extension JACEP	-	-
			Total	30	21+2*
V	III	20MA5MC09	Modern Algebra	5	5
	III	20MA5MC10	Modern Analysis	6	6
	III	20MA5MC11	Graph Theory	5	5
	III	20MA5MC12	Programming in C - Theory	4	3
		20MA5CP01	Programming in C - Lab	2	1
	III	20MA5DE3A/ 20MA5DE3B/ 20MA5DE3C	**Discipline Specific Elective - 3** Dynamics/ Application of Statistics in Horticulture/ Hydrodynamics	4	3
	IV	20MA5GE01/ 20GE5NC01	**Generic Elective - 1 (NME)** Mathematics of Networks / NCC - National Integration and Personality Development	2	2
	IV	20SE5AB03	**Skill Enhancement Compulsory Course (SECC) -3:** Aptitude Building	2	2
	V	20SLPEX01	**Service Learning Programme:** Extension JACEP	-	2*
			Total	30	27+2*
VI	III	20MA6MC13	Linear Algebra	5	5
		20MA6MC14	Complex Analysis	6	6
	III	20MA6MC15	Operations Research	5	5
	III	20MA6MC16	Programming in C^{++}- Theory	4	4
		20MA6CP02	Programming in C^{++}- Lab	2	1

Sem.	Part	Code	Title of the Course	Hours	Credit
VI	III	20MA6DE4A/ 20MA6DE4B/ 20MA6DE4C	**Discipline Specific Elective - 4** Fuzzy Sets and Fuzzy Numbers/ Automata Theory and Formal Languages/ Industrial Mathematics	4	3
	IV	20MA6GE02/ 20GE6NC02	**Generic Elective - 2 (NME)** Discrete Mathematics/ NCC - Organization and Health Programme in NCC	2	2
	IV	20SE6MA04	**Skill Enhancement Compulsory Course (SECC) - 4:** LaTeX	2	2
	V	20MA6SS01/ 20MA6SS02/ 20MA6SS03/ 20MA6SS04 20MA6SM01	**Self Study Course:** Financial Mathematics / Applicable Mathematics/ Applied Mathematics/ Astronomy MOOCs	-	2*
			Total	30	28+2*
			Total	180	140+6*

* Extra Credits - Self Study Paper, MOOCs

Skill Development Programme (SDP)

CERTIFICATE COURSE

Code	Title of the Course	Hours	Credit
20MA1SD01	**Skill Development Programme (SDP)** Mathematics for Competitive Examinations	60	2

CONTINUOUS INTERNAL ASSESSMENT COMPONENT (CIA)

THEORY:

Component	Marks	Marks
Internal Test I	40	
Internal Test II	40	
Quiz	10	Converted to 25
Assignment	5	
Attendance	5	
Total	**100**	**25**

Practical can be decided by the respective Dept.

Passing Minimum in the Continuous Internal Assessment is Compulsory for appearing the External Semester Examination

Passing Minimum for CIA Examination	
Theory	40% out of 25 Marks (i.e. 10 Marks)

Passing Minimum for Semester Examination	
Theory	40% out of 75 Marks (i.e. 30 Marks)
Practical	40% out of 60 Marks (i.e. 24 Marks)

EXTERNAL QUESTION PATTERN

PART - A

10 Questions × 1 Mark = 10 Marks

(Two Questions from each Unit)

PART - B

5 Questions × 5 Marks = 25 Marks

(Internal Choice and one set of Question from each Unit**)**

PART - C

4 Questions × 10 Marks = 40 Marks (4 Questions out of 6)

(Open Choice and atleast one Question from each Unit)

INTERNAL QUESTION PATTERN

PART - A

10 Questions × 1Mark =10 Marks

PART - B

2 Questions × 5 Marks = 10 Marks

 (Internal Choice)

PART - C

2 Questions × 10 Marks = 20 Marks (2 Questions out of 3)

(Open Choice and atleast one Question from allotted Units)

PART – I   Tamil - இக்கால இலக்கியம்

பருவம்: ஒன்று   நேரம்: **6**

குறியீடு: **20GT1GS01**   புள்ளி: **3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO-1	இக்கால இலக்கியக் கவிஞர்களைப் பற்றி அறிந்து கொள்வர்.	PSO - 1	ஆற்றல், புரிதல்
CO-2	இலக்கிய வரலாற்றை அறிந்து கொள்வர்	PSO - 1	புரிதல், பயன்படுத்துதல்
CO-3	வாழ்க்கையில் ஏற்படும் துன்பங்களை அகற்றி, வெற்றி பெறும் வழிமுறைகளைத் தெரிந்து கொள்வர்.	PSO - 5	ஆற்றல், மதிப்பீடு
CO-4	கட்டுரைகள் வழி பன்முகத் தகவல்களை அறிந்து கொள்வர்.	PSO - 1	பயன்படுத்துதல், அறிவு
CO-5	எழுத்து இலக்கணங்களை அறிந்து கொள்வர்.	PSO - 2	புரிதல், அறிவு

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: I											Hours: 6
Code : 20GT1GS01			PART - I Tamil - இக்கால இலக்கியம்								Credits: 3

Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	
CO - 1	5	4	2	4	5	3	4	5	5	3	2	3.83
CO - 2	4	4	5	4	3	5	5	3	2	5	2	3.83
CO - 3	4	5	4	2	5	3	4	5	5	2	3	3.83
CO - 4	5	3	5	2	4	5	3	2	4	5	4	3.83
CO - 5	5	5	4	5	4	3	2	4	5	3	2	3.83
Overall Means Score												**3.83**

Result: The Score of this Course is **3.83** (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores / Total No. of Cos

அலகு1: மரபுக் கவிதைகள்

1. பாரதியார் - நிலாவும் வான்மீனும் காற்றும் (மனத்தை வாழ்த்துதல்)
2. பாரதிதாசன் - வள்ளுவர் வழங்கிய முத்துக்கள்
3. கவிமணி தேசிக விநாயகம் பிள்ளை - உடல்நலம் பேணல்
4. கவியரசு கண்ணதாசன் - அனுபவமே கடவுள்
5. முடியரசன் - யார் கவிஞன்?

அலகு2: புதுக்கவிதை

1. ந. பிச்சமூர்த்தி - ஆத்தூரான் மூட்டை
2. நா. காமராசன் - காகிதப்பூக்கள்
3. அப்துல் ரகுமான் - ஆறாவது அறிவு
4. கவிஞர் பாலா - வானம் வசப்படும்
5. நெல்லை ஜெயந்தா - தொப்புள் கொடி

அலகு3: சிறுகதை

வெ. இறையன்பு - அழகோ அழகு

அலகு4: கட்டுரைத் தொகுப்பு

சிவசூரியன் இ.ஆ.ப., - நிறைவாக வாழுங்கள்

அலகு5: இலக்கணம், இலக்கிய வரலாறு

1. இலக்கணம்: - எழுத்தும், சொல்லும்
   எழுத்து - முதலெழுத்து, சார்பெழுத்து
   சொல் - பெயர்ச்சொல், வினைச்சொல், இடைச்சொல், உரிச்சொல்
2. கி. இராஜா - தமிழ் இலக்கிய வரலாறு

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

பாடநூல்கள்:

1. தமிழ்த்துறை வெளியீடு - இக்கால இலக்கியம்
   ஜெயராஜ் அன்னபாக்கியம் மகளிர் தன்னாட்சிக் கல்லூரி பெரியகுளம்
2. வெ. இறையன்பு - அழகோ அழகு
   நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்,
   41-டி சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,
   அம்பத்தூர், சென்னை – 98
   4ஆம் பதிப்பு – 2013.
3. சிவசூரியன் இ.ஆ.ப., - நிறைவாக வாழுங்கள்
   நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்,
   41-டி சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,
   அம்பத்தூர், சென்னை – 98
   மு.பதிப்பு – 2017.
4. கி. இராஜா - தமிழ் இலக்கிய வரலாறு
   நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்,
   41-டி சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,
   அம்பத்தூர், சென்னை – 98
   இரண்டாம் பதிப்பு – 2019.

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ENGLISH FOR COMMUNICATION -I

Semester: I   **Hours: 6**

Code   : 20GE1GS01   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Develop a fair degree of competence in self-expression in both writing and speaking.	PSO-1	K, AP
CO - 2	Read and comprehend texts.	PSO-1, PSO-2	C, AP
CO - 3	Use academic resources.	PSO-3	AP
CO - 4	Engage in independent learning.	PSO-3	A, S, E
CO - 5	Obtain critical and analytical thinking.	PSO-5	AP, S, E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: I											Hours: 6
Code : 20GE1GS01			**ENGLISH FOR COMMUNICATION -I**								Credits: 3

Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of COs
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	5	3	4	5	4	4	3	5	5	5	4.27
CO-2	3	5	4	4	5	5	3	3	4	4	5	4.09
CO-3	3	5	4	3	3	3	3	4	3	3	5	3.54
CO-4	3	5	3	4	3	3	3	4	4	3	5	3.63
CO-5	5	5	4	3	5	5	3	5	4	5	5	4.45
Overall Mean Score												**3.99**

Result: The score for this course is **3.99** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos = Total of Mean Scores / Total No. of Cos

UNIT I   **20 Hours**

1. Listening and Speaking

   a. Introducing self and others

   b. Listening for specific information

   c. Pronunciation (without phonetic symbols)

      i.   Essentials of pronunciation

      ii. American and British pronunciation

2. Reading and Writing

   a. Reading short articles - newspaper reports / fact based articles

      i.   Skimming and scanning

      ii. Diction and tone

      iii. Identifying topic sentences

   b. Reading aloud: Reading an article/report

   c. Journal (Diary) Writing

3. Study Skills - I

   a. Using dictionaries, encyclopedias, thesaurus

4. Grammar in Context

   Naming and Describing

   - Nouns and Pronouns

   - Adjectives

UNIT II   **20 Hours**

1. Listening and Speaking

   a. Listening with a Purpose

   b. Effective Listening

   c. Tonal Variation

   d. Listening for Information

   e. Asking for Information

   f. Giving Information

2. Reading and Writing

   a. Strategies of Reading:

      Skimming and scanning

   b. Types of Reading:

      Extensive and Intensive Reading

   c. Reading a Prose Passage

   d. Reading a Poem

   e. Reading a Short Story

2. Paragraphs: Structure and types
   a. What is a Paragraph?
   b. Paragraph Structure
   c. Topic Structure
   d. Unity
   e. Coherence
   f. Connections between Ideas: Using Transitional words and expressions
   g. Types of Paragraphs

3. Study skills - II

    Using the internet as a resource
    a. Online search
    b. Know the keyword
    c. Refine your search
    d. Guidelines for using the Resources
    e. E- Learning resources of Government of India
    f. Terms to know

4. Grammar in Context

    Involving Action- I
    a. Verbs
    b. Concord

UNIT III   **16 Hours**

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

Involving Action- II

- Verbal- Gerund, Participle, Infinitive
- Modals

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UNIT IV   **16 Hours**

    1. Listening and Speaking

        a. Giving and responding to opinions

    2. Reading and writing

        a. Note taking

        b. Narrative writing - writing narrative essays of two to three paragraphs

              Grammar in Context

    Tense

- Present
- Past
- Future

UNIT V   **18 Hours**

    1.   Listening and Speaking

        a. Participating in a Group discussion

    2. Reading and writing

        a. Reading diagrammatic information - interpretations, maps, graphs and pie charts

        b. Writing short essays using the language of comparison and contrast

    3. Grammar in Context: Voice (Show the relationship between Tense and Voice)

COURSE BOOK

➢ Communicative English (For Students of Arts and Science Colleges) Tamilnadu State Council for Higher Education (TANSCHE)

ENGLISH FOR COMMUNICATION I - 20GE1GS01
QUESTION PATTERN

Time: 3 Hours   **Marks: 75**

PART - A

1. Match the expressions (Introduce self/ others) (Unit I)   5 × 1 = 5

2. Interpret the given Diagrammatic chart   1 × 5 = 5

3. Write a day's happenings as journal entry   1 × 5 = 5

4. Write a narrative essay of two to three paragraphs   1 × 5 = 5

   (From Unit III)

PART - B

Answer the following   5 × 5 = 25

5. Attempt a group discussion on the given topic

   (From Unit - V)

6. Write a conversation by giving opinions on the given topic

   (From Unit -IV)

7. Read the following passage and identify the point of view and perspective of the writer.

   (From Unit -III)

8. Take Notes for the given passage.

   (From Unit - IV)

9. Write any ONE paragraph on the following topics

   (From Unit - II)

PART - C

10. Identify the verbs in proverbs and terms in new media.   10 × 1 = 10

    (From Unit- II)

11. Fill up the blanks by using appropriate Noun & Pronoun/Adjective/ Verbs/ Concord/Gerund/ Participle/ Infinitive/ Modals/ Voice/ Tenses (all Units)

                                                                    20 × 1 = 20

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ALGEBRA

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Semester: I **Hours: 5**
Code   : 20MA1MC01 **Credits: 4**
COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand different concepts and applications of Binomial theorem.	PSO - 1	U
CO - 2	Identify the series which can be summed up using the logarithmic series.	PSO - 4	Ap
CO - 3	Find relation between roots and coefficients of an equation.	PSO - 2	K
CO - 4	Promote mathematical ability in theory of equations.	PSO - 2, PSO - 4	An
CO - 5	Acquire knowledge to get numerical solution using Horner's and Newton's methods.	PSO - 2	E

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RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

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Semester : I							ALGEBRA					Hours: 5
Code : 20MA1MC01												Credits: 4
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	3	3	3	3	3	4	4	3	3	3	3	3.18
CO - 2	3	4	3	3	3	3	3	3	3	4	3	3.18
CO - 3	4	3	3	4	3	3	3	4	3	3	3	3.27
CO - 4	3	3	3	4	3	3	3	4	3	4	3	3.27
CO - 5	3	3	4	3	3	3	3	4	3	3	3	3.18
Overall Mean Score												3.2

Result: The Score for this Course is **3.2** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos = Total of Mean Scores / Total No. of Cos

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. **(15 Hours)**

UNIT II

Exponential series - exponential limit - 'e' is an incommensurable number - the Exponential theorem - Summation. **(15 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. **(15 Hours)**

UNIT IV

Theory of Equations: Relation between roots and coefficients - symmetric function of the roots - sum of the powers of the roots of an equation - Newton's theorem on sum of powers of roots. **(15 Hours)**

UNIT V

Transformation of equations- Reciprocal equation - 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. **(15 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 11 to 14
Unit V	:	Chapter 6: Sections 15 to 19 & 30

DIFFERENTIAL CALCULUS

Semester: I   **Hours: 4**

Code   : 20MA1MC02   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand the fundamentals of differential calculus.	PSO - 4	U
CO - 2	Identify the meaning of curvature and evolute.	PSO - 2	An
CO - 3	Compute and apply Jacobian transformation.	PSO - 4	Ap
CO - 4	Identify multiple points of given curves and species of double points, cusp and node.	PSO - 3	E
CO - 5	Familiarize the concept of asymptotes.	PSO - 2	K

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester : I											Hours: 4
Code : 20MA1MC02			DIFFERENTIAL CALCULUS								Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	4	3	3	3	3	3	3	3	3	4	3	3.18
CO - 2	3	3	3	4	3	3	3	4	4	3	3	3.27
CO - 3	3	4	4	3	3	3	3	3	4	3	3	3.27
CO - 4	3	3	4	4	3	3	3	3	3	4	3	3.27
CO - 5	3	3	3	3	4	3	3	4	3	3	3	3.18
Overall Mean Score												3.23

Result: The Score for this Course is **3.23** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = $\dfrac{\text{Total of Values}}{\text{Total No. of Pos \& PSOs}}$	Mean Overall Score for Cos = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of Cos}}$

UNIT I

The Chain Rule - Differentiation of Inverse Functions - Differentiation by Transformation - Logarithmic Differentiation - Parametric Differentiation

(12 Hours)

UNIT II

Differentiation of Function with respect to Functions - Differentiation of Implicit Functions - n^{th} derivative and Leibnitz theorem - Partial Differentiation

(12 Hours)

UNIT III

Euler's Theorem - Tangent and Normal - Polar Curves - p-r Equations. **(12 Hours)**

UNIT IV

Curvature - Evolute - Envelope - Maxima and Minima of Functions of Two variables. **(12 Hours)**

UNIT V

Jacobians - Multiple points - Asymptotes. **(12 Hours)**

COURSE BOOK:

S. Arumugam and A. Isaac, Calculus (Differential and Integral Calculus) - Part I, New Gamma Publishing House, 2005.

Unit I	:	Chapter 2: Sections 2.4, 2.5, 2.6, 2.7 & 2.8
Unit II	:	Chapter 2: Sections 2.9, 2.10, 2.11, 2.12 & 2.13
Unit III	:	Chapter 2: Sections 2.14 & Chapter 3: Sections 3.1, 3.2 & 3.3
Unit IV	:	Chapter 3: Sections 3.4, 3.5, 3.6 &3.7
Unit V	:	Chapter 3: Sections 3.9, 3.10 & 3.11

ALLIED PHYSICS THEORY - I

MECHANICS, PROPERTIES OF MATTER AND THERMAL PHYSICS

Semester: I   **Hours: 3**

Code   : 20PH1AC01   **Credits: 3**

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Explain fundamental laws of gravity and determine 'g'.	PSO- 1, PSO- 2	K, C, Ap
CO - 2	Describe the types of elastic moduli.	PSO- 1, PSO- 2	K, C, An
CO - 3	Discuss the concepts of viscosity and surface tension through experiments.	PSO- 1, PSO-2, PSO- 3	C, Ap, An
CO - 4	Analyze the concepts of conduction, convection, radiation and their applications.	PSO- 1, PSO- 2	K, C, An
CO - 5	Apply Laws of Thermodynamics and concepts of entropy to heat engines.	PSO- 2, PSO-3, PSO-4	C, Ap, An

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester : I						ALLIED PHYSICS THEORY - I					Hours: 3
Code : 20PH1AC01						MECHANICS, PROPERTIES OF MATTER AND THERMAL PHYSICS					Credits: 3

Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	5	5	5	4	3	3	5	4	4	3	2	3.90
CO - 2	5	4	5	4	3	2	5	4	3	3	3	3.72
CO - 3	5	5	3	4	2	3	5	5	4	3	3	3.81
CO - 4	5	5	4	3	3	2	5	5	5	2	3	3.81
CO - 5	5	5	3	3	3	2	5	4	5	3	2	3.63
Overall Mean Score												3.77

Result: The Score for this Course is **3.77** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = $\dfrac{\text{Total of Values}}{\text{Total No. of Pos \& PSOs}}$	Mean Overall Score for Cos = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of Cos}}$

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. Mechanics, properties of matter and sound - R. Murugeshan - S.Chand Publication - 2006.

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

3. Thermal Physics - R. Murugeshan - S.Chand Publication -2007.

DETAILED REFERENCE:

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

   UNIT I: Chapter 3 (all sections)
   UNIT II: Chapter 4 (all sections)
   UNIT III: Chapter 5 (all sections)

2. 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

3. 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   : 20PH1AP01   **Credit: 1**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Determine the moduli of elasticity through different experiments.	PSO- 1, PSO- 2, PSO- 3	K, C, Ap, An
CO - 2	Determine the parameters of mechanics through experiential learning.	PSO-1, PSO- 2, PSO-3	K, Ap, AN
CO - 3	Perform and verify the fundamental laws of sound.	PSO-2, PSO-3	K, Ap, An

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: I											Hours: 2
Code : 20PH1AP01	ALLIED PRACTICAL - I										Credits: 1
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	4	5	5	2	2	2	4	4	5	3	2	3.45
CO - 2	4	5	5	2	2	2	4	4	5	3	2	3.45
CO - 3	4	5	5	2	2	2	4	4	5	3	2	3.45
Overall Mean Score												3.45

Result: The Score for this Course is **3.45** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos = Total of Mean Scores Total No. of Cos

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. Determination of thermal conductivity of a bad conductor - Lee's Disc Method.

8. Determination of co-efficient of Viscosity - Stoke's Method.

9. Verification of Laws by sonometer

10. Determination of surface tension - Drop weight Method.

11. Determination of surface tension - Capillary rise method

PROFESSIONAL ENGLISH

Semester: I   **Hours: 2**

Code   : 20MA1AE01   **Credits: 2**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Recognise their own ability to improve their competence in using the language	PSO-1, PSO-4	C,AP, S
CO - 2	Use language for speaking with confidence in an intelligible and acceptable manner	PSO-1, PSO-4, PSO-3,PSO-5	C, AP, E
CO - 3	Read independently unfamiliar texts with comprehension	PSO-2, PSO-3, PSO-5	K,C,AP,E
CO - 4	Understand the importance of reading for life and writing in academic life.	PSO-1, PSO-3, PSO-4, PSO-5	C,AP, E
CO - 5	Write simple sentences without committing error of spelling or grammar	PSO-4	C,E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester : I							PROFESSIONAL ENGLISH					Hours: 2
Code : 20MA1AE01												Credits: 2
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	4	4	4	4	4	4	3	4	4	4	3.90
CO-2	3	4	4	4	4	4	4	3	4	4	4	3.81
CO-3	4	3	3	3	4	4	4	4	3	3	4	3.63
CO-4	3	4	4	3	4	4	4	3	3	3	4	3.54
CO-5	3	4	3	3	3	3	3	4	4	4	4	3.45
Overall Mean Score												3.68

Result: The score for this course is **3.68** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos = Total of Mean Scores Total No. of Cos

NB: All four skills are taught based on texts/passages.

UNIT I: COMMUNICATION

Listening: Listening to audio text and answering questions - Listening to Instructions

Speaking: Pair work and small group work.

Reading: Comprehension passages –Differentiate between facts and opinion

Writing: Developing a story with pictures.

Vocabulary: Register specific - Incorporated into the LSRW tasks

UNIT II: DESCRIPTION

Listening: Listening to process description.-Drawing a flow chart.

Speaking: Role play (formal context)

Reading: Skimming/Scanning-

Reading passages on products, equipment and gadgets.

Writing: Process Description –Compare and Contrast

Paragraph-Sentence Definition and Extended definition-Free Writing.

Vocabulary: Register specific -Incorporated into the LSRW tasks.

UNIT III: NEGOTIATION STRATEGIES

Listening: Listening to interviews of specialists / Inventors in fields (Subject specific)

Speaking: Brainstorming.(Mind mapping).

Small group discussions (Subject- Specific)

Reading: Longer Reading text.

Writing: Essay Writing (250 words)

Vocabulary: Register specific - Incorporated into the LSRW tasks

UNIT IV: PRESENTATION SKILLS

Listening: Listening to lectures.
Speaking: Short talks.
Reading: Reading Comprehension passages
Writing: Writing Recommendations
Interpreting Visuals inputs
Vocabulary: Register specific -Incorporated into the LSRW tasks
UNIT V: CRITICAL THINKING SKILLS

Listening: Listening comprehension- Listening for information.

Speaking: Making presentations (with PPT- practice).

Reading: Comprehension passages –Note making.
Comprehension: Motivational article on Professional Competence, Professional Ethics and Life Skills)
Writing: Problem and Solution essay– Creative writing –Summary writing
Vocabulary: Register specific - Incorporated into the LSRW tasks

COURSE BOOK:

  ➢ English For Physical Sciences by Tamil Nadu State Council for Higher

  Education

INTERNAL ASSESSMENT	
COMPONENTS	**MARKS**
Test-I	30
Test-II	30
Listening Comprehension	10
Reading Comprehension	10
Language lab (Speaking skills)	10
Assignment	10
Total	**100**

PROFESSIONAL ENGLISH - 20MA1AE01
QUESTION PATTERN

Time: 1 Hour   **Max. Marks: 30**

  I.   Match the following (or) True or False   10

  II. Writing Definition (or) Transcript of a passage   5

  III. Sketch mind maps for the following (or) Essay Writing   10

  IV. Comprehension on short talks (or) Writing Recommendations   5

COMPUTER EDUCATION

(for B. Sc. Mathematics, Physics and Chemistry programmes)

Semester: I   **Hours: 2**

Code   : 20SE1CE1B   **Credits: 2**

COURSE OUTCOMES:

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

MICROSOFT OFFICE 2017

MS WORD: (Word processing software)

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

MS EXCEL: (Electronic spread sheets)

1. Excel Function (statistical)
2. Data filtering and sorting
3. Mark sheet, pay bill Preparation
4. Data analysis using chart

MS POWERPOINT: (Presentation)

1. Theme - based presentation with Animation Effects
2. PPT Record Narration

MOBILE APPLICATIONS I:

1. Gmail
2. Cloud based callendar, mail
3. Google docs
4. Google groups

MOBILE APPLICATIONS II:

1. E books
2. Video chat, online chat
3. Cloud storage
4. Form creation
5. Assistant

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
4. Web resources

<p align="center">இடைக்கால இலக்கியமும் நாவலும்</p>

பருவம்: இரண்டு   **நேரம்: 6**

குறியீடு: 20GT2GS02   **புள்ளி: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO-1	சைவ, வைணவ அடியார்களின் பக்தியைப் பற்றி அறிந்து கொள்வர்.	PSO - 4	புரிதல்
CO-2	அடியார்களின் வழி இறைவனின் அருள் தன்மையைப் புரிந்து கொள்வர்.	PSO - 4	அறிவு
CO-3	செய்யுள் எழுதும் முறையைக் கற்றுக் கொள்வர்.	PSO - 1	புரிதல்
CO-4	வெற்றிச் சிறப்பைப் போற்றும் முறையைத் தெரிந்து கொள்வர்.	PSO - 3	அறிவு
CO-5	செய்யுள் வழி உரைநடையையும், புதின மரபையும் கற்றுக் கொள்வர்.	PSO - 1	அறிவு, புரிதல்

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: II							இடைக்கால இலக்கியமும் நாவலும்					Hours: 6
Code : 20GT2GS02												Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO$_S$
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	5	4	2	4	5	3	4	5	5	4	3	4.25
CO - 2	4	4	5	4	3	5	5	3	2	5	3	4.19
CO - 3	4	5	4	2	5	3	4	5	5	2	3	3.83
CO - 4	5	3	5	2	4	5	3	2	4	5	4	3.83
CO - 5	5	5	4	5	4	3	2	4	5	3	2	3.83
Overall Means Score												3.98

Result: The Score of this Course is **3.98** (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

அலகு1: சைவம்

1. திருஞானசம்பந்தர் - திரு ஆலவாய் - 2 பாடல்கள்
    1. மந்திரமாவது நீறு...
    2. வேத்திலுள்ளது நீறு ...
2. திருநாவுக்கரசர் - தேவாரம் - 2 பாடல்கள்
    1. நாமார்க்கும் குடியல்லோம்...
    2. பாலனாய்க் கழிந்த ...
3. சுந்தரர் - தேவாரம் - 2 பாடல்கள்
    1. ஊனாய் உயிர் ஆனாய் ...
    2. மழுவாள் வலன் ஏந்தி மன்ற ...
4. மாணிக்கவாசகர் - சிவபுராணம் 15 வரிகள்

நமச்சியவாய வாழ்க முதல்... சீரார் பெருந்துறை நம்தேவன் அடி போற்றி வரை

அலகு2: வைணவம்:

1. பேயாழ்வார் - திருக்கண்டேன்...
2. பூதத்தாழ்வார் - அன்பே தகளியா...
3. பொய்கையாழ்வார் - வையம் தகளியா...
4. ஆண்டாள் - திருப்பாவை முதல் 10 பாடல்கள்

அலகு3: சிற்றிலக்கியங்கள்

1. கலிங்கத்துப்பரணி - இந்திர சாலம்
2. நந்திக் கலம்பகம்
    1. மயில் கண்டால் மயிலுக்கே வருந்தியாங்கே - 25வது பாடல்
    2. ஓடரிக்கண் மடநல்லீர் ஆடாமோ ஊசல் - 29வது பாடல்
    3. அறம்பெருகும் தனிச்செங்கோன் மாயன் தொண்டை — 60வது பாடல்

அலகு4: குறுநாவல்

ரட்டை வால் குருவி — யாழ் எஸ். ராகவன்

அலகு5:

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, 41ஆம் பதிப்பு.
3. யாழ் எஸ். ராகவன் - ரட்டை வால் குருவி,
    நியூசெஞ்சுரி புக் ஹவுஸ் (பி) லிமிடெட், சென்னை.
    மு.ப. 2020

ENGLISH FOR COMMUNICATION - II

Semester: II   **Hours: 6**

Code   : 20GE2GS02   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO -1	Develop a fair degree of competence in self-expression in both writing and speaking.	PSO-1, PSO-3, PSO-4	C, S
CO - 2	Read and comprehend texts.	PSO-2, PSO-4, PSO-5	K, AP
CO - 3	Use academic resources.	PSO-1, PSO-2, PSO-5	AP, A
CO - 4	Engage in independent learning.	PSO-1, PSO-4, PSO-5	C
CO - 5	Obtain critical and analytical thinking.	PSO-1, PSO-5	C, AP, A

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester : II												Hours: 6
Code : 20GE2GS02			ENGLISH FOR COMMUNICATION - II									Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of COs
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	5	3	3	3	3	3	4	5	3	4	3.54
CO-2	4	5	4	3	3	4	3	4	4	3	5	3.81
CO-3	4	4	3	3	5	4	3	4	3	3	5	3.72
CO-4	3	4	3	4	3	4	3	3	5	3	5	3.63
CO-5	4	4	3	3	4	4	3	4	5	4	5	3.90
Overall Mean Score												3.72

Result: The score for this course is **3.72** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos = Total of Mean Scores / Total No. of Cos

UNIT I   **18 Hours**

  1. Speaking and listening

     a. Participating in group discussions

          Reading and writing

     a. Reading short fictional pieces

          i.   Reading aloud
          ii.   Identifying mood, tone, point of view
          iii.   Working with diction

     b. Writing short argumentative essays of two to three paragraphs

     c. Writing a resume

          Grammar in Context

     a. Subject Verb Agreement

     b. Active and passive voice

UNIT II   **18 Hours**

  1. Speaking and Listening

     a. Making short presentations

     b. Interactions during and after the presentations

          Reading and Writing

     a. Writing opinion pieces (could be on travel, food, film / book reviews or on any contemporary topic)

     b. Writing a cover letter

     c. Reading poetry

          i.   Reading aloud: (Intonation and Voice Modulation)
          ii.   Identifying and using simile, metaphor, personification etc.
                  Grammar in Context

     a. Idioms and phrasal verbs

     b. Second and third conditional

UNIT III   **18 Hours**

  1. Speaking and Listening

     a. Note making

          Reading and writing

     a. Writing emails of complaint
     b. Reading longer fictional / non-fictional pieces in which all the reading skills can be brought into play
     c. Preparing outlines for short assignments

  3.   Grammar in Context

     a. Working with clauses

     b. Direct and indirect speech

UNIT IV   **18 Hours**

  1. Speaking and Listening
     a. Listening to understand different accents

        Reading and Writing

     a. Reading visual texts - advertisements
     b. Preparing first drafts of short assignments
     c. Writing cover letter

UNIT V   **18 Hours**

  1. Speaking and listening
     a. Taking leave

        Reading and Writing

     a. Peer-reviewing
     b. Preparing final draft using peer review comments
     c. Writing letters of application
     d. Readers' Theatre: (Reading aloud a given script - Scripts by Aaron Shepherd available on the internet)
     e. Dramatizing everyday situations/social issues through skits. (writing scripts and performing)

COURSE BOOK:

  ➢ Communicative English (For Students of Arts and Science Colleges) Tamilnadu State Council for Higher Education (TANSCHE)

ENGLISH FOR COMMUNICATION – II 20GE2GS02

Question Pattern

Time: 3 Hours

Marks: 75

  1. Fill in the blanks with suitable answers   20 × 1 = 20
  2. Write a resume for job application (unit- I)   1 × 5 = 5
  3. Writing on contemporary topics (unit-II)   1 × 5 = 5
  4. Letter Writing (unit - II, V)   1 × 10 = 10
  5. Business Letter/ email Writing (unit-III)   1 × 10 = 10
  6. Note Making (unit- III)   1 × 10 = 10
  7. Writing short essays (unit- I)   1 × 10 = 10
  8. Writing Advertisement (unit-IV)   1 × 5 = 5

ANALYTICAL GEOMETRY OF 3-DIMENSIONS

Semester: II   **Hours: 5**

Code   : 20MA2MC03   **Credits: 4**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Familiarize the concept of direction cosines and projections	PSO - 2	An
CO - 2	Identify different forms of equations of plane.	PSO - 2	U, K
CO - 3	Analyze the symmetric form of equations of a line and the angle between a line and a plane.	PSO - 2	An
CO - 4	Acquire the knowledge of coplanar lines, skew lines and its properties.	PSO - 4	C, Ap
CO - 5	Understand the concept of a sphere and circle to determine their equations.	PSO - 2	K, Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester : II												Hours: 5
Code : 20MA2MC03			ANALYTICAL GEOMETRY OF 3-DIMENSIONS									Credits: 4
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	3	3	3	3	4	3	3	4	3	3	3	3.18
CO - 2	4	3	3	3	3	4	3	3	3	4	3	3.27
CO - 3	3	4	4	3	3	3	3	4	3	3	3	3.27
CO - 4	3	3	4	3	3	3	4	3	3	4	3	3.27
CO - 5	4	4	3	3	3	3	3	4	3	3	3	3.27
Overall Mean Score												3.25

Result: The Score for this Course is **3.25** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = $\dfrac{\text{Total of Values}}{\text{Total No. of Pos \& PSOs}}$	Mean Overall Score for Cos = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of Cos}}$

UNIT I

Direction Cosines of a Line: Angle between two lines - Projections - Direction Cosines - Direction Ratios - Projection of the line on any other line - Direction Cosines of the line joining the points - Angle between the lines - Conditions of perpendicularity and parallelism. **(15 Hours)**

UNIT II

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

(15 Hours)

UNIT III

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.

(15 Hours)

UNIT IV

Coplanar lines - shortest distance between two lines - equations of two skew lines in a simplified form - volume of a tetrahedron. **(15 Hours)**

UNIT V

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. **(15 Hours)**

COURSE BOOKS:

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

Unit I	:	Chapter 1: Sections 5 to 11
Unit II	:	Chapter 2: Sections 1 to 11
Unit III	:	Chapter 3: Sections 1 to 6
Unit IV	:	Chapter 3: Sections 7, 8 &11
Unit V	:	Chapter4: Sections 1to 8

INTEGRAL CALCULUS AND FOURIER SERIES

Semester : II   **Hours: 4**

Code   : 20MA2MC04   **Credits: 4**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Apply the formulae to find the value of the integral	PSO - 2	Ap
CO - 2	Evaluate the double integrals by changing the order of integration.	PSO - 4	E
CO - 3	Acquire the knowledge about triple integrals.	PSO - 2	S
CO - 4	Familiarize the beta and gamma integrals.	PSO - 4	K
CO - 5	Acquire skill in expanding an integral as an infinite sum using Fourier series.	PSO - 3	C

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester : II							INTEGRAL CALCULUS AND FOURIER SERIES					Hours: 4	
Code : 20MA2MC04												Credits: 4	
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	4	3	4	3	4	3	3	4	3	3	4	3.45
CO - 2	4	3	3	3	3	3	3	3	3	4	3	3.18
CO - 3	3	3	4	3	4	3	3	3	3	3	3	3.18
CO - 4	4	3	3	4	3	3	3	4	3	3	3	3.27
CO - 5	4	4	3	3	3	3	4	3	3	4	3	3.36
Overall Mean Score												**3.28**

Result: The Score for this Course is **3.28** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = $\dfrac{\text{Total of Values}}{\text{Total No. of Pos \& PSOs}}$	Mean Overall Score for Cos = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of Cos}}$

UNIT I

Integration by Parts - Reduction Formulae.   **(12 Hours)**

UNIT II

Double integrals - Evaluation of double integrals.   **(12 Hours)**

UNIT III

Triple Integrals - Change of variables.   **(12 Hours)**

UNIT IV

Beta and Gamma Functions.   **(12 Hours)**

UNIT V

Fourier series - Periodic Function - Full Range - Half Range.

(12 Hours)

COURSE BOOKS:

1. S. Arumugam and A. Isaac, Calculus (Differential and Integral Calculus) - Part II, New Gamma Publishing House, 2005.

2. S. Arumugam, A. Thangapandi Isaac, Fourier Series, New Gamma Publishing House, 2012.

Unit I	:	Chapter 2: Sections 2.8 & 2.9 (Book 1 - Part II)
Unit II	:	Chapter 3: Sections 3.1 & 3.2 (Book 1 - Part II)
Unit III	:	Chapter 3: Sections 3.3 & 3.4 (Book 1 - Part II)
Unit IV	:	Chapter 4: Section 4.1(Book 1 - Part II)
Unit V	:	Chapter 1 (Except Section 1.4) (Book 2)

ALLIED PHYSICS THEORY - II

ELECTRICITY AND ELECTRONICS

Semester: II   **Hours: 3**

Code   : 20PH2AC02   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Describe the laws of electrostatics	PSO- 1	K, C
CO - 2	Apply the laws of electricity to a.c bridges for the electrical measurements.	PSO- 1, PSO- 2, PSO- 4	K, C, Ap, An
CO - 3	Explain magnetic effects of alternating currents.	PSO- 1, PSO-3	K, C, Ap
CO - 4	Explain the basic concepts of electronic components.	PSO-1, PSO-2, PSO-3	K, Ap, An
CO - 5	Distinguish various number systems and design logic circuits using gates.	PSO-1, PSO-2	K, C, Ap, An

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: II							ALLIED PHYSICS THEORY - II					Hours: 3
Code : 20PH2AC02							ELECTRICITY AND ELECTRONICS					Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	5	5	4	2	2	2	5	4	4	3	2	3.45
CO - 2	4	5	4	2	2	2	5	4	5	4	2	3.55
CO - 3	5	4	3	2	2	2	5	4	4	3	2	3.27
CO - 4	5	5	5	3	2	2	5	4	3	4	2	3.64
CO - 5	5	4	5	2	2	2	4	5	5	3	2	3.55
Overall Mean Score												3.49

Result: The Score for this Course is **3.49** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos = Total of Mean Scores / Total No. of Cos

UNIT I: ELECTROSTATICS

Coulomb's Law - Electric field - Electric field due to point charge - Gauss Law- Applications of Gauss Law - Electric field due to an infinite plane sheet of charge- Field near a charged conducting cylinder - Coulomb's Theorem (Field of charged Conductor) - Potential Difference - Potential at a point due to a point charge Relation between electric field and electric potential - Capacitor - Capacitance of parallel plate capacitor - Partly filled with delectric slab - Capacitance of the spherical capacitor (outer sphere earthed) - capacitance of the cylindrical capacitor- Energy stored in a charged capacitor-Loss of energy on sharing of Charges between two capacitor.   **(9 Hours)**

UNIT II: CURRENT ELECTRICITY

Kirchhoff's laws- Application of Kirchhoff law to Wheatstone's network - Sensitivity of Wheatstone bridge - Wheatstone's network- Determination of the temperature of resistance- Potentiometer- Calibration of ammeter-Calibration of voltmeter (Low range, High range)- Measurement of resistance using potentiometer.

(9 Hours)

UNIT III: MAGNETIC EFFECT OF ELECTRIC CURRENT

Force on a current-carrying conductor in a magnetic field - Torque on a current in a uniform magnetic field - The D' Arsonval moving coil galvanometer (Mirror galvanometer) - Current and voltage sensitivity of a moving coil galvanometer - Moving coil ballistic galvanometer - Measurement of charge sensitivity- Difference between Dead-Bead and ballistic galvanometer - Comparison of emf's of two cells using BG - Comparison of two capacitors using BG

ALTERNATING CURRENT:

EMF generated in a coil rotating in a uniform magnetic field - Mean value of AC- Root mean square value of an AC - Review of subjects - AC circuits containing resistance, Inductance and Capacitance in series (series resonance circuit) - Parallel Resonance Circuit - Comparison between series and parallel resonant circuit - Wattless current - Choke coil.   **(9 Hours)**

UNIT IV: ELECTRONICS

Formation of PN junction diode - Forward and reverse biasing of a junction diode -V-I Characteristic of junction diode - Zener Diode - Experiment to study the characteristic to the Zener diode - Light emitting diode - Bridge Rectifier - Filter circuits-π-section Filter - Transistor - Working of an NPN Transistor - Common emitter configuration - Characteristics of transistor (CE mode) - Transistor biasing - CE transistor amplifier - Hartley Oscillator - Operational amplifier - Characteristic of an OP AMP - The common mode rejection ratio - Slew Rate - Virtual Earth - Inverting Amplifier - Non inverting amplifier – Adder or summing amplifier - Difference amplifier or subtractor.   **(9 Hours)**

UNIT V: NUMBER SYSTEM AND CODES

Decimal number system - Binary number system - Conversion of binary number into decimal number - Conversion of decimal number into binary number - Binary Addition, Subtraction.

LOGIC CIRCUITS

Boolean algebra - Digital logic gates - NOT Gate (Inverter) - OR Gate - AND Gate, NOR Gate - NOR gates in a universal gates - NAND gates in a universal gates -NOT Gate exclusive OR Gate.   **(9 Hours)**

BOOK FOR STUDY:

R. Murugeshan - Electricity & Electronics - 2016.

DETAILED REFERENCE:

R. Murugeshan - Electricity & Electronics - 2016.

UNIT I: Chapter-1 (All sections)

UNIT II: Chapter-2 (All sections)

UNIT III: Chapter-3 (All sections)

UNIT IV: Chapter-4 : 4.1- 4.15, 4.17 – 4.25

UNIT V: Chapter-5 All sections

BOOKS FOR REFERENCE:

1. R. Murugeshan - Electricity and Magnetism - S. Chand Company, New Delhi - 2013.

2. V. K. Mehta - Principle of Electronics, 11th edition - S. Chand & Company, New Delhi - 2012.

ALLIED PHYSICS PRACTICAL – II

Semester: II   **Hours: 2**

Code   : 20PH2AP02   **Credit: 1**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Construct logic circuits using discrete components and IC's.	PSO-1, PSO-2, PSO- 4	K, C, Ap
CO - 2	Verify Boolean laws	PSO-1, PSO-2	K, Ap, An
CO - 3	Construct adder and subtractor circuits using IC's.	PSO- 1, PSO-2	K, Ap, An

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: II							ALLIED PHYSICS PRACTICAL – II					Hours: 2
Code : 20PH2AP02												Credits: 1
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	4	5	5	2	2	2	4	4	5	3	2	3.45
CO - 2	4	5	5	2	2	2	4	4	5	3	2	3.45
CO - 3	4	5	5	2	2	2	4	4	5	3	2	3.45
Overall Mean Score												**3.45**

Result: The Score for this Course is **3.45** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos = Total of Mean Scores / Total No. of Cos

LIST OF PRACTICALS (Any Six)

1. Construction of AND, OR, NOT - Using discrete components.

2. Construction of AND, OR, NOT - Using IC 74 Series.

3. Construction of NAND, NOR - Using IC.

4. AC – Frequency Sonometer.

5. Construct AND, OR, NOT gates using universal Gates.

6. Study of frequency response of LCR Series Circuit.

7. Characteristics of Zener Diode

8. Verification of Boolean theorems.

9. Construction and verification of Half adder and Half Subtractor.

ENVIRONMENTAL STUDIES

PROGRAMME OUTCOMES

PO. NO.	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO
1.	Endow with in-depth knowledge, analyze and apply the understanding of their discipline for the betterment of self and society.
2.	Synthesize ideas from various disciplines, enhance the interdisciplinary knowledge and extend it for research.
3.	Gain confidence and skills to communicate orally/ verbally in research platforms and state a clear research finding.
4.	Develop problem solving and computational skills and gain confidence to appear for the competitive examinations.
5.	Enhance knowledge regarding research by accumulating practical knowledge in specific areas of research.
6.	Achieve idealistic goals and enrich the values to tackle the societal challenges.

PROGRAMME SPECIFIC OUTCOMES

PSO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PO MAPPED
1.	Assess the scope and importance of environmental studies and need for public awareness	PO1,2,3
2.	Develop deeper understanding in classification of resources	PO 1,2,5
3.	Analyse the concept of an eco system	PO1,2,4,6
4.	Comprehend the definitions, causes and control measures of environmental pollutions	P O 1 ,5
5.	Participate in the environmental issues programmes from the unsustainable to sustainable development	PO 1 , 4,5,6

ENVIRONMENTAL STUDIES

Semester: II   **Hours: 2**

Code   : 20AE2ES02   **Credits: 2**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Recall the components of our planet earth.	PSO 1,2,4	K, A ,S
CO - 2	Elucidate the importance of the natural resources.	PSO 2,3,5	K, An, E
CO - 3	Summarise the energy status of the environment.	PSO1,2,5	K,A,An
CO - 4	Acquire knowledge on the conservation of our environment.	PSO1,4,5	K,AP,S
CO - 5	Analyse the significance of water and climate towards sustainable development.	PSO 2,3,5	K,An, Ap, S,E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: II											Hours: 2
Code : 20AE2ES02			ENVIRONMENTAL STUDIES								Credits: 2
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	
CO - 1	4	4	3	4	3	4	5	4	5	4	5	4.09
CO - 2	3	4	3	4	3	4	5	4	4	4	4	3.81
CO - 3	3	4	3	4	3	4	5	4	4	4	4	3.81
CO - 4	3	4	3	4	3	3	5	4	5	5	4	3.90
CO - 5	4	4	3	4	3	4	5	4	4	4	5	4.00
Overall Mean Score for COs												**3.92**

Result: The Score for this Course is **3.92** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = <u>Total of Values</u> Total No. of Pos & PSOs	Mean Overall Score for Cos = <u>Total of Mean Scores</u> Total No. of Cos

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.

Continuous Internal Assessment Component (CIA)

Theory:

Component	Marks
Internal test I	40
Internal test II	40
Quiz	10
Assignment	5
Attendance	5
Total	**100**

Continuous Internal Assessment Component (CIA)

Passing Minimum: 40% out of 100

Internal Question Pattern

Part - A

10 Questions × 1Mark =10 Marks

Part - B

2 Questions × 5 Marks = 10 Marks

 (Internal Choice)

Part - C

2 Questions × 10 Marks = 20 Marks (2 Questions out of 3)

(Open Choice and atleast one Question from allotted Units)

SKILL ENHANCEMENT COMPULSORY COURSE (SECC -2)
CAPACITY BUILDING

PROGRAMME OUTCOMES

PO. NO.	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO
1.	Fix healthy attitudes and standards to face the outside world.
2.	Develop healthy interpersonal, intrapersonal and social relationships.
3.	Analyze the portrayal of social issues depicted in films that help them aware of the issues and figure out ways to eliminate them.
4.	Identify the role of social media in the present scenario and adopt the positive changes.
5.	Build up qualities like team work, leadership and problem solving
6.	Improve perspectives on positive thinking, team work, and creativity

PROGRAMME SPECIFIC OUTCOMES

PSO. NO.	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO	PO MAPPED
1.	Develop positive thinking that helps them to set and pursue for meaningful goals.	PO-1, 6
2.	Develop leadership qualities that lead them to inspire and guide people among peer groups and in workplaces.	PO-1, 2, 3, 6
3.	Assess the advantages and disadvantages of social media.	PO-2, 6
4.	Acquiring trade skills by developing social relationships effectively with trade experts.	PO-2,5,6
5.	Understand the portrayal of social causes in films	PO-3

CAPACITY BUILDING

Semester: II   **Hours: 2**

Code   : 20SE2CB02   **Credit: 2**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Realised the importance of physical health, emotional well-being, and stress management.	PSO-1	K
CO - 2	Apply the features of team work and strive to become good leaders.	PSO-2,4	Ap
CO - 3	Enhance their awareness on social media and e- learning.	PSO-3	Sy
CO - 4	Develop interactive skills in online trade, and become value based professionals.	PSO-4	Ap
CO - 5	Acquire film making skills.	PSO-5	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester : II											Hours: 2
Code : 20SE2CB02	CAPACITY BUILDING										Credits: 2
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	4	4	4	4	5	4	4	5	4	4	4.18
CO-2	4	4	5	4	4	4	4	4	4	4	4	4.09
CO-3	4	3	4	4	4	3	4	4	4	4	4	3.81
CO-4	5	4	4	4	4	3	4	4	5	4	3	4
CO-5	4	4	5	4	4	4	3	4	4	4	4	4
Overall Mean Score												4.01

Result: The score for this course is **4.01** (Very High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values
                              Total No. of Pos & PSOs
	Mean Overall Score for Cos = Total of Mean Scores
	                                  Total No. of Cos

UNIT I

Positive thinking-Seven steps in dealing with doubts. Traits of positive thinking. Goal setting-techniques of positive thinking to achieve the goals-creativity and components of creativity **(6 Hours)**

UNIT II

Leadership - Types of Leadership - Team work and public speaking - Importance of maintaining good interpersonal relationship with Team - Motivation - Self confidence - Attitude - Working in Group - Time Management - Effective Planning.

(6 Hours)

UNIT III

Skilful usage of Social media (Whatsapp, Twitter, Facebook, Instagram, other app). Cyber bulling, photo, video morphing & editing, fake news. Useful study apps, e learning apps, Health, Police, Lawyer help app, Social issues complaint app. **(6 Hours)**

UNIT IV

Online interaction with Experts - Mushroom Cultivation - Mrs. Arthi (Batlagundu) -Apiculture -Mrs. Josephine (Madurai), Garment making - Mr. Alagusundaram (Tirupur) - Terrace Garden - Mrs. Megala - (Madurai) - Spirulina Cultivation - D. Aarthi (Madurai) - Antenna Foundation, (Madurai) **(6 Hours)**

UNIT V

Film Review: Thani Oruvan , Peranmai, Dhangal, 36 Vayadhinile, Kaatrin Mozhi, Ratchasi, English Vinglish - Short Film Making-Submission of Short Flim.

(6 Hours)

BOOKS FOR REFERENCE:

1. Power of positive thinking, Mile, D.J.Rohan Book Company Delhi, 2004.
2. Dolmans 1922, A Handbook Public Speaking 1922, New York, Harcourt Breaee and company.
1. http://www.mayoclinic.org/healthy-lifestyle/stress-management/in-depth/positive-thinking/art-20043950.
2. http://mayoclinic.org/healthy-lifestyle/stress-management/in-depth/3-simple-strategies-to-help-you-focus-and-de-stress/art-20390057.
3. http://www.mayoclinic.org/healthy-lifestyle/stress-management/in-depth/3-ways-to-become-more-stress-resilient/art-20267213
4. http://www.mayoclinic.org/healthy-lifestyle/stress-management/in-depth/3-ways-to-learn-patience-and-amp-up-your-well-being/art-20390072
5. http://www.mayoclinic.org/4-proven-ways-you-can-feel-happier/art-20390079

6. http://mayoclinic.org/healthy-lifestyle/adult-health/in-depth/anger-management/art-20048149
7. http://www.gaiam.com/blogs/discover/positive-thinking-strategies-to-help-you-achieve-yourgoals#:-text=Focus%20on%20what's20%20of20old%20failures.
8. http://www.linkedin.com/pulse/what-makes-positive-attitude-10-components-gary
9. http://ifflab.org/how-to-prevent-cyber-bullying -anti-cyber-bullying-law-in- india/
10. http://www.sciencedaily .com/terms/morphing.htm#:text=Morphing%20 is %special %effect,little%20 instruction%20 from%20the %20 user.
11. http://www.educationalappstore.com/
12. http:// www.mobihealthnews.com/37340/38-more-health-and-wellness-apps-that-connect-to-apples-healthkit
13. http://www.youtube.com/watch?v=skfqt9mm7j4
14. http://www.youtube .com/watch?v-rvy44i-ciE
15. https://www.youtube.com.com/watch?v=rINOELMCiqc
16. http:// www.youtube.com/watch?v=N5R-KCWPzr0&list=PLHw83Z MxtQ9 NdRd5yAxYrxkRsxqcvw iae@index=3
17. http://www.youtube.com/watch?v=PUzaLjSjERE
18. http:// www.youtube.com/watch?v=QkVue8XmVr8
19. http:// www.youtube.com/watch?v=XcRs4JBN43o
20. http:// www.youtube.com/watch?v=dzvpQG-2xC4

Continuous Internal Assessment Component (CIA)

Theory:

Component	Marks
Internal test I	40
Internal test II	40
Quiz	10
Assignment	5
Attendance	5
Total	**100**

Continuous Internal Assessment Component (CIA)
Passing Minimum: 40% out of 100
Internal Question Pattern
Part - A

10 Questions × 1Mark =10 Marks

Part - B

2 Questions × 5 Marks = 10 Marks
 (Internal Choice)

Part - C

2 Questions × 10 Marks = 20 Marks (2 Questions out of 3)
(Open Choice and atleast one Question from allotted Units)

<div align="center">பொதுத்தமிழ் - காப்பிய இலக்கியம்</div>

பருவம்: மூன்று நேரம்: **6**

குறியீடு: **20GT3GS03** புள்ளி: **3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	காப்பிய இலக்கியங்களின் சிறப்புக்களை அறிந்து கொள்வர்.	PSO - 1, PSO - 2	புரிதல், அறிவு
CO - 2	ஐம்பெரும் காப்பியங்கள், பிறகாப்பியங்களின் பக்திச்சிறப்புக்களை உணர்ந்து கொள்வர்.	PSO - 1, PSO - 2	புரிதல்
CO - 3	அகப்புற இலக்கியச் செய்திகளை அறிந்து கொள்வர்.	PSO - 1, PSO - 2	அறிவு
CO - 4	வணிகச் செய்திகளைத் தெரிந்து கொள்வர்.	PSO - 2	புரிதல், பயன்படுத்துதல்
CO - 5	தமிழிலக்கியத்தில் காணலாகும் அறவியல், அறிவியல் செய்திகளைத் தெரிந்து கொள்வர்.	PSO - 2	அறிவு

<div align="center">

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

</div>

Semester: III							பொதுத்தமிழ் - காப்பிய இலக்கியம்					Hours: 6
Code : 20GT3GS03												Credits: 3
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	3	3	3	4	3	3	3	3	2	5	3	3.18
CO - 2	3	3	3	3	3	4	3	3	2	5	3	3.18
CO - 3	3	3	3	3	3	4	3	3	3	3	4	3.18
CO- 4	3	2	3	3	3	3	5	2	2	3	3	3.27
CO - 5	3	3	3	3	3	3	3	5	2	2	3	3
Overall Mean Score												**3.16**

Result: The score for this course is **3.16** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

அலகு 1

சிலப்பதிகாரம்	-	புகார்க்காண்டம் - வேனில் காதை
மணிமேகலை	-	சிறைக்கோட்டம் அறக்கோட்டம் ஆக்கிய காதை
வளையாபதி	-	3 முதல் 12 பாடல்கள்

அலகு 2

தேம்பாவணி	-	எசித்து சேர்படலம் - முதல் 15 பாடல்கள் மட்டும்
சீறாப்புராணம்	-	சாபீர் கடன்றீர்த்த படலம் - (23 பாடல்கள்)

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 நூல்கள்

1. தமிழ்த்துறை வெளியீடு - ஜெயராஜ் அன்னபாக்கியம் மகளிர் தன்னாட்சிக் கல்லூரி, பெரியகுளம்.

2. கி. இராசா - தமிழ் இலக்கிய வரலாறு
   நியூ, செஞ்சுரி புக் ஹவுஸ் (பி) லிட்,
   அம்பத்தூர், சென்னை - 98
   இரண்டாம் பதிப்பு - 2019.

பார்வை நூல்கள்

1. பா. சரவணன் - **சிலப்பதிகாரம்,** சந்தியா பதிப்பகம், சென்னை. 8
   2 ஆம் பதிப்பு - ஜனவரி - 1997.

2. இராம - லட்சுமணன் - **மணிமேகலை,** உமா பதிப்பகம், சென்னை 1
   2 - ஆம் பதிப்பு - 1998.

3. முனைவர் கமலாமுருகன் - **வளையாபதி குண்டலகேசி மூலமும் உரையும்**
   சாரதா பதிப்பகம்,
   சென்னை - 600 014.

4. போரா ந.ம.மரிய அருட்பிரகாசம் (தொ.ஆ) - **தேம்பாவணி**
   மாவிகா அச்சகம், கே. புதூர்,
   மதுரை.

5. செய்குதம்பி பாவலர் - **சீறாப்புராணம்,** யூனிவர்சல் பிரிண்டர்ஸ்,
   வடக்கு உஸ்மான்சாலை, சென்னை
   டிசம்பர் - 2014

6. முனைவர் ச. திருஞான சம்பந்தம் - **யாப்பருங்கலக்காரிகை,** கதிர் பதிப்பகம்,
   திருவையாறு, முதற் பதிப்பு - 2007

7. எம். ஆர். அடைக்கலசாமி   -   **இலக்கிய வரலாறு,** ராசி பதிப்பகம், சென்னை.
                                             முதற்பதிப்பு. 1960

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

9. முனைவர். பொ. மா. பழனிச்சாமி   -   **இலக்கியக் கதிர்**
                                             நியூ செஞ்சுரி புக்ஹவுஸ்
                                             சென்னை - 40. முதற்பதிப்பு - 2010

10. நாராயண வேலுப் பிள்ளை   -   **உரைநடைத் தமிழ், ஐம்பெருங் காப்பியங்கள்,**
                                             நர்மதா பதிப்பகம்,
                                             சென்னை - 108. ஆறாம் பதிப்பு - 2003

SEQUENCES AND SERIES

Semester: III   **Hours: 5**

Code   : 20MA3MC05   **Credits: 4**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand the fundamental principles of Analysis	PSO - 2	U
CO - 2	Identify convergence and divergence of series	PSO - 2	K
CO - 3	Apply various tests to find the limit of a series	PSO - 2	C
CO - 4	Distinguish between absolute convergence and ordinary convergence of a Series.	PSO - 4	E
CO - 5	Compute the radius of convergence of the power series.	PSO - 2	S

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: III											Hours: 5
Code : 20MA3MC05			SEQUENCES AND SERIES								Credits: 4
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	4	3	3	3	3	3	4	3	3	3	3.27
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	4	4	3	3	3	3	3	4	3	3	3	3.27
CO-4	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-5	4	4	3	3	3	3	3	4	3	3	3	3.27
Overall Mean Score												**3.27**

Result: The Score for this Course is **3.27** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = ___Total of Values___ Total No. of Pos & PSOs	Mean Overall Score for Cos= _Total of Mean Scores_ Total No. of Cos

UNIT I

Introduction - sequences - bounded sequences - monotonic sequences - convergent sequence - divergent and oscillating sequences - the algebra of limits - behavior of monotonic sequences. **(15 Hours)**

UNIT II

Some theorems on limits - subsequences - limit points - Cauchy sequences the upper and lower limits of a sequence. **(15 Hours)**

UNIT III

Series of positive terms - infinite series - comparison test - Kummer's test - Gauss's test - problems based on the test. **(15 Hours)**

UNIT IV

Root test and condensation test - integral test - Alternating series - absolute convergence - tests for convergence of series of arbitrary terms. **(15 Hours)**

UNIT V

Rearrangement of series - Riemann's theorem (statement only) - multiplication of series - Abel's theorem - Merten's theorem (statement only) - power series.

(15 Hours)

COURSE BOOK:

S. Arumugam and A. Thangapandi Isaac, Sequences and Series, New Gamma Publishing House, 2017.

Unit I	:	Chapter 3 : Sections 3.1 - 3.7
Unit II	:	Chapter 3 : Sections 3.8 - 3.12
Unit III	:	Chapter 4 : Sections 4.1 - 4.3
Unit IV	:	Chapter 4 : Sections 4.4 - 4.5
		Chapter 5 : Sections 5.1 - 5.3
Unit V	:	Chapter 5 : Sections 5.4 - 5.6

DIFFERENTIAL EQUATIONS

Semester: III   **Hours: 4**
Code   : 20MA3MC06   **Credits: 4**
COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Solve linear equations with variable coefficients.	PSO - 2	An
CO - 2	Understand the fundamental properties of the Laplace transforms	PSO - 4	K
CO - 3	Apply the Laplace inverse transforms to solve simultaneous equations	PSO - 2	Ap
CO - 4	Solve partial differential equations using Lagrange's method and Charpit's method	PSO - 2	S
CO - 5	Know to convert the real life problems into ordinary differential equations.	PSO - 3	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: III											Hours: 4
Code : 20MA3MC06			DIFFERENTIAL EQUATIONS								Credits: 4
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	3	4	3	3	3	3	4	3	3	3	3.27
CO-2	4	3	3	3	3	3	3	3	3	4	3	3.18
CO-3	3	3	4	3	3	3	3	4	3	3	3	3.18
CO-4	4	3	3	4	3	3	3	4	3	3	3	3.27
CO-5	3	4	4	4	3	3	3	3	4	3	3	3.36
Overall Mean Score												3.25

Result: The Score for this Course is **3.25** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores / Total No. of Cos

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. **(12 Hours)**

UNIT II

Laplace transforms - theorems and problems - Laplace transform of periodic functions - Some general theorems - Evaluation of integral using Laplace transform. **(12 Hours)**

UNIT III

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.

(12 Hours)

UNIT IV

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. **(12 Hours)**

UNIT V

Applications of first order equations : Growth, Decay an chemical Reactions - Flow of water from an orifice - Falling bodies and other rate problems - The Brachistochrone - Fermat and Bernoulli - Simple electric circuits - Dynamical problems with variable mass.

(12 Hours)

COURSE BOOK:

➢ **S. Narayanan & T. K. Manickavasagom Pillay**, Differential Equations and its Applications, S. Viswanathan(Printers & Publishers) Pvt. Ltd., 2011.

Unit I	:	Chapter 5 :	Sections 5 and 6
		Chapter 6 :	Sections 1 to 6
Unit II	:	Chapter 9 :	Sections 1 to 5
Unit III	:	Chapter 9 :	Sections 6 to10
Unit IV	:	Chapter 12 :	Sections 1 to 6
Unit V	:	Chapter 3 :	Sections 1 to 7

STATISTICS - I

Semester: III   **Hours: 5**

Code   : 20MA3AC03   **Credits: 4**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO-1	Calculate mean, median and mode.	PSO-2	K
CO-2	Be familiar with elementary statistical methods of analysis of data and interpret them.	PSO-2	C,An
CO-3	Understand the concept of correlation and regression.	PSO-2	S
CO-4	Relate Binomial, Poisson and Normal distributions.	PSO-1	An
CO-5	Develop problem solving skill on applying statistical methods to real problems.	PSO-3	E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: III											Hours: 5
Code : 20MA3AC03		STATISTICS - I									Credits: 4
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)				Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-4	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-5	3	4	4	4	3	3	3	3	4	3	3	3.36
Overall Mean Score												3.324

Result: The Score for this Course is **3.324** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores / Total No. of Cos

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

DISCIPLINE SPECIFIC ELECTIVE - 1

LINEAR PROGRAMMING

Semester: III   **Hours: 4**

Code   : 20MA3DE1A   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO-1	Formulate the real life problems as Linear programming problem.	PSO-3	K
CO-2	Use Simplex method to solve Linear programming problems	PSO-2	E
CO-3	Identify degeneracy in transportation problem	PSO-1	An
CO-4	Calculate the optimal solution from the feasible solution using MODI method	PSO - 2 & PSO-3	S
CO-5	Obtain the optimal solution for Assignment problems.	PSO-3	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: III											Hours: 4
Code : 20MA3DE1A			**LINEAR PROGRAMMING**								**Credits: 3**
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	4	4	4	3	3	3	3	4	3	3	3.36
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-4	4	4	4	4	3	3	3	4	4	3	3	3.55
CO-5	3	4	4	4	3	3	3	3	4	3	3	3.36
Overall Mean Score												**3.362**

Result: The Score for this Course is **3.362** (High Relationship)

Note:

Mapping	1- 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

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

HISTORY OF MODERN MATHEMATICS

Semester: III   **Hours: 4**

Code   : 20MA3DE1B   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Know the development of Number System.	PSO - 3	C
CO - 2	Informative about the Mathematicians who determined the methods of solving of equations.	PSO - 1	K
CO - 3	Know the applications of Calculus.	PSO - 3	Ap
CO - 4	Familiar with the introduction and progress of Geometry.	PSO - 4	E
CO - 5	Correlate Probabilities and Least squares.	PSO - 5	S

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: III												Hours: 4
Code : 20MA3DE1B	HISTORY OF MODERN MATHEMATICS											Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	4	4	4	3	3	3	3	4	3	3	3.36
CO-2	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-3	3	4	4	4	3	3	3	3	4	3	3	3.36
CO-4	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-5	3	3	4	3	4	4	3	3	3	3	4	3.36
Overall Mean Score												3.288

Result: The Score for this Course is **3.288** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores / Total No. of Cos

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

CODING THEORY

Semester: III   **Hours: 4**

Code   : 20MA3DE1C   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Acquire the necessary knowledge of coding and decoding theory	PSO - 3	K
CO - 2	Understand the concepts of linear codes and matrices	PSO - 1	S
CO - 3	Promote knowledge of MLD for linear codes	PSO - 4	An
CO - 4	Explain the concept of perfect and related codes	PSO - 5	S, Ap
CO - 5	Develop knowledge on cyclic linear codes	PSO - 2, PSO - 5	An, S

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: III						CODING THEORY					Hours: 4
Code : 20MA3DE1C											Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)				Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	3	4	4	3	3	2	3	3	4	3	3	3.18
CO - 2	3	3	4	3	3	3	4	3	3	3	3	3.18
CO - 3	3	3	3	3	3	4	3	4	3	4	3	3.27
CO - 4	2	3	4	2	3	4	3	3	3	3	4	3.09
CO - 5	3	4	3	2	4	4	3	4	3	3	4	3.27
Overall Mean Score												3.18

Result: The Score for this Course is **3.18** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = $\dfrac{\text{Total of Values}}{\text{Total No. of Pos \& PSOs}}$	Mean Overall Score for Cos = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of Cos}}$

UNIT I

Basic assumptions - Correcting and detecting error patterns -information rate - effects of error correction and detection - finding the most likely code word transmitted. **(12 Hours)**

UNIT II

Linear codes - two important - subspaces independence - basic, dimension - matrices - Bases for C and C^+ generating matrices on coding.

(12 Hours)

UNITIII

Parity check matrices - equivalent codes - distance of a linear code - Linear codes - cosets - MLD for linear codes - Reliability of IMLD for linear codes. **(12 Hours)**

UNITIV

Some bounds for codes - perfect codes - hamming codes - extended codes - The Extended Golay code - decoding the extended Golay code - Golay code.

(12 Hours)

UNITV

Polynomials and words - introduction to cyclic codes - introduction to cycliccodes - Polynomial encoding and decoding - finding cyclic codes - Dual cyclic codes.

(12 Hours)

COURSE BOOK:

➢ Coding theory, the essentials - Marcel Dekker, Inc. Madtrison Avenue, Newyork.

Unit - I	:	Chapter-1, Sec 1.1 - 1.6
Unit - II	:	Chapter-2, Sec 2.1 - 2.6
Unit - III	:	Chapter-2, Sec 2.7 - 2.12
Unit - IV	:	Chapter-3, Sec 3.1 - 3.7
Unit - V	:	Chapter-4, Sec 4.1 - 4.5

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பொதுத்தமிழ் - பழந்தமிழ் இலக்கியம்

</div>

பருவம்: நான்கு   **நேரம்: 6**

குறியீடு: 20GT 4GS04   **புள்ளி: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	பழந்தமிழ் இலக்கிய வளங்களை அறிந்து கொள்வர்.	PSO - 2	அறிவு
CO - 2	பழந்தமிழ் இலக்கியங்களின் சமூகநிலையைப் புரிந்து கொள்வர்.	PSO - 2	புரிதல், அறிவு
CO - 3	பழந்தமிழ் இலக்கியத்தின் தனித்தன்மையை அறிந்து கொள்வர்.	PSO - 2	அறிவு
CO - 4	பழந்தமிழ் இலக்கியத்தில் காணப்படும் நயங்களைத் தெரிந்து கொள்வர்.	PSO - 2	புரிதல்
CO - 5	பழந்தமிழ் இலக்கிய ஆசிரியர்களை அடையாளம் காண்பர்.	PSO - 2	பயன்படுத்துதல்

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RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

</div>

Semester: IV			பொதுத்தமிழ் - பழந்தமிழ் இலக்கியம்									Hours: 6
Code : 20GT 4GS04												Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	3	3	3	3	3	4	3	3	3	3	3	3.09
CO - 2	3	3	3	4	3	4	4	3	3	4	2	3.27
CO - 3	3	3	3	3	3	3	3	3	3	3	4	3.09
CO- 4	3	4	3	3	3	3	3	3	3	3	3	3.09
CO - 5	3	3	3	3	3	3	3	3	3	3	3	3.00
Overall Mean Score												3.10

Result: The score for this course is **3.10** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores / Total No. of Cos

அலகு 1: சங்க இலக்கியங்கள் - எட்டுத்தொகை

1. நற்றிணை (2 பாடல்கள்)

"கேளாய், எல்ல தோழி..." (குறிஞ்சி: பாடல் - 61)

"பிரசம் கலந்த வெண் சுவைத் தீம்பால்..." (பாலை: பாடல் - 110)

2. குறுந்தொகை (5 பாடல்கள்)

"நெய்கனி குறும்பூழ்க்......" (குறிஞ்சி: பாடல் - 389)

"ஊருண் கேணி......." (மருதம்: பாடல் - 399)

"நசைபெரி துடையர்........" (பாலை: பாடல் - 37)

"பூவிடைப் படினும் யாண்டு........" (நெய்தல்: பாடல் - 57)

"மழைவிளை யாடும் ...." (முல்லை: பாடல் - 108)

3. கலித்தொகை (1 பாடல்)

"உண்கடன் வழிமொழிந்து இரங்குங்கால்........" - பாலைக்கலி - தோழிக்கூற்று

4. அகநானூறு (2 பாடல்கள்)

"வான் கடற் பரப்பில் தூவற்கு எதிரிய........" (நெய்தல்: பாடல் - 10)

"யாயே கண்ணினும் கடுங் காதலே! ...." (குறிஞ்சி: பாடல் - 12)

5. புறநானூறு (2 பாடல்கள்)

"அரிமயிர்த் திரள் முன்கை......" (பாடல்: 11)

"பாணர் தாமரை மலையவும், புலவர்..........." (பாடல்: 12)

அலகு 2: பத்துப்பாட்டு

நெடுநல்வாடை முழுவதும்

அலகு 3: நீதி நூல்கள்

1. திருக்குறள் : அறத்துப்பால் - செய்நன்றி அறிதல் - ஈகை

2. நாலடியார் : பொருட்பால்

கல்வி - "குஞ்சி யழகும்..." முதல் "அலகுசால் கற்பின் ---" வரை (10 பாடல்கள்)

அறிவுடைமை - "பகைவர் பணிவிடம்..." முதல் "கருமமு முட்படா --" வரை (10 பாடல்கள்)

அலகு 4: இலக்கணம்

வல்லெழுத்து மிகும் இடம், மிகா இடம்

அலகு 5: இலக்கிய வரலாறு

சங்க காலம், சங்கம் மருவிய காலம் தொடர்பான இலக்கிய வரலாறு.

பாடநூல் :

1. தமிழ்த்துறை வெளியீடு - ஜெயராஜ் அன்னபாக்கியம் மகளிர் கல்லூரி. பெரியகுளம்.

2. கி. இராசா - தமிழ் இலக்கிய வரலாறு

நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்,

அம்பத்தூர், சென்னை - 98

இரண்டாம் பதிப்பு - 2019.

பார்வை நூல்கள்:

1. வ.த. இராமசுப்பிரமணியம் (உ.ஆ) - **நற்றிணை**

    திருமகள் நிலையம்,

    முதற் பதிப்பு - 2009.

2. புலவர் துரை இராசாராம் (உ.ஆ) - **குறுந்தொகை**

    திருமகள் நிலையம்,

    சென்னை. முதற் பதிப்பு 2008

3. முனைவர்.அ.விசுவநாதன் (உ.ஆ) - **கலித்தொகை**

    பாவைபிரிண்டர்ஸ்,

    சென்னை - 2007.

4. வ.த.இராமசுப்பிரமணியம் (உ.ஆ) - **அகநானூறு**

    திருமகள் நிலையம், சென்னை

    முதற் பதிப்பு 2009.

5. வ.த.இராமசுப்பிரமணியம் (உ.ஆ) - **புறநானூறு**

    திருமகள் நிலையம, சென்னை.

    முதற் பதிப்பு 2008.

6. முனைவர்.இரா.மோகன் (உ.ஆ) - **பத்துப்பாட்டு (பகுதி - 2)**

    நியூ செஞ்சுரி புக் ஹவுஸ்,

    சென்னை - 98,

    முதற் பதிப்பு - 2007.

7. எஸ். கௌமாரீஸ்வரி (பதி.ஆ) - **திருக்குறள் பரிமேலழகர் உரை**

    சாரதா பதிப்பகம், சென்னை - 600 014,

    முதற்பதிப்பு - 2002.

8. எஸ். கௌமாரீஸ்வரி (பதி.ஆ) - **பதினெண்கீழ்க்கணக்கு நூல்கள்**

    சாரதா பதிப்பகம், சென்னை - 14,

    முதற்பதிப்பு - மார்ச் - 2009.

VECTOR CALCULUS AND THEORY OF NUMBERS

Semester: IV   **Hours: 5**

Code   : 20MA4MC07   **Credits: 4**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Analyze the differentiability of the functions by defining gradient, divergent and curl.	PSO - 2	An
CO - 2	Evaluate line, surface and volume integrals using the concept of vector integration.	PSO - 4	E
CO - 3	Acquaint with the real number systemand inequalities.	PSO - 4	C
CO - 4	Acquire the knowledge about number theory .	PSO - 4	C, Ap
CO - 5	Interpret the concepts of divisibility, congruence, greatest common divisor, primeand Composite numbers.	PSO - 2	K, Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: IV						VECTOR CALCULUS AND THEORY OF NUMBERS						Hours: 5
Code : 20MA4MC07												Credits: 4
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	4	4	3	3	3	3	4	3	3	3	3.27
CO-2	4	3	3	3	3	3	3	3	3	4	3	3.18
CO-3	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-4	3	3	4	3	3	3	4	3	3	4	3	3.27
CO-5	4	4	3	3	3	3	3	4	3	3	3	3.27
Overall Mean Score												3.234

Result: The Score for this Course is **3.234** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

UNIT I

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. **(15 Hours)**

UNIT II

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).

(15 Hours)

UNIT III

Inequalities: Inequalities depend on square of a real number - Inequalities depend on special arrangement of terms - Geometric and arithmetic means. **(15 Hours)**

UNIT IV

Theory of Numbers - Prime and Composite numbers - The sieve of Eratosthenes - Divisors of a given number N - Euler's function $\varphi(N)$ - Integral part of a real number - The highest power of a prime p contained in n! . **(15 Hours)**

UNIT V

The product of r consecutive integers is divisible by r!- Congruences - Numbers in Arithmetical Progression - Fermat's Theorem and Generalization of Fermat's Theorem, Wilson's Theorem - Lagrange's theorem - Simple Problems. **(15 Hours)**

COURSE BOOKS :

1. **S. Narayanan and T. K. Manickavachagom Pillay,** Vector Algebra & Analysis, S. Viswanathan (Printers & Publishers) Pvt. Ltd.,1995.

2. **T. K. Manicavachagom Pillay, T. Natarajan and K.S. Ganapathy**, Algebra Volume-II, S. Viswanathan(Printers & Publishers) Pvt. Ltd., 2000**.**

      Unit I   :   Chapter 4: Sections 1 to 12 (Book - 1)

      Unit II   :   Chapter 6: Sections 1 to 10 (Book - 1)

      Unit III   :   Chapter 4: Sections 1 to 5 (Book- 2)

      Unit IV   :   Chapter 5: Sections 1 to 10 (Book - 2)

      Unit V   :   Chapter 5: Sections 11 to 18 (Book- 2)

NUMERICAL METHODS

Semester: IV   **Hours: 4**

Code   : 20MA4MC08   **Credits: 4**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Solve simultaneous linear equations.	PSO - 3	K
CO - 2	obtain approximate solutions of algebraic and transcendental equations.	PSO - 1	Ap
CO - 3	Analyze and evaluate the accuracy of common numerical methods.	PSO - 2	An
CO - 4	Solve Numerical methods using Mat Lab.	PSO - 2	E
CO - 5	Compare different numerical methods.	PSO - 2 & PSO - 5	C

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: IV											Hours: 4
Code : 20MA4MC08	NUMERICAL METHODS										Credits: 4
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	4	4	4	3	3	3	3	4	3	3	3.36
CO-2	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-3	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-4	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-5	4	4	4	3	4	4	3	4	3	3	4	3.64
Overall Mean Score												**3.38**

Result: The Score for this Course is **3.38** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = __Total of Values__ Total No. of Pos & PSOs	Mean Overall Score for Cos= _Total of Mean Scores_ Total No. of Cos

UNIT I

Algebraic and Transcendental Equations - Introduction - Errors in numerical computation - Iteration method - Bisection method (Bolzano method) - Regular 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

STATISTICS - II

Semester: IV   **Hours: 4**

Code   : 20MA4AC04   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Use R for effective data analysis.	PSO - 4	E
CO - 2	Estimate the parameters of population on the basis of given information.	PSO - 4	C
CO - 3	Make decision using t- test and F- test.	PSO - 3	K
CO - 4	Analyze the association between two or more groups and populations.	PSO - 2	An
CO - 5	Create ANOVA table.	PSO - 2 & PSO - 3	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: IV												Hours: 4
Code : 20MA4AC04	STATISTICS - II											Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-2	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-3	3	4	4	4	3	3	3	3	4	3	3	3.36
CO-4	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-5	4	4	4	4	3	3	3	4	4	3	3	3.55
Overall Mean Score												3.362

Result: The Score for this Course is **3.362** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = $\dfrac{\text{Total of Values}}{\text{Total No. of Pos \& PSOs}}$	Mean Overall Score for Cos= $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of Cos}}$

UNIT I

Introduction - History - How to install R - Download - Install - Configure - The Basic Algebra - Vectors - Matrices - Manipulation - Loop Statement - Basic Arithmetic, Generating Data - Basic Statistics.   **(12 Hours)**

UNIT II

Sampling - Sampling distribution - Testing of hypothesis - Procedure for testing of hypothesis for large samples - Tests of significance for large samples.   **(12 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 - one sample t-test on R Program - two sample t- test on R Program.   **(12 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 - χ^2 - test on R program.

(12 Hours)

UNIT V

Analysis of Variance - One criterion of classification - Two criteria of classification - Three criteria of classification - Latin Square - ANOVA test on R Program.

(12 Hours)

COURSEBOOK:

Book compiled by the Staff.

DISCIPLINE SPECIFIC ELECTIVE - 2
STATICS

Semester: IV   **Hours: 4**

Code   : 20MA4DE2A   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand the action of forces on rigid bodies.	PSO - 4	C
CO - 2	Analyze the concept of parallel forces and moments.	PSO - 3	An
CO - 3	Compute equation of central orbit.	PSO - 4	Ap
CO - 4	Understand the concept of friction.	PSO - 4	K, S
CO - 5	Compute equation of equilibrium of strings.	PSO - 2	E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: IV											Hours: 4
Code : 20MA4DE2A		STATICS									Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-2	3	4	4	4	3	3	3	3	4	3	3	3.36
CO-3	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-4	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-5	4	4	4	3	3	3	3	4	3	3	3	3.36
Overall Mean Score												3.252

Result: The Score for this Course is **3.252** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

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.

(12 Hours)

UNIT II

Parallel forces - Resultant of two like parallel forces - Unlike parallel forces - Conditions of equilibrium - Moments - Varigon's theorem - Generalised theorem of moments. **(12 Hours)**

UNIT III

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.

(12 Hours)

UNIT IV

Coplanar Forces - Reduction of any number of Coplanar forces - Conditions of equilibrium. **(12 Hours)**

UNIT V

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.

(12 Hours)

COURSE BOOK :

M. K. Venkatraman, Statics, Agasthiar Publications 12th Edition,2007.

Unit I	:	Chapter 2 : Sections 1 - 13
Unit II	:	Chapter 3 : Sections 1 - 13
Unit III	:	Chapter 4 : Sections 1- 10
		Chapter 5 : Sections 1 - 6(upto exercise in page no. 108)
Unit IV	:	Chapter 6 : Sections 1 - 12
Unit V	:	Chapter 7 : Sections 1 - 12
		Chapter 11: Sections 1 - 6

TRANSFORMS AND APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS

Semester: IV   **Hours: 4**
Code   : 20MA4DE2B   **Credits: 3**
COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Demonstrate the concept of Fourier Transforms.	PSO - 2	K
CO - 2	Apply fourier transform to solve Partial Differential Equations.	PSO - 2	Ap
CO - 3	Identify the wave and heat equation.	PSO - 4	An
CO - 4	Explain Z-transform.	PSO - 4	S
CO - 5	Evaluate inverse Z-transform using Cauchy's Residue theorem and long division method.	PSO - 2	E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: IV							TRANSFORMS AND APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS					Hours: 4
Code : 20MA4DE2B												Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	4	4	3	3	3	3	4	3	3	4	3.45
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-4	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-5	3	3	4	3	4	4	3	3	3	3	4	3.36
Overall Mean Score												3.306

Result: The Score for this Course is: **3.306** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

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 - 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)**

COURSEBOOK:

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

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

HYDROSTATICS

Semester: IV   **Hours: 4**

Code   : 20MA4DE2C   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand the concept of a perfect fluid	PSO - 1	K
CO - 2	Associate the physical properties of a fluid with mathematical concepts	PSO - 3	K, An
CO - 3	Compute the center of pressure of fluids	PSO - 4	An, Ap
CO - 4	Derive the potential energy by the immersion of solid in a liquid	PSO - 4	An
CO - 5	Analyze the nature of equilibrium	PSO - 5	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: IV											Hours: 4
Code : 20MA4DE2C			HYDROSTATICS								Credits:3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	2	3	3	3	4	3	4	2	3	3	3	3.00
CO - 2	4	3	4	4	2	3	3	3	4	2	3	3.18
CO - 3	3	3	4	2	3	4	3	2	3	4	3	3.09
CO - 4	2	3	4	3	2	3	4	3	4	3	4	3.18
CO - 5	4	3	2	2	4	4	3	3	3	2	4	3.09
Overall Mean Score												3.11

Result: The Score for this Course is **3.11** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = <u>Total of Values</u> Total No. of POs & PSOs	Mean Overall Score for Cos = <u>Total of Mean Scores</u> Total No. of Cos

UNIT I

Fluid Pressure: Introduction - Stress in a fluid or fluid pressure - Measure of fluid pressure - The pressure at any point of a fluid at rest - Rate of variation of pressure of a fluid - The pressure at any point of a fluid at rest under the action of given forces. **(12 Hours)**

UNIT II

Conditions of equilibrium - Homogeneous liquid - Hetrogeneousfluids - Elastic fluids - Surfaces of equi-pressure - Lines of force - Conservative system of forces. **(12 Hours)**

UNIT III

Resultant pressure of fluids on plane surface - Centre of pressure - Geometrical position of centre of pressure in case of heavy liquid. **(12 Hours)**

UNIT IV

Conditions of equilibrium of a body floating in a heavy liquid - Potential energy or work done - Potential energy or work done by the immersion of solid in a liquid. **(12 Hours)**

UNIT V

Nature of equilibrium - Metacentre - Existence of Metacenter and Stability - Workdone in producing a rotational displacement - Sufficient conditions for stability. **(12 Hours)**

COURSE BOOK:

➢ **B. G. Verma and B. D. Gupta,** Hydro-Statics, Pragati Prakashan, Meerut, First Edition 1969.

        Unit I   : Chapter 1, Sections 1.1 to 1.6

        Unit II   : Chapter I, Sections 1.7 to 1.12

        Unit III :Chapter 2, Sections 2.1 to 2.3

        Unit IV :Chapter 3, Sections 3.1 to 3.3

        Unit V : Chapter 4, Sections 4.1 to 4.5

BOOKS FOR REFERENCE:

1. Batchelor, George K. (1967). An Introduction to Fluid Dynamics. Cambridge University Press.ISBN 0-521-66396-2.
2. Falkovich, Gregory (2011). Fluid Mechanics (A short course for physicists). Cambridge University Press.ISBN 978-1-107-00575-4.
3. Kundu, Pijush K.; Cohen, Ira M. (2008). Fluid Mechanics (4th rev. ed.). Academic Press. ISBN 978-0-12-373735-9.
4. Currie, I. G. (1974). Fundamental Mechanics of Fluids. McGraw-Hill. ISBN 0-07-015000-1.

MODERN ALGEBRA

Semester: V   **Hours: 5**

Code   : 20MA5MC09   **Credits: 5**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Acquire the knowledge of elementary concepts in Modern Algebra	PSO - 4	K
CO - 2	Use appropriate techniques and reasoning to prove the properties of groups	PSO - 2	C
CO - 3	Understanding the concept of homomorphism and isomorphism in groups	PSO - 4	K, S
CO - 4	Extend the results of groups to rings and fields	PSO - 2	S
CO - 5	Compare the Unique Factorization Domain and Principal Ideal Domain	PSO - 4	An

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: V											Hours: 5
Code : 20MA5MC09			**MODERN ALGEBRA**								Credits: 5
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-4	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-5	3	3	3	3	3	4	3	3	3	4	3	3.18
Overall Mean Score												**3.252**

Result: The Score for this Course is **3.252** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = __Total of Values__ Total No. of Pos & PSOs	Mean Overall Score for Cos= _Total of Mean Scores_ Total No. of Cos

UNIT I

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

(15 Hours)

UNIT II

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

(15 Hours)

UNITIII

Group Isomorphism - Group Homomorphisms.   **(15 Hours)**

UNITIV

Rings : Definition and examples - Elementary properties of rings - Isomorphism - Types of rings - Characteristic of a ring - Sub rings - Ideals - Quotient rings - Homomorphism of Rings.   **(15 Hours)**

UNIT V

Unique Factorization Domain (U. F. D) - Euclidean Domain - Every principal ideal domain is a unique factorization domain - Polynomial rings.   **(15 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
Unit V	:	Chapter 4: Sections 4.13 - 4.16

MODERN ANALYSIS

Semester: V   **Hours:6**

Code   : 20MA5MC10   **Credits:6**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Acquire the knowledge on countable and uncountable sets.	PSO - 2	K
CO - 2	Understand the basic concepts of Metric Space.	PSO - 4	U
CO - 3	Analyze the basic concepts of limits and continuity.	PSO - 4	An
CO - 4	Understand the concepts of completeness and connectedness in metric spaces.	PSO - 4	K, S
CO - 5	Be familiar with the characterization of compactness.	PSO - 2	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: V							MODERN ANALYSIS					Hours: 6
Code : 20MA5MC10												Credits: 6
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-2	3	3	4	3	3	3	3	3	3	4	3	3.18
CO-3	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-4	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-5	4	4	4	3	3	3	3	4	3	3	3	3.36
Overall Mean Score												**3.252**

Result: The Score for this Course is **3.252** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores / Total No. of Cos

UNIT I

Set and functions - Countable sets - Uncountable sets - Inequalities of Holder and Minkowski. **(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

Continuity :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 BOOK:

S. Arumugam and A. Thangapandi Issac, Modern Analysis, New Gamma Publishing House, 2010.

Unit I	:	Chapter 1: Sections 1.1 - 1.4
Unit II	:	Chapter 2: Sections 2.1 - 2.10
Unit III	:	Chapter 3: Sections 3.0 - 3.2
		Chapter 8: Section 8.1 (up to theorem 8.2)
Unit IV	:	Chapter 4: Sections 4.0 - 4.3
		Chapter 5: Sections 5.0 - 5.3
Unit V	:	Chapter 6: Sections 6.0 - 6.4

GRAPH THEORY

Semester: V   **Hours: 5**

Code   : 20MA5MC11   **Credits: 5**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO-1	Understand the basic concepts of Graph.	PSO - 4	U
CO-2	Design models using Euler and Hamiltonian graphs.	PSO - 1	An & Ap
CO-3	Discover solutions to real life problems using matchings.	PSO - 2 & PSO - 3	Ap
CO-4	Utilize algorithms in coloring of graphs.	PSO - 2	An & E
CO-5	Identify the platonic bodies.	PSO - 4	C

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: V												Hours: 5
Code : 20MA5MC11					**GRAPH THEORY**							**Credits: 5**
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	
CO-1	3	3	4	3	3	3	3	3	3	4	3	3.18
CO-2	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-3	3	4	4	4	3	3	3	4	4	3	3	3.45
CO-4	3	3	3	3	3	4	3	4	3	3	3	3.18
CO-5	3	3	4	3	4	4	3	3	3	4	3	3.36
Overall Mean Score												**3.27**

Result: The Score for this Course is 3.27 (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

UNIT I

Basics - Graphs - Pictorial representation - Sub graphs - Isomorphism and degrees - Walk and connected graphs - Cycles in graphs - Cut-vertices and cut- edges.

(15 Hours)

UNIT II

Eulerian, Hamiltonian graphs - Eulerian graphs - Fleury's algorithm- Hamiltonian graphs - Weighted graphs - Bipartite graphs - Marriage Problem - Trees.

(15 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. **(15 Hours)**

UNIT IV

Directed Graphs - Connectivity in digraphs - Strong orientation of graphs - Eulerian digraphs - Tournament. **(15 Hours)**

UNIT V

Labellings - Predecessor and successor - Algorithm - Graceful graphs - Sequential functions - Application -Magic graphs. **(15 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, First Edition.

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

PROGRAMMING IN C - THEORY

Semester: V   **Hours: 4**

Code   : 20MA5MC12   **Credits: 3**

COURSE OUTCOMES: (THEORY AND LAB)

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand the basic structure of C Programs.	PSO - 2	U
CO - 2	Acquire the knowledge of constants, variables, arrays and data types.	PSO - 2	K
CO - 3	Identify C operators and expressions.	PSO - 1	E
CO - 4	Analyze decision making and looping.	PSO - 5	An
CO - 5	Write and execute programs using pointers and functions.	PSO - 2 & PSO - 5	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: V											Hours: 4
Code : 20MA5MC12/ 20MA5CP01	PROGRAMMING IN C - THEORY AND LAB										Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	3	4	3	3	3	3	4	3	3	3	3.18
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-4	3	3	3	3	3	4	3	3	3	3	4	3.18
CO-5	3	3	4	3	3	4	3	4	3	3	4	3.36
Overall Mean Score												3.252

Result: The Score for this Course is **3.252** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

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 - 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 McgrawHill 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	:	Chapter7
		Chapter 8: Sections 8.1 - 8.9
Unit IV	:	Chapter9
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   **: 20MA5CP01**   **Credit: 1**

1. Write a program to add two numbers.

2. Write a program to Print Monday to Sunday 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 check whether the given year is a Leap year or not.

7. Write a program to convert the given text of characters to upper case, count the number of vowels and consonants 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) it is a prime number (b) the integer is Fibonacci number.

11. Write a program to calculate the root of a function using Newton - Raphson Method.

12. Write a program to calculate the value of the given integral using Simpson's 1/3 rule.

DISCIPLINE SPECIFIC ELECTIVE - 3
DYNAMICS

Semester: V   **Hours: 4**

Code   : 20MA5DE3A   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Determine the path and range of a projectile in any direction.	PSO - 2	Ap
CO - 2	Understand the concept of enveloping parabola.	PSO - 4	U
CO-3	Acquire the knowledge about collision of elastic bodies.	PSO-2	K
CO - 4	Compute equation of simple harmonic equation.	PSO - 2	E
CO - 5	Understand the motion under the central forces.	PSO - 4	K, S

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: V												Hours: 4
Code : 20MA5DE3A			DYNAMICS									Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-2	3	3	4	3	3	3	3	3	3	4	3	3.18
CO-3	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-4	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-5	3	3	3	3	3	4	3	3	3	4	3	3.18
Overall Mean Score												3.288

Result: The Score for this Course is **3.288** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores / Total No. of Cos

UNITI

Projectiles - Definition - Path of a projectile - Characteristics - Maximum horizontal Range-Velocity of the projectile at the end of time t- Velocity acquired in falling freely from the directrix to the point.   **(12 Hours)**

UNIT II

Two directions of projection to reach a given point - Range on an inclined plane - Greatest distance - Enveloping parabola.   **(12 Hours)**

UNIT III

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.   **(12 Hours)**

UNIT IV

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 - Loss in Kinetic energy - Oblique impact of two smooth spheres - Loss in Kinetic energy.   **(12 Hours)**

UNIT V

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.

(12 Hours)

COURSE BOOK:

M. K. Venkatraman, Dynamics, Agasthiar Publications 13th Edition, 2009.

Unit I	:	Chapter 6 : Sections 6.1 - 6.10
Unit II	:	Chapter 6 : Sections 6.11 -6.17
Unit III	:	Chapter 8 : Sections 8.1 - 8.8
Unit IV	:	Chapter 10 : Sections 10.1 - 10.7
Unit V	:	Chapter 11 : Sections 11.1 - 11.10

APPLICATION OF STATISTICS IN HORTICULTURE

Semester: V   **Hours: 4**

Code   : 20MA5DE3B   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Acquire skills in statistical analysis	PSO - 3	C
CO - 2	Calculate statistical values both manually and using statistical Packages	PSO -1	K
CO - 3	Identify the applications of statistics in agriculture	PSO - 3	Ap
CO - 4	Acquire skills in statistical analysis manually and using statistical packages and interpretation of data collected from agricultural experiments	PSO - 4	An
CO - 5	Apply various design of experiments in horticulture field theory	PSO - 4	K

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: V											Hours: 4
Code : 20MA5DE3B			APPLICATION OF STATISTICS IN HORTICULTURE								Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	4	4	4	3	3	3	3	4	3	3	3.36
CO-2	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-3	3	4	4	4	3	3	3	3	4	3	3	3.36
CO-4	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-5	3	3	3	3	3	4	3	3	3	4	3	3.18
Overall Mean Score												3.252

Result: The Score for this Course is **3.252** (HighRelationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = ___Total of Values___ Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

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 2×2 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 rawdata

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 sample means (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 statistical package(AGRES).

16. Field visit.

17. Final practical examination.

COURSE BOOKS:

1. **G. NageshwaraRao** , Statistics for Agricultural Sciences, BS Publications, Andhra Pradesh, 2007.

2. **Rangaswamy, R**., A Text book of Agricultural Statistics, Wiley Eastern Limited, New Delhi, 2009

BOOKS FOR REFERENCE:

1. S.C. Gupta & V.K. Kapoor, Fundamentals of Applied Statistics, 2006, Sultan Chand & Sons, NewDelhi.

2. Chandel, S.R.S., 1999, A hand book of Agricultural Statistics, AchalPrakashanMandhir,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

HYDRODYNAMICS

Semester:V   **Hours: 4**

Code   : 20MA5DE3C   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand the kinematics of fluids in motion.	PSO - 4	U
CO - 2	Impart knowledge about equations of motion.	PSO - 1	K
CO - 3	Discuss two - dimensional source and sink.	PSO - 4	An
CO - 4	Acquire knowledge about images in two dimensions.	PSO - 3	C
CO - 5	Apply Stoke's and Green's theorem.	PSO - 2	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: V											Hours: 4
Code : 20MA5DE3C			HYDRODYNAMICS								Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	2	3	2	3	3	4	3	3	3	4	3	3.00
CO - 2	3	3	4	3	3	2	4	3	3	3	3	3.09
CO - 3	3	2	3	3	3	4	3	3	3	4	3	3.09
CO - 4	3	3	2	3	3	4	3	2	4	3	3	3.00
CO - 5	4	4	4	3	3	3	3	4	3	3	3	3.36
Overall Mean Score												3.11

Result: The Score for this Course is **3.11** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos = Total of Mean Scores
Total No. of Pos& PSOs	Total No. of Cos

UNIT I

Kinematics : Description of fluid motion - Lagrangian method - Eulerian method - velocity of a fluid particle at a point - Local convective and material derivatives - equation of connectivity - equation of continuity - equivalence of the two forms of the equation of continuity. **(12 Hours)**

UNIT II

Conservation of momentum: Euler's equation of motion along a streamline - equation of motion of an inviscid fluid - Helmholtz equations - Cauchy's integral - Bernoulli's equation - Integration of Euler's equation - Symmetrical forms of the equation of continuity. **(12 Hours)**

UNIT III

Application of the Bernoulli's theorem - impulsive motion of a fluid - energy equation - motion in two dimensions - stream function - physical interpretation of stream function - complex potential and complex velocity - two dimensional source and sink - complex potential of a source - two dimensional doublet - complex potential of a doublet. **(12 Hours)**

UNIT IV

Images in two dimensions - image of a source with regard to a plane - image of a doublet with regard to a plane - circle theorem - image of a source with regard to a circle - image of a doublet with regard to a circle. **(12 Hours)**

UNIT V

 Conformal representation - application to hydrodynamics - general motion of a fluid element - voriticity - stress analysis at a point - strain analysis - stoke's theorem - Kelvin's circulation theorem - connectivity - cyclic constant - irrotational motion in multiple-connected space - acyclic and cyclic motion Green's theorem - deduction from Green's theorem - mean value of the velocity potential over a spherical surface. **(12 Hours)**

COURSE BOOKS:

Unit I	:	Chapter1 - Sections : 1.5 - 1.18
Unit II	:	Chapter 2 - Sections : 2.0 - 2.7
		Chapter 2 - Sections : 2.8 - 2.10
Unit III	:	Chapter 3 - Sections : 3.1 - 3.7
Unit IV	:	Chapter 3 - Sections : 3.8 - 3.13
Unit V	:	Chapter 3 - Sections : 3.14 - 3 .15
		Chapter 4 - Sections : 4.0 - 4.14

GENERIC ELECTIVE - 1
MATHEMATICS OF NETWORKS

Semester: V   **Hours: 2**
Code   : 20MA5GE01   **Credits: 2**
COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand the basic concepts and classifications of networks.	PSO - 4	C
CO - 2	Analyzecomputations in networks through graphs.	PSO - 3	An
CO - 3	Understand a mathematically complex networks in graph theory.	PSO - 4	C
CO - 4	Determine network models in operation research.	PSO - 2	E
CO - 5	Solve problems in CPM and PERT.	PSO - 4	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: V											Hours: 2
Code : 20MA5GE01			MATHEMATICS OF NETWORKS								Credits: 2
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-2	3	4	4	4	3	3	3	3	4	3	3	3.36
CO-3	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-4	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-5	4	4	4	3	3	3	3	3	3	4	3	3.36
Overall Mean Score												3.288

Result: The Score for this Course is **3.288** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

UNIT I

Introduction - Examples of Networks-Properties of Networks. **(6 Hours)**

UNIT II

Mathematics of Networks - Networks and their representation - The Adjacency Matrix - Weighted Networks - Directed Networks - Degree - Bipartite Networks - The Incidence Matrix - Planar Networks. **(6 Hours)**

UNIT III

Trees - Spanning Trees - The Minimum Spanning Tree Problem - Prim's Algorithm - Applications of Minimum Spanning Tree - Travelling Salesman Problem - Chinese Postman Problem. **(6 Hours)**

UNIT IV

PERT and CPM - Introduction - Basic Terminologies-Network Logic - Fulkerson's Rule - Construction of Networks. **(6 Hours)**

UNIT V

Critical Path Method - Slack and Float - Simple Problems. **(6 Hours)**

COURSE BOOK:

Book compiled by the staff.

GENERIC ELECTIVE (NME)

NATIONAL CADET CORPS

PROGRAMME OUTCOMES (PO)

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.

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO. NO	UPON COMPLETION OF THE COURSE THE STUDENTS WILL BE ABLE TO	PO MAPPED
1	Reinforce the aims, motto, vision and mission of the NCC through the academic curriculum.	PO-1, PO-3
2	Train the students, to be graduates with all round development, who apart from their own subject, can successfully compete in other fields such as defense/paramilitary/ police forces and civil services.	PO-1, PO-4
3	Perform in social service activities and creating awareness about social evils in society.	PO-1, PO-5, PO-6.
4	Explain the tri services organization, comprising the army, navy and air force, engaged in grooming the youth of the country into disciplined and patriotic citizens.	PO-2, PO-6
5	Demonstrate "B" and "C" certificate examination of NCC helps in getting jobs in different forces and also security related jobs.	PO-1, PO-2, PO-5,PO-5, PO-6

GENERIC ELECTIVE (NME)

Sem.	Part	Code	Title of Paper	Hours	Credits
V	IV	20GE5NC01	NCC - National Integration and Personality Development	2	2
VI	IV	20GE6NC02	NCC- Organization and Health Programme in NCC	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**

NATIONAL INTEGRATION AND PERSONALITY DEVELOPMENT

Semester: V   **Hours: 2**

Code   : 20GE5NC01   **Credits: 2**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Develop technical skill in Civil defense and self defense in order to safeguard the society in case of need arises	PSO - 1,PSO - 2, PSO - 4	K, An, Ap,
CO - 2	Perceive the importance of Weapon training is to remove the fear of a weapon from the hearts of youth.	PSO - 1, PSO - 4	K, An, C
CO - 3	Comprehend the motivation for positive attitude, character building and personality development.	PSO - 2,PSO - 3, PSO 4, PSO - 5	K, S, Ap
CO - 4	Analyze the different types of disasters under different circumstances.	PSO - 4, PSO - 5	K, An, E
CO - 5	Achieve practical knowledge in community development and other social programmes.	PSO - 1, PSO - 2	K, Ap, S, E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: V											Hours: 2
Code : 20GE5NC01		NATIONAL INTEGRATION AND PERSONALITY DEVELOPMENT									Credits: 2
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	5	3	3	2	2	4	5	4	3	3	5	3.55
CO - 2	5	4	4	2	3	4	5	4	4	4	5	4.00
CO - 3	5	5	4	2	2	3	3	5	3	3	4	4.00
CO - 4	5	4	3	2	2	4	4	5	4	4	5	3.82
CO - 5	5	4	4	2	3	3	5	4	2	5	4	3.73
Overall Mean Score												3.82

Result: The Score for this Course is **3.82** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = ___Total of Values___ Total No. of Pos & PSOs	Mean Overall Score for Cos = Total of Mean Scores Total No. of Cos

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 $4 \times 2 = 8$

PART- B

Two either or questions (one from each) $2 \times 4 = 8$

PART - C

Two either or questions (one from each $2 \times 7 = 14$

SKILL ENHANCEMENT COMPULSORY COURSE
APTITUDE BUILDING - I

Semester: V   **Hours: 2**

Code   : 20SE5AB03   **Credits: 2**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Gain knowledge about operations on numbers and develop skills in problem solving	PSO - 3	K, A, E
CO - 2	Enhance their reasoning capacity	PSO - 3	K, A, E
CO - 3	Improve their reading, writing and speaking skills	PSO - 5	K, A, E
CO - 4	Recognize the importance of computer literacy	PSO - 5	K, A, E
CO - 5	Appear for competitive exams	PSO - 5	K, A, E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: V												Hours: 2
Code : 20SE5AB03			**APTITUDE BUILDING - I**									Credit: 2
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	5	5	5	5	5	3	2	3	3	2	5	3.90
CO-2	5	5	5	5	5	3	2	3	3	2	5	3.90
CO-3	5	5	5	5	5	3	2	3	3	2	5	3.90
CO-4	5	5	5	5	5	3	2	3	3	2	5	3.90
CO-5	5	5	5	5	5	3	2	3	3	2	5	3.90
Overall Mean Score												3.90

Result: The score for this course is **3.90** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos =Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

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:

- ➢ I. Maria Jesili, Aptitude Building-I A book for Competitive examination, Vol.1, ACCA, Press, J.A. College, Periyakulam.

SKILL ENHANCEMENT COMPULSORY COURSE - APTITUDE BUILDING - I

COMPONENTS OF CIA

Continuous Internal Assessment Component (CIA)
Theory:

Component	Marks
Internal test I	40
Internal test II	40
Mock Interview	15
Attendance	5
Total	**100**

Component	Marks
Logical Reasoning	10
Numerical Aptitude	10
English Language	10
General Knowledge	10
Total	**40**

APTITUE BUILDING I - 20SE5AB03
QUESTION PATTERN
[Internal Examination Only]

MAXIMUM: 80 MARKS   **TIME: 1 ½ HOURS**

Section	Type of Question	No. of Questions	No. of Questions to be answered	Marks for each question	Total
A Q.No. (1- 20)	MCQ Questions from Numerical Aptitude	20	20	1	20
B Q.No.(21- 40)	MCQ Questions from Reasoning	20	20	1	20
C Q.No. (41- 60)	MCQ Questions from English Language	20	20	1	20
D Q.No. (61- 80)	General knowledge & Current Affairs	20	20	1	20
Total					**80**

 * **OMR** Sheet shall be provided for the examination.

LINEAR ALGEBRA

Semester: VI   **Hours: 5**
Code   : 20MA6MC13   **Credits: 5**
COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Analyze finite and infinite dimensional vector spaces over a field.	PSO - 2	An
CO - 2	Determine the linear independency of vectors.	PSO - 2	Ap
CO - 3	Understand theproperties of inner product spaces.	PSO - 2	K, Ap
CO - 4	Acquire the knowledge of matrix theory.	PSO - 4	C, Ap
CO - 5	Use the characteristic polynomial to find the eigen vectors of a square matrix.	PSO - 2	E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI											Hours: 5
Code : 20MA6MC13		LINEAR ALGEBRA									Credits: 5
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)				Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	3	4	4	3	3	3	3	4	3	3	3	3.27
CO-4	4	3	3	3	3	3	3	3	3	4	3	3.18
CO-5	4	4	4	3	3	3	3	4	3	3	3	3.36
Overall Mean Score												3.306

Result: The Score for this Course is **3.306** (High Relationship**)**

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

UNIT I

Vector spaces - Introduction - Definition and Examples - Subspaces - Linear transformations - Span of a set. **(15 Hours)**

UNIT II

Linear independence - Basis and dimension - Rank and nullity -Matrix of a linear transformation. **(15 Hours)**

UNIT III

Inner product spaces - Introduction - Definition and examples - Orthogonality - Orthogonal complement. **(15 Hours)**

UNIT IV

Theory of matrices: Introduction - Algebra of matrices - Types of matrices - The inverse of a matrix - Elementary transformations - Rank of a matrix. **(15 Hours)**

UNIT V

The characteristic equation and Cayley Hamilton theorem - Eigen values & Eigen vectors - Bilinear forms. **(15 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 -7.5
Unit V	:	Chapter 7: Sections 7.7 &7.8
		Chapter 8: Sections 8.0 - 8.1

COMPLEX ANALYSIS

Semester: VI   **Hours: 6**

Code   : 20MA6MC14   **Credits: 6**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Acquire the knowledge of complex numbers and its properties.	PSO - 4	K
CO - 2	Determine the analyticity of complex functions.	PSO - 2	S
CO - 3	Evaluate complex integrals.	PSO - 2	E
CO - 4	Identify the regular and singular points of a function.	PSO - 2	An
CO - 5	Use residue theorem to evaluate definite integrals.	PSO - 2	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI							COMPLEX ANALYSIS					Hours: 6
Code : 20MA6MC14												Credits: 6
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-4	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-5	4	4	4	3	3	3	3	4	3	3	3	3.36
Overall Mean Score												**3.324**

Result: The Score for this Course is **3.324** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores / Total No. of Cos

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 transformation: 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 $\int_0^{2\pi} F(cos\theta, sin\theta)d\theta$ - Integral between the limits - ∞ 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 (Book2)
Unit II	:	Chapter 4 : Sections 1 - 5 (upto 5.4) (Book2)
Unit III	:	Chapter 1 : Section 1.7 (Book1)
		Chapter 2 : Sections 2.1 - 2.7 (Book2)
Unit IV	:	Chapter 3 : Sections 1 - 11 (Book2)
		(Omitting Section 12 - Maximum Modulus theorem)
Unit V	:	Chapter 5 : Sections 1 - 7 (Book2)

OPERATIONS RESEARCH

Semester: VI   **Hours: 5**

Code   : 20MA6MC15   **Credits: 5**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Solve problems in game theory.	PSO - 2	S
CO - 2	Analyze and interpret results in sequencing and replacement problems using iterations.	PSO - 2	An
CO - 3	Determine Queuing models.	PSO - 2	E
CO - 4	Understand the inventory models and time of replenishment.	PSO - 4	K
CO - 5	Apply modeling in optimization problems.	PSO - 2 & PSO - 5	C

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI											
Semester: VI				**OPERATIONS RESEARCH**						**Hours: 5**	
Code : 20MA6MC15										**Credits: 5**	

Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	4	4	4	3	3	4	3	4	3	4	3	3.54
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-4	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-5	4	4	4	3	4	4	3	4	3	3	4	3.63
Overall Mean Score												**3.414**

Result: The Score for this Course is **3.414** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

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).

(15 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. **(15 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. **(15 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. **(15 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. **(15 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
UnitIII :	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   : 20MA6MC16   **Credits: 4**

COURSE OUTCOMES: (THEORYAND LAB)

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Master in object oriented programming.	PSO - 1	C
CO - 2	Review the concepts of C++ functions and functions.	PSO - 2	S
CO - 3	Familiarize with constructors and destructors.	PSO - 4	K
CO - 4	Analyze the C++ control structures.	PSO - 2	An
CO - 5	Write programs on I/O operations and work with C++ files.	PSO - 3 & PSO - 5	E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI											Hours: 4
Code : 20MA6MC16/ 20MA6CP02	PROGRAMMING IN C^{++} - THEORY AND LAB										Credits: 4
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)				Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5
CO-1	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-4	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-5	3	4	4	4	4	4	3	3	4	3	4	3.64
Overall Mean Score												3.344

Result: The Score for this Course is **3.344** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = $\dfrac{\text{Total of Values}}{\text{Total No. of Pos \& PSOs}}$	Mean Overall Score for Cos= $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of Cos}}$

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 datatype- 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 closingafile. **(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	:	Chapter10
		Chapter 11: Sections 11.1 - 11.3

PROGRAMMING IN C++- LAB

Semester: VI   **Hours: 2**

Code   : 20MA6CP02   **Credits : 1**

1. Write a program to print the Pascal's triangle using for loop

2. Write a program to find the simple interest and compound interest.

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 and binary 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.

14. Write a program to add two complex numbers using constructor over loading.

DISCIPLINE SPECIFIC ELECTIVE - 4
FUZZY SETS AND FUZZY NUMBERS

Semester: VI   **Hours: 4**
Code   : 20MA6DE4A   **Credits:3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Relate concepts between classical sets and fuzzy sets.	PSO - 4	K
CO - 2	Acquaint with membership functions.	PSO - 2	C
CO - 3	Acquire knowledge of basic operations on fuzzy sets.	PSO - 1	S
CO - 4	Critique the properties and principles of fuzzy sets.	PSO - 2	An
CO - 5	Develop arithmetical ability on fuzzy numbers.	PSO - 2	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI						FUZZY SETS AND FUZZY NUMBERS					Hours: 4
Code : 20MA6DE4A											Credits: 3
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)				Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-4	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-5	4	4	4	3	3	3	3	4	3	3	3	3.36
Overall Mean Score												3.288

Result: The Score for this Course is **3.288** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

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

AUTOMATA THEORY AND FORMAL LANGUAGES

Semester: VI   **Hours: 4**

Code   : 20MA6DE4B   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Explore the concepts of grammars and languages.	PSO - 4	An
CO - 2	Describe regular languages by means of languages.	PSO - 1	E
CO - 3	Equip with the methods of transforming grammars.	PSO - 2	Ap
CO - 4	Develop parsing algorithms for context-free languages.	PSO - 3	C
CO - 5	Determine the decidability of context-free languages.	PSO - 2	S

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI	AUTOMATA THEORY AND FORMAL LANGUAGES										Hours: 4
Code : 20MA6DE4B											**Credits: 3**
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	3	3	3	3	4	3	3	3	4	3	3.18
CO-2	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-3	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-4	3	4	4	4	3	3	3	3	4	3	3	3.36
CO-5	4	4	4	3	3	3	3	4	3	3	3	3.36
Overall Mean Score												**3.288**

Result: The Score for this Course is **3.288** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

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 push down Automata. **(12 Hours)**

COURSE BOOK:

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

Unit	I :	Chapter 1:	Section1.2
		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:	Section5.1
		Chapter 6:	Sections 6.1 & 6.2
Unit	V :	Chapter 7:	Sections 7.1 & 7.2.

INDUSTRIAL MATHEMATICS

Semester: VI   **Hours: 4**

Code   : 20MA6DE3C   **Credits: 3**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Provide the Knowledge of modelling and numerical techniques	PSO - 3	K
CO - 2	Expertise in formulating and solving problems	PSO - 2	S
CO - 3	Develop skills in abstraction and logical thinking	PSO - 4	Ap
CO - 4	To transform technical problems into mathematical problems	PSO - 5	An
CO - 5	To construct and analyze the real life problem	PSO - 1	U, E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI							INDUSTRIAL MATHEMATICS					Hours: 4
Code : 20MA6DE3C												Credits: 3
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	3	3	3	4	3	3	3	3	4	3	3	3.27
CO - 2	3	4	4	3	3	3	3	4	3	3	3	3.27
CO - 3	2	2	3	3	3	4	3	3	3	4	3	3.00
CO - 4	2	2	3	3	4	4	3	3	3	3	4	3.09
CO - 5	2	3	3	2	2	3	4	3	3	3	3	2.81
Overall Mean Score												**3.08**

Result: The score for this course is **3.08** (Moderate Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = <u>   Total of Values   </u>
                           Total No. of Pos & PSOs
	Mean Overall Score for Cos= <u>Total of Mean Scores</u>
	                                    Total No. of Cos

UNIT I

Introduction to Inverse problems: What is an Inverse problem- Elements of an inverse problem- example of measurement problem - IP and modelling - application to MRI- Inverse problems, smoothing and ill posedness. **(12 Hours)**

UNIT II

Integral Geometry - Radon transforms- Transmission tomography-teo dimensional X-ray transform-three dimensional Radon transform-Attenuated Radon transform- Single Photon emission computed tomography-Riemann Hilbert problem- Inversion of the attenuated Radon transform. **(12 Hours)**

UNIT III

X-ray: Introduction, X-ray behavior and Beers Law (The fundamental question of image construction) Lines in the place. **(12 Hours)**

UNIT IV

Radon Transform: Definition and Examples, Linearity, Phantom (Shepp - Logan Phantom - Mathematical phantoms). Back Projection: Definition, properties and examples. **(12 Hours)**

UNIT V

CT Scan: Revision of properties of Fourier and inverse Fourier transforms and applications of their properties in image reconstruction. Algorithms of CT scan machine. Algebraic reconstruction techniques abbreviated as ART with application to CT scan. **(12 Hours)**

COURSE BOOKS:

1. Guillaume Bal, Introduction to inverse problems, University of Chicago, Chicago.
2. Timothy G. Feeman, The Mathematics of Medical Imaging, A Beginners Guide, Springer Under graduate Text in Mathematics and Technology, Springer, 2010.

   Unit I : Chapter-1 Sec1.1-1.4 (Book-1)

   Unit II : Chapter -2 Sec 2.1-2.2 (Book-1)

   Unit III : Chapter-1 Sec1.1-1.4 (Book-2)

   Unit IV : Chapter-2 Sec2.1-2.5 (Book-2)

   　　　　　Chapter-3 Sec3.1-3.3 (Book-2)

   Unit V : Chapter-5 Sec5.1-5.6 (Book-2)

BOOKS FOR REFERENCE:

1. C.W. Groetsch, Inverse Problems, Activities for Undergraduates, The Mathematical Association of America, 1999.
2. Andreas Kirsch, An Introduction to the Mathematical Theory of Inverse Problems, 2nd Ed., Springer, 2011.

GENERIC ELECTIVE - 2
DISCRETE MATHEMATICS

Semester: VI   **Hours: 2**

Code   : 20MA6GE02   **Credits: 2**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand the concept of Mathematical Logic.	PSO - 1	U
CO - 2	Analyse the basic concept of Conditional propositions.	PSO - 2 & PSO - 4	An
CO - 3	Compute the problems in permutation.	PSO - 4	An
CO - 4	Evaluate the problems in combination.	PSO - 3	E
CO - 5	Apply the basic probability rules to solve sample space problems.	PSO - 2	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI					DISCRETE MATHEMATICS						Hours: 2
Code : 20MA6GE02											Credits: 2

Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	3	3	3	3	4	4	3	3	3	3	3.18
CO-2	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-3	3	3	3	4	3	3	3	3	3	4	3	3.18
CO-4	3	4	4	3	3	3	3	3	4	3	3	3.27
CO-5	3	4	3	3	3	3	3	4	3	4	3	3.27
Overall Mean Score												**3.216**

Result: The Score for this Course is 3.216(High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

UNIT I

Mathematical Logic - Logical statement or proposition - Types of propositions - the propositional Calculus - Negation - Disjunction - Conjunction - Tautology.

(6 Hours)

UNIT II

Logical equivalence - The Algebra of propositions - Conditional propositions - The negation of a conditional proposition. **(6 Hours)**

UNIT III

Permutations - Factorial Notations - permutation of r things chosen out of n dissimilar things - permutation with repetitions - Simple problems. **(6 Hours)**

UNIT IV

Combinations - number of combinations of r objects taken out of n objects - Simple problems. **(6 Hours)**

UNIT V

Probability- Terminology - Usefulness- Random Experiment-Sample Space-Mutually exclusive events - Independent events - probability measure- Simple problems. **(6 Hours)**

COURSE BOOK:

Book compiled by the Staff.

ORGANIZATION AND HEALTH PROGRAMME IN NCC

Semester: VI   **Hours: 2**

Code   : 20GE6NC02   **Credits: 2**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Attain knowledge on History, honors and awards of Indian Military	PSO - 1,PSO - 2, PSO - 4	K, An, Ap,
CO - 2	Perceive knowledge on read the maps, so that they are able to locate themselves when need arises.	PSO - 1, PSO - 4	K, An, C
CO - 3	Explain the medical knowledge which consists of anatomy and physiology of human body.	PSO - 2,PSO - 3, PSO 4, PSO - 5	K, S, Ap
CO - 4	Analyse the personal hygiene and sanitation.	PSO - 4, PSO - 5	K, An, E
CO - 5	Develop technical skill of first Aid and how to effectively deal with minor injuries.	PSO - 1, PSO - 2	K, Ap, S, E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: IV												Hours: 2

| Semester: IV | | | | | | | | | | | | Hours: 2 |

Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	5	4	4	2	2	2	4	5	3	3	5	3.55
CO - 2	4	4	4	2	3	2	4	4	4	4	5	3.64
CO - 3	5	4	3	2	2	3	3	3	5	3	2	3.18
CO - 4	5	5	4	3	2	3	5	5	4	5	3	4.00
CO - 5	4	3	3	3	2	2	4	4	5	5	4	3.55
Overall Mean Score												3.58

Semester: IV / Code : 20GE6NC02 / ORGANIZATION AND HEALTH PROGRAMME IN NCC / Hours: 2 / Credits: 2

Result: The Score for this Course is **3.58** (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos = Total of Mean Scores Total No. of Cos

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.

<div align="center">**INTERNAL QUESTION PATTERN**</div>

Time: 2 hours

<div align="right">**Marks: 30**</div>

<div align="center">**PART - A**</div>

Answer Any 4 out of five $4 \times 2 = 8$

<div align="center">**PART- B**</div>

Two either or questions (one from each) $2 \times 4 = 8$

<div align="center">**PART - C**</div>

Two either or questions (one from each $2 \times 7 = 14$

SKILL ENHANCEMENT COMPULSORY COURSE (SECC) - 4
LaTeX

Semester: VI   **Hours: 2**

Code   : 20SE6MA04   **Credits: 2**

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand Basic Syntax of LaTeX compilation.	PSO - 1	K, C
CO - 2	Write mathematical equations via LaTeX.	PSO - 3 & PSO - 2	Ap, S
CO - 3	Customize LaTeX document.	PSO - 4 & PSO - 2	S
CO - 4	Draw graphs and figures using LaTeX.	PSO - 5 & PSO - 2	An, Ap
CO - 5	Report work in scientific typesetting in LaTeX.	PSO - 1 & PSO - 2	S

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI							LaTeX					Hours: 2
Code : 20SE6MA04												Credits: 2
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	4	4	3	3	3	4	3	3	4	3	3.36
CO-2	3	4	4	4	3	3	3	4	4	3	3	3.45
CO-3	3	3	4	3	3	4	3	4	3	4	3	3.36
CO-4	3	4	4	3	4	4	3	4	3	3	4	3.54
CO-5	3	3	4	3	3	4	4	4	3	3	3	3.36
Overall Mean Score												**3.414**

Result: The Score for this Course is **3.414** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos =___Total of Values____ Total No. of Pos & PSOs	Mean Overall Score for Cos=_Total of Mean Scores_ Total No. of Cos

UNIT I

Introduction: Just what is LaTeX - Basics of LaTeX file Text, Symbols, and Commands: Command names and arguments - Environments - Declarations - Special Characters.   **(6 Hours)**

UNIT II

Document Layout and Organization: Document class - page style - parts of the document - table of contents. Displayed Text: Changing font - Centering and indexing - Lists - Generalized list - Theorem-like declarations - Tabulator stop - Boxes - Tables.   **(6 Hours)**

UNIT III

Mathematical Formulas: Mathematical environment - Main elements of math mode - Mathematical symbols - Additional Elements Graphics Inclusion and Color: The graphics package - Adding color.   **(6 Hours)**

UNIT IV

User Customization: Counters - Lengths - User Defined Commands - User Defined environment. Document Management: Processing parts of documents -In text references - Bibliographies.   **(6 Hours)**

UNIT V

Multi lingual LaTeX - The babel system - Math Extensions with AMS LaTeX - Invoking AMS LaTeX - Standard featurs of AMS LaTeX - The AMS fonts - Letters - The LaTeX letter class.   **(6 Hours)**

COURSE BOOK :

"A Guide to LATEX" by **H. Kopka and P.W.Daly**, Fourth Edition, Addison-Wesley,London,1999.

Unit I :	Chapter 1:	Sections 1.1 , 1.5
	Chapter 2:	Sections 2.1 - 2.5
Unit II :	Chapter 3 &	
	Chapter 4 :	Sections 4.1 - 4.8
Unit III:	Chapter 5 :	Sections 5.1 - 5.4
	Chapter 6	
Unit IV:	Chapter 8:	Sections 8.1 - 8.4
	Chapter 9:	Sections 9.1 - 9.3
Unit V :	Chapter 11:	Section 11.1
	Chapter 12:	Sections 12.1, 12.2 , 12.4
	Chapter 16:	Section 16.1

LaTeX Program List

1. Write a leave letter using LaTeX.

2. Write a multilingual text with different Scripts using LaTeX.

3. Customize your own document using sections, subsections,different font colour, different font size and different font effects.

4. Start a new section in the document. Using LaTeXtype the following sentences

   i)   I entered the room and - horrors -I saw both my father-in-law and my mother-in-law.

   ii) Frank wondered, "Is this a girl that can't say 'No!'?"

   iii) Does Æschylus understand Œdipus?

5. Use itemize, enumerate and description environment to type the following content given below:

   1. You can mix list environments as much as you like
      • It might look unordered
      - With different symbols
   2. So do remember
      Stupid things will not become smart because they are in a list.
      Smart things, though, can be presented beautifully in a list.

6. Prepare the following table using LaTeX.

   ### Vegetable Production

Vegetable	Comments	Weight
Carrots	Fresh	7 kg
Beans	Excellent	5 kg
Spinach	Blanched	1 kg

7. Write LaTeX code to type the following equations:

   i) $2+3+4+....+2n = n(n+1)$

   ii) $\lim_{x \to 0}(1 + x)^{\frac{1}{x}} = e$

   iii) $\int_0^1 3x^2 \, dx = 1$

iv) $\tan(2\theta) = \frac{2\tan\theta}{1-\tan^2\theta}$

v) $\sum_{n=1}^{\infty} 2^{-n} = 1$

vi) $(x+a)^n = \sum_{k=0}^{n} \binom{n}{k} x^k a^{n-k}$

vii) $f(x) = a_0 + \sum_{n=1}^{\infty} \left(a_n \cos\frac{n\pi x}{L} + b_n \sin\frac{n\pi x}{L} \right)$

viii) $(1+x)^n = 1 + \frac{nx}{1!} + \frac{n(n-1)x^2}{2!} + \cdots$

ix) $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

x) $e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \cdots, -\infty < x < \infty$

8. Add \usepackage{graphicx} in the preamble of your document. Write LaTeX code to import image and display it.

9. Write LaTeX code to type the following matrix format:

$$\begin{bmatrix} aa & \cdots & az \\ \vdots & \ddots & \vdots \\ za & \cdots & zz \end{bmatrix}$$

10. Use the environment "thebibliography" to produces a list of references. Write LaTeX code to type the following example:

References

[1] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The LaTeX Companion.* Addison-Wesley, Reading, Massachusetts, 1993.

[2] Albert Einstein. *Zur Elektrodynamik bewegter Körper.* (German) [*On the electrodynamics of moving bodies*]. Annalen der Physik, 322(10):891–921, 1905.

[3] Knuth: Computers and Typesetting, http://www-cs-faculty.stanford.edu/~uno/abcde.html

FINANCIAL MATHEMATICS

Semester: VI

Code   : 20MA6SS01   **Credits: 2***

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Acquire the knowledge of simple annuities and life insurance policies.	PSO - 3 & PSO - 4	U
CO - 2	Compute the yield rate of bonds.	PSO - 2	E
CO - 3	Familiar with capital budgeting and depreciation.	PSO - 1	C
CO - 4	Apply statistical tools to calculate. contingent payments	PSO - 2	Ap
CO - 5	Use mathematical methods to solve financial problems.	PSO - 2 & PSO - 5	K

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI						FINANCIAL MATHEMATICS					Credits: 2*
Code : 20MA6SS01											
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)				Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	3	4	4	4	3	3	3	3	4	4	3	3.45
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	3	3	4	3	3	3	4	3	3	3	3	3.18
CO-4	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-5	4	4	4	3	4	4	3	4	3	3	4	3.63
Overall Mean Score												3.396

Result: The Score for this Course is **3.396** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

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

APPLICABLE MATHEMATICS

Semester: VI

Code   : 20MA6SS02   **Credits: 2***

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Write an argument using logical notation and determine whether the given condition is valid or not.	PSO - 4	An
CO - 2	Solve mathematical problems using analytical methods.	PSO - 2	AP
CO - 3	Recognize the relationships between different area of mathematics.	PSO - 3	An
CO - 4	Use mathematical concepts and techniques in practical problems.	PSO - 3	Ap
CO - 5	Find the correct ratio in which two or more ingredients in some mixture.	PSO - 5	U, Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI											
Code : 20MA6SS02			**APPLICABLE MATHEMATICS**							**Credits: 2***	
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**				**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	3	3	3	3	3	4	4	3	3	3	3	3.18
CO - 2	3	4	3	3	3	3	3	3	3	4	3	3.18
CO - 3	4	3	3	4	3	3	3	4	3	3	3	3.27
CO - 4	3	3	3	4	3	3	3	4	3	4	3	3.27
CO - 5	3	3	4	3	3	3	3	4	3	3	3	3.18
Overall Mean Score												**3.2**

Result: The score for this course is **3.2** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

UNIT I

    Mathematical Logic.   **(12 Hours)**

UNIT II

    Pipes and Cisterns.   **(12 Hours)**

UNIT III

    Boats and Streams   **(12 Hours)**

UNIT IV

    Alligation and mixture   **(12 Hours)**

UNIT V

    Volume   **(12 Hours)**

Course Book:

    Book Compiled by the department staff members.

APPLIED MATHEMATICS

Semester: VI

Code : 20MA6SS03   **Credits: 2***

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand the statistical techniques used in the theory of attributes	PSO - 1	S
CO - 2	Analyze various types of index numbers	PSO - 5	Ap
CO - 3	Acquaint the concept of space curve and curvature	PSO - 4	C
CO - 4	Compute the equation of cone and tangent plane	PSO - 4	An, Ap
CO - 5	Acquire the knowledge of cylinder	PSO - 5	An, Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI Code : 20MA6SS03							APPLIED MATHEMATICS					Credits: 2*
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	2	3	3	3	4	3	4	2	3	3	3	3.00
CO - 2	4	3	2	2	4	4	3	3	3	2	4	3.09
CO - 3	3	3	3	3	3	4	3	3	3	4	3	3.18
CO - 4	3	3	4	2	3	4	3	2	3	4	3	3.09
CO - 5	4	3	3	3	4	4	2	3	3	3	5	3.36
Overall Mean Score												**3.14**

Result: The score for this course is **3.14** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = __Total of Values__ 　　　　　　　　Total No. of Pos & PSOs	Mean Overall Score for Cos=_Total of Mean Scores_ 　　　　　　　　　　　Total No. of Cos

UNIT I

Attributes - Consistency of data - Independence and Association of data.

(12 Hours)

UNIT II

Index numbers: Simple index numbers - Weighted index numbers - Consumer price index numbers - Conversion of Chain base index number into fixed base index and conversely.

(12 Hours)

UNIT III

Space curves-Tangent at a given point - Tangent at any point of the helix - Curvature: Principal Normal - The unit vectors $\vec{t}$ and $\vec{n}$ are mutually perpendicular and define the osculating plane at P-Equation of the osculating plane at P-Binormal: Torsion Frenet's formulae.

(12 Hours)

UNIT IV

Cone -Right circular cone - Intersection of a straight line and a quadric cone-

Tangent plane and normal - condition for the plane $lx + my + nz = 0$ to touch the quadric cone $ax^2 + by^2 + cz^2 + 2fyz + 2gzx + 2hxy = 0$ - The angle between the line in which the plane $ux + vy + wz = 0$ cuts the cone- condition that the cone has three mutually perpendicular generators.

(12 Hours)

UNIT V

Cylinder - The equation of the cylinder whose generators are parallel to the line and whose guiding curve is $f(x, y, z) = 0$, $ax + by + cz + d = 0$ - The equation of the right circular cylinder with axis $\frac{x-\alpha}{l} = \frac{y-\beta}{m} = \frac{z-\gamma}{n}$ and radius of the guiding circle - enveloping cylinder.

(12 Hours)

COURSE BOOKS:

1. Arumugam and A. ThangapandiIssac, Statistics, New Gamma Publishing House, Palayamkottai, 2015.

2. S. Narayanan & T. K. ManickavasagomPillay, Vector Algebra and Analysis, S. Viswanathan (Printers & Publishers)Pvt.Ltd.,1980.

3. T. K. ManickavasagomPillay and T. Natarajan, A Course Book of Analytical Geometry Part II - Three Dimensions, S. Viswanathan (Printers & Publishers) Pvt. Ltd., 2011.

Unit I	:	Chapter 8 - Sections 8.1 -8.3 (Book 1)
Unit II	:	Chapter 9 - Sections 9.1 - 9.3 (Book 1)
Unit III	:	Chapter 5 - (Book 2)
Unit IV	:	Chapter 5 - Sections 2 - 7(Book 3)
Unit V	:	Chapter 5 - Section 8 (Book 3)

ASTRONOMY

Semester: VI

Code   : 20MA6SS04   **Credits: 2***

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand the creation of calendar.	PSO - 4	K
CO - 2	Demonstrate parallax and find the distance to an object	PSO - 3	K, An
CO - 3	Describe the features of objects in the Solar System	PSO - 1	K, C
CO - 4	Explain stellar evolution, including red giants, supernovas, neutron stars, pulsars, white dwarfs and black holes	PSO - 2	K, An
CO - 5	Acquire the knowledge of Earth rotation and orientation.	PSO - 5	An, Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: VI Code : 20MA6SS04							ASTRONOMY					Credits: 2*
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	4	3	3	3	3	3	3	3	3	5	3	3.27
CO - 2	3	3	4	3	3	3	3	3	5	3	3	3.27
CO - 3	3	4	3	4	3	3	5	3	3	4	3	3.45
CO - 4	4	3	3	3	3	3	3	5	3	3	3	3.27
CO - 5	4	3	3	3	4	4	2	3	3	3	5	3.36
Overall Mean Score												**3.32**

Result: The score for this course is **3.32** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = <u>   Total of Values   </u>
                              Total No. of Pos & PSOs
	Mean Overall Score for Cos= <u>Total of Mean Scores</u>
	                                                  Total No. of Cos

UNIT I

Time : Equation of time - seasons - calendar - conversion of time.   **(12 Hours)**

UNIT II

Annual parallax - abberation.   **(12 Hours)**

UNIT III

Precession - Nutation.   **(12 Hours)**

UNIT IV

The moon - eclipses.   **(12 Hours)**

UNIT V

Planetary phenomena - The Stellar Universe.   **(12 Hours)**

COURSE BOOK:

➢ Mr. S. Kumaravelu and Mrs. Susheela Kumaravelu, Astronomy, Reprinted 2002.

Unit I	:	Chapter 7	- Page No. 198 - 233
Unit II	:	Chapter 8	- Page No. 238 - 239
		Chapter 9	- Page No. 250 - 262
Unit III	:	Chapter 10	- Page No. 263 - 277
Unit IV	:	Chapter 12	- Page No. 334 - 354
		Chapter 13	- Page No. 358 - 389
Unit V	:	Chapter 14	- Page No. 394 - 425
		Chapter 17	- Page No. 488 - 519

QUESTION PATTERN

SELF STUDY

PART A

(Two questions from each unit) $10 \times 2 = 20$

PART B

(Atleast one question from each unit) $5 \times 7 = 35$

(Five out of Eight)

PART C

(Atleast one question from each unit) $3 \times 15 = 45$

(Three out of Five)

STUDENT TRAINING PROGRAMME
NATIONAL CADET CORPS
U.G. PROGRAMME OUTCOMES (2020 - 2023)

PO. NO.	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO
1.	Think critically, evaluate analytically and apply the expertise of their discipline in related scenario.
2.	Enhance the communicative skills and gain confidence to disseminate knowledge through oral/verbal communications effectively at various situations.
3.	Accomplish the basic understanding of the relationship between education and human life and enhance their perspectives on the various functions of their studies in the diverse contexts of the society.
4.	Identify the different roles in an organizational structure of the work place and carry out multiple roles in social responsibilities.
5.	Develop skills like collaboration, higher-order thinking, problem solving and self-direction through effective use of technologies and resources.
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.

PROGRAM SPECIFIC OUTCOMES (PSO)

PSO NO.	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO	PO MAPPED
1	Reinforce the aims, motto, vision and mission of the NCC through the academic curriculum.	PO-1, PO-3
2	Train the students, to be graduates with all round development, who apart from their own subject, can successfully compete in other fields such as defense/paramilitary/ police forces and civil services.	PO-1, PO-4
3	Perform in social service activities and creating awareness about social evils in society.	PO-1, PO-5, PO-6.
4	Explain the tri services organization, comprising the army, navy and air force, engaged in grooming the youth of the country into disciplined and patriotic citizens.	PO-2, PO-6
5	Demonstrate "B" and "C" certificate examination of NCC helps in getting jobs in different forces and also security related jobs.	PO-1, PO-2, PO-5,PO-5, PO-6

NATIONAL CADET CORPS

Semester: I - IV   **Hours: 240**

Code   : 20STPNC01   **Credits: 2***

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Attain knowledge on History, honors and awards of Indian Military.	PSO - 1,PSO - 2, PSO - 4	K, An, Ap,
CO - 2	Perceive knowledge on read the maps and Weapon training is to remove the fear of a weapon from the hearts of youth.	PSO - 1, PSO - 4	K, An, C
CO - 3	Analyze the different types of disasters under different circumstances.	PSO - 2,PSO - 3, PSO 4, PSO - 5	K, S, Ap
CO - 4	Achieve practical knowledge in community development and other social programmes.	PSO - 4, PSO - 5	K, An, E
CO - 5	Comprehend the personality development and develop technical skill of first Aid .	PSO - 1, PSO - 2	K, Ap, S, E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: I - IV						NATIONAL CADET CORPS					Hours: 240
Code : 20STPNC01											Credits: 2*
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	4	3	3	3	4	3	4	4	3	3	3	3.4
CO - 2	3	4	3	3	4	3	4	4	3	4	4	3.54
CO - 3	3	3	4	4	4	4	3	4	4	3	5	3.72
CO - 4	3	3	4	5	4	4	3	3	4	5	4	3.81
CO - 5	3	3	5	4	3	4	3	3	4	5	4	3.72
Overall Mean Score												**3.64**

Result: The score for this course is **3.64** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

Semester: I - IV   **Hours: 240**

Code   : 20STPNC01   **Credits: 2***

UNIT I: ARMED FORCES AND MILITARY HISTORY

Army, Police and Central Armed Police Forces, Modes of Entry into Army, Police and CAPF, Aims and Objectives of NCC , Organisation, Training and NCC Song , Incentives , Honors and Awards, Biographies of Renowned Generals, War Heroes : Param Veer Chakra Awardees, Study of Battles of Indo-Pak Wars 1965, 1971, & Kargil, War Movies, "B" and "C" certificate examinations.

UNIT II: MAP READING, FCBC AND WEAPON TRAINING

Introduction to Map Reading, Conduct of Map Reading, Introduction to Field Craft and Battle Craft, Indication of landmark, Observation, Camouflage & Concealment, Fire and Move Capsule, Knots, Lashing and Strecthers, Organisation of Infantry Battalion & its weapons. Characterstics of a Rifle and its Ammunition, Stripping, Assembling, Care, and Cleaning of 7.62 SLR, Loading, Cocking and Unloading, Lying Position, Holding and Aiming, Trigger Control and Firing a Shot, Theory of Group and Snap Shooting, Obstacle Training

UNIT III: DISASTER MANAGEMENT AND CIVIL AFFAIRS

Civil Defence Organisation and NDMA, Types of Emergencies / Natural Disasters, Fire Services & Fire Fighting, Traffic Control During Disaster Under Police Supervision, Collection & Distribution of Aid Material, Essential Services and their Maintenance. Aim of aid to civil authority – Role of NCC Cadets during natural calamities – Types of disaster– Essential services during natural calamities

UNIT IV: NATIONAL INTEGRATION AND SOCIAL AWARENESS

Basics of Social Service and Its Need, NGOs Role & Contribution, Drug Abuse and Trafficking, Causes & Prevention of HIV / AIDS and Role of Youth, Counter Terrorism, Traffic Control Organisation and Anti Drunken Driving, Religions, Culture, Traditions and Customs of India. National Interests, Objectives, Threats and Opportunities. Unity in Diversity. National Integration Council. Contribution of Youth in Nation Building. Leaders of Political / Regional Parties, Media Persons, Women Representatives, Eminent Public Representatives, Representatives of Business

UNIT V: PERSONALITY DEVELOPMENT, LEADERSHIP AND FIRST AID

Factors Influencing and Shaping Personality : Physical, Social, Psycological and Philosophical Types of Leadership, Time Management, Stress Management Skills, Interview Skills, Sociability : Social Skills Ettiquettes And Mannerism, Injuries to Internal Organs, Burns and Scalds, Snake Bite, Scorpion Bite & Rabid Dog Bite, Foreign Bodies in Eye, Ear and Nose, Insensibility or Unconsciousness, Artificial Respiration.

BOOK FOR REFERENCE

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

Scheme of Evaluation	
Summative Examination (2 hours)	25 Marks
Continuous Internal Assessment	75 Marks
Total	**100 Marks**

Scheme of Evaluation of Continuous Internal Assessment		
1.	Attendance - 240 hours	10 Marks
2.	Special Camp	40 Marks
3.	"B" and "C" certificate examination	25 Marks
	Total	**75 Marks**

Question Pattern for Summative Examination

Total Marks: 40

Time: 2 hours

Section - A

Answer All Questions   5 × 1 = 5 Marks
(Multiple Choice Questions)

Section - B

Answer All Questions   2 × 5 = 10 Marks
(Either Or Questions)

Section - C

Answer Any one Questions   1 × 10=10 Marks
(one Question Out of Two)

NATIONAL SERVICE SCHEME

U.G. PROGRAMME OUTCOMES (2020 - 2023)

PO. NO.	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO
1.	Think critically, evaluate analytically and apply the expertise of their discipline in related scenario.
2.	Enhance the communicative skills and gain confidence to disseminate knowledge through oral/verbal communications effectively at various situations.
3.	Accomplish the basic understanding of the relationship between education and human life and enhance their perspectives on the various functions of their studies in the diverse contexts of the society.
4.	Identify the different roles in an organizational structure of the work place and carry out multiple roles in social responsibilities.
5.	Develop skills like collaboration, higher-order thinking, problem solving and self-direction through effective use of technologies and resources.
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.

PROGRAM SPECIFIC OUTCOMES (PSO)

PSO NO.	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO	PO MAPPED
PSO - 1	Understand and identify the needs of the community	PO1, PO3
PSO - 2	Develop among themselves a sense of social and civic responsibility.	PO2, PO3, PO4, PO6
PSO - 3	Apply their education in finding practical solution to individual and community problems.	PO1, PO3, PO4, PO6
PSO - 4	Acquire leadership qualities and democratic attitude.	PO2, PO3, PO5
PSO - 5	Develop capacity to meet emergencies and national disasters and practice national integration and social harmony	PO3, PO4, PO5

NATIONAL SERVICE SCHEME

Semester: I - IV   **Hours: 240**

Code   : 20STPNS01   **Credits: 2***

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Attain a Citizen with Social Concern and Social Analysis	PSO - 1, PSO - 2, PSO - 5	An
CO - 2	Flourish physical and mental health through Yoga	PSO - 2, PSO - 4	Ap
CO - 3	Practice to have healthy Food	PSO - 3, PSO - 5	S, Ap
CO - 4	Preserve Environment	PSO - 2, PSO - 3, PSO - 4	C, K, Ap
CO - 5	Understand and Challenge problems of Women.	PSO - 1, PSO - 2, PSO - 5	An, Ap, K

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: I - IV					NATIONAL SERVICE SCHEME						Hours: 240	
Code : 20STPNS01											Credits: 2*	
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	3	3	5	4	3	3	3	5	3	3	5	3.64
CO - 2	3	4	3	2	4	3	4	5	4	5	2	3.55
CO - 3	3	3	4	3	3	4	3	3	5	3	5	3.55
CO - 4	2	2	3	3	2	3	3	5	5	5	3	3.27
CO - 5	3	3	5	3	3	4	5	5	3	3	5	3.82
Overall Mean Score												**3.56**

Result: The score for this course is **3.56** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

UNIT I: BASICS OF NSS

Introduction - History and Growth - Objectives - NSS Motto - NSS Symbol - NSS Badge - NSS Day - Composition of NSS Unit - NSS Regular Activities & Special Camp - Village Survey & Volunteers Diary - Campus Work - National and International Important days - NSS Awards.

UNIT II: CITIZENSHIP

Duties of a citizen - Social Service - Social Problems - Need for Social Service - Leadership - Social Service & Leadership quality- Personnel and Social Values.

UNIT III: YOUTH

Introduction - Education & Social Concern - Youth & Family - Youth & Society - Capability of youth - Problems of Youth - Drug Abuse - Hero Worship - Addict to Social Media - Violence - Sexual Problems - Suicide.

UNIT IV: HEALTH & HYGIENE

Introduction - Health & Hygiene - Food Hygiene - Personal Hygiene - Health Maintenance: Care of Skin, Hair, Teeth, Eyes - Health Assessment of Fitness - Approaches for keeping Fit.

UNIT V: FOOD AND NUTRITION

Food - Nutrients - Components of Food: Carbohydrate, Protein, Lipid, Minerals, Vitamins and Water - Balanced Diet: Food Selection and Meal Planning - Caloric value of Fruits, Vegetables, Nuts and Sprouted Seeds.

UNIT VI: ENVIRONMENT AND ECOLOGY

Ecology - Components of Ecology - Environment - Pollution - Water Pollution - Air Pollution - Soil Pollution - Noise Pollution - Pollution Control & Environment Preservation.

UNIT VII: WOMEN EMPOWERMENT

Women - Women & Family - Women & Society - Women & Education - Women Leaders - Women Problem - Women Empowerment to overcome problems.

UNIT VIII: FIRST AID

Principles of First Aid - First aid for burns and scalds - First aid for fractures - First aid for insect bite - First aid for dog bite - First aid for electric shock - First aid for drowning - First aid for haemorrhage - Important things kept in the first aid box.

UNIT IX: YOGA

Origin of Yoga and its development - Human Body & Mind - Benefits of Yoga - Classification of Yoga - Pranayama - Types of Pranayama - Utkatasana (Chair Pose) - Trikonasana (Triangle Pose).

UNIT X: PRACTICAL KNOWLEDGE

Entrepreneurial Training: Phenol, Soap Powder, Soap, Candle and Ornaments Making - Gardening - Solid Waste Management - Special Camp: 7 Days

BOOKS FOR REFERENCE:

1. C.S.C. Herve Morrissette, Youth aware, Holy cross fathers, Bangalore, 1977, Seema Yadav, Food Hazards and Hygiene, Anmol Publications Pvt. Ltd, New Delhi, Ist edition, 1997

2. Gitanjali Chatterjee, Hand Book of Food and Nutrition, Rajat Publications Pvt. Ltd, 2000,

3. Archana Sharma, Environment: Ecology, Climate change, Global warming, Biology Biodiversity, Conservation, Face the Challenge Academy, 2018,

4. Jaimon Varghese, Women Empowerment Through Literacy Campaign, Concept Publishing Company Pvt. Ltd, 2012.

5. Rajeev Sharma, First Aid, Lotus Press, New Delhi-2, 2009.

6. Amresh Kumar, Yoga for Healthy body, Khel Sahitya Kendra, New Delhi-2, 2009.

Scheme of Evaluation	
Summative Examination (2 hours)	40 Marks
Continuous Internal Assessment	60 Marks
Total	**100 Marks**

Scheme of Evaluation of Continuous Internal Assessment		
1.	Attendance - 240 hours	10 Marks
2.	Special Camp	40 Marks
3.	Case Study	10 Marks
	Total	**60 Marks**

Question Pattern for Summative Examination

Total Marks: 40

Time: 2 hours

Section - A

Answer All Questions   10 × 1=10 Marks
(Multiple Choice Questions)

Section - B

Answer All Questions   2 × 5=10 Marks
(Either Or Questions)

Section - C

Answer Any Two Questions   2 × 10=20 Marks
(Two Questions Out of Three)

PHYSICAL EDUCATION

U.G. PROGRAMME OUTCOMES (2020 - 2023)

PO. NO.	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO
1.	Think critically, evaluate analytically and apply the expertise of their discipline in related scenario.
2.	Enhance the communicative skills and gain confidence to disseminate knowledge through oral/verbal communications effectively at various situations.
3.	Accomplish the basic understanding of the relationship between education and human life and enhance their perspectives on the various functions of their studies in the diverse contexts of the society.
4.	Identify the different roles in an organizational structure of the work place and carry out multiple roles in social responsibilities.
5.	Develop skills like collaboration, higher-order thinking, problem solving and self-direction through effective use of technologies and resources.
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.

PROGRAM SPECIFIC OUTCOMES (PSO)

PSO NO.	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO	PO MAPPED
1	Elucidate basic knowledge and professional experience in Yoga	PO-1, PO-3
2	Equip with the profound knowledge of Sports and Games	PO-1, PO-4
3	Intake balanced nutrition and practice hygiene.	PO-1, PO-5, PO-6.
4	Enlighten the peoples with the principles of first aids	PO-2, PO-6
5	Expound the concepts and demonstrate Aerobics and Pyramids	PO-1, PO-2, PO-5,PO-5, PO-6

PHYSICAL EDUCATION - COURSE PATTERN (2017 - 2020)

Sem.	Code	Title of the Paper	Hours	Credits
I & II	20STPPE01	Yoga and Rhythmic Activities	120	-
III & IV		Fundamentals of Physical Education	120	2*
		Total	**240**	**2***

YOGA AND RHYTHMIC ACTIVITIES

Semester: I & II   **Hours: 120**
Code   : 20STPPE01
COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Recall the principle of Asnas	PSO - 1,PSO - 3, PSO - 4	K, An, Ap,
CO - 2	Classify Pranayama for different needs	PSO - 1, PSO - 4	K, An, C
CO - 3	Appraise the application and effects of Suryanamaskar for human wellness	PSO - 2,PSO - 3, PSO 4, PSO - 5	K, S, Ap
CO - 4	Execute the techniques in Free Hand Exercise	PSO - 4, PSO - 5	K, An, E
CO - 5	Construct Pyramids based on the underlying principles	PSO - 1, PSO - 2	K, Ap, S, E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: I - II						PAPER I – YOGA AND RYTHEMIC ACTIVITIES					Hours: 120
Code : 20STPPE01											
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)				Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	5	4	4	2	2	2	4	5	3	3	5	3.55
CO - 2	4	4	4	2	3	2	4	4	4	4	5	3.64
CO - 3	5	4	3	2	2	3	3	3	5	3	2	3.18
CO - 4	5	5	4	3	2	3	5	5	4	5	3	4.00
CO - 5	4	3	3	3	2	2	4	4	5	5	4	3.55
Overall Mean Score												3.58

Result: The score for this course is **3.58** (High Relationship)
Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

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   : **20STPPE01**   **Credits: 2***

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
1.	Familiarize the fundamentals of Physical Education	PSO - 1, PSO - 3, PSO - 4	K, An, Ap,
2.	Illustrate different rules for different games and athletic events	PSO - 1, PSO - 4	K, An, C
3.	Examines the need for good nutrition	PSO - 2, PSO - 3, PSO 4, PSO - 5	K, S, Ap
4.	Synthesis the relation between hygiene and health	PSO - 4, PSO - 5	K, An, E
5.	Apply the first aid techniques	PSO - 1, PSO - 2	K, Ap, S, E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: III - IV						PAPER II - FUNDAMENTALS OF PHYSICAL EDUCATION					Hours: 120
Code : 20STPPE01											Credits: 2*
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**				**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	5	3	3	2	2	4	5	4	3	3	5	3.55
CO - 2	5	4	4	2	3	4	5	4	4	4	5	4.00
CO - 3	5	5	4	2	2	3	3	5	3	3	4	4.00
CO - 4	5	4	3	2	2	4	4	5	4	4	5	3.82
CO - 5	5	4	4	2	3	3	5	4	2	5	4	3.73
Overall Mean Score												**3.82**

Result: The score for this course is **3.82** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores / Total No. of Cos

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)	:	25 marks
2.	Continuous Internal Assessment	:	75 marks
	Total	:	**100 marks**

SCHEME OF EVALUATION FOR COTINUOUS INTERNAL ASSESSMENT

1.	Attendance (240 hrs)				
	❖ Theory Class	:	120 hrs	:	20 marks
	❖ 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.	Rhythmic activities				10 marks
6.	Field Work			:	15 marks
	Total			:	**75 marks**

QUESTION PATTERN FOR SUMMATIVE EXAMINATION

Total marks: 25   **Time: 1 $^{1/2}$ hours**

SECTION - A

Answer All Questions   (5x1=5)

(Choose the best Answer)

SECTION - B

Answer any two questions   (2x2=4)

(Four question out of four)

SECTION - C

Answer any Two out of Four questions   (2x5=10)

(Four question out of Four)

SECTION - D

Answer any one question   (1x6=6)

(One question out of two)

CONSUMER AWARENESS

PROGRAMME OUTCOMES (PO)

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.	Enhance the communicative skills and gain confidence to disseminate knowledge through oral/verbal communications effectively at various situations.
3.	Express the cultural and environmental diversity that they have been exposed in various studies.
4.	Identify the different roles in an organizational structure of the work place and carry out multiple roles in social responsibilities.
5.	Develop higher-order thinking, problem solving and self-direction skills through effective use of technologies and other resources.
6.	Increase self-awareness, set and pursue meaningful goals, and develop positive personal qualities.

PROGRAM SPECIFIC OUTCOME (PSO)

PSO	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO	PO MAPPED
PSO - 1	Aware of Consumer's rights, responsibilities and Consumer Protection Act, 1986.	PO - 1
PSO - 2	Instill right-consciousness, confidence to question violations of citizen and consumer rights and fight for justice.	PO - 1, PO - 4, PO - 6
PSO - 3	Work with other voluntary consumer organizations to enhance consumer movement in the society.	PO -3, PO - 6
PSO - 4	Make informed purchase decision as individual and inculcating the behavior in others also.	PO -3, PO - 4, PO - 6
PSO - 5	Gain practical knowledge and become good consumer as well as entrepreneur.	PO -4, PO - 5, PO - 6

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO-1	Aware of the Nature, Rights and Responsibilities of Consumer.	PO - 1	K
CO-2	Familiar with Food Trade Mark and Certification.	PO - 1, PO - 4, PO - 6	AN
CO-3	Identify Misleading Advertisement, Consumer Court and Consumer Redressal.	PO - 3, PO - 6	AP
CO-4	Acquire Knowledge in Food Adulteration and Eco friendly products.	PO - 3, PO - 4, PO - 6	K
CO-5	Attain Practical Experience through Field Visit and Interact with Experts.	PO - 4, PO - 5, PO - 6	S

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: I - IV							CONSUMER AWARENESS - I & II					Hours:120
Code : 20STPCC01												Credits: 2*
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO-1	5	5	4	5	4	3	3	4	5	4	5	4.27
CO-2	4	4	5	4	5	3	5	5	4	5	3	4.27
CO-3	5	5	4	5	4	5	3	4	5	4	5	4.45
CO-4	4	4	5	4	5	3	5	5	4	5	3	4.27
CO-5	5	4	5	4	5	3	5	4	5	4	5	4.45
Overall Mean Score												4.34

Result: The score for this course is **4.34** (Very High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 – 1.0	1.1 – 2.0	2.1 – 3.0	3.1 – 4.0	4.1 – 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

CONSUMER AWARENESS - I

Semester: I & II   **Hours: 60**

Code   : 20STPCC01

UNIT I

Consumer - Meaning - Consumerism - Nature of Consumerism, Rights and Responsibilities of Consumer - Right of Consumers under Consumer Protection Act 1986 - Do's and Dont's of Consumer.

UNIT II

Trade Mark - Definition - Meaning - Objectives -Types of Trademark in India - Process and functions of Registrar of Trade marks - Trade and Merchandise rules - Food Label Symbol, ISI, ISO, Agmark, Silkmark Certification.

UNIT III

Advertisement meaning - Features of Advertisement - Misleading Advertisement - circumstances of misleading advertisements -Reasons for Festival offer and discount.

UNIT IV

Food Adulteration - Meaning - Types of Food Adulteration - Method of Food Adulteration - How can Adulteration be prevented - How to Identify fake and Duplicate Beauty Products - Sub Standard Products.

UNIT V

Practical Session: Interacting with Experts, Field Visit

COURSE BOOK:

Material prepared by the Consumer Club

BOOKS FOR REFERENCE:

1. Dr. L. Natarajan, Business Legislation, Merit India Publication, 2017.

CONSUMER AWARENESS - II

Semester: III & IV   **Hours: 60**

Code   : 20STPCC01   **Credit: 2***

UNIT I

Guarantee Vs. Warrantee - Standards of Weight - Meaning - Importance of Standards - Responsible to Certify the Accuracy of Weight and Measures - Food Quality Control Procedures - Vegetarian and Non-Vegetarian Symbol.

UNIT II

Consumer Redressd Consumer Disputes - Consumer Movement - Consumer Court - Do's and Don'ts of Consumers Grievances Redressal - How to Files Complaints in Consumer Court.

UNIT III

Online Consumer- Meaning- Types of Online Consumers- Rights of Online Consumers.

UNIT IV

Eco Friendly Consumer Products - Green Consumerism- Important Steps of Green Consumerism.

UNIT V

Practical Session: Interacting with Experts, Field Visit.

COURSE BOOK:

Material prepared by the Consumer Club

BOOKS FOR REFERENCE:

1. Dr. L. Natarajan, Business Legislation, Merit India Publication, 2017.
2. Consumer Movements, Francesca Forno
3. Helping People and Communities Become and Remain Economically
4. www.insightcced.org
5. https://www.researchgate.net/publication/334126464

SCHEME OF EVALUATION

1.	Summative Examination (3 hours)	:	75 marks
2.	Continuous Internal Assessment	:	25 marks
	Total	:	**100 marks**

Scheme of Evaluation of Continuous Internal Assessment		
1.	*Attendance - 120 hours*	*10 Marks*
2.	*Field Visit*	*10 Marks*
3.	*Assignment*	*5 Marks*
	Total	*25 Marks*

QUESTION PATTERN FOR SUMMATIVE EXAMINATION

Total Marks: 75   **Time: 3 hours**

EXTERNAL QUESTION PATTERN

PART - A

10 Questions × 1Mark = 10 Marks

(Multiple Choice Questions)

PART - B

5 Questions × 5 Marks = 25 Marks

Answer All Questions

(Either Or Questions)

PART - C

4 Questions × 10 Marks = 40 Marks

Answer Any Four Questions

(Four Questions Out of Six)

RED RIBBON CLUB

Semester: I, II, III & IV   **Hours: 120**

Code   : 20STPRR01   **Credits: 2***

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Analyze the Objectives of Red Ribbon Club	PSO - 3, PSO - 5	K, A, E
CO - 2	Examine the need of Blood Identification	PSO - 3, PSO - 4 , PSO - 5	K, A, E
CO - 3	Understand the importance of Blood Donation	PSO - 3, PSO - 5	K, C, A, E
CO - 4	Recognise the importance of HIV Awareness	PSO - 3, PSO - 5	A, AP
CO - 5	Able to realize the need of field visit to AIDS centres	PSO - 1,PSO - 3 , PSO - 5	K, AP, S, E

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: I, II, III & IV												
Semester: I, II, III & IV			**RED RIBBON CLUB**									**Hours: 120**
Code : 20STPRR01												**Credits: 2***

Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	4	4	4	4	4	5	4	3	5	4	4	4.09
CO - 2	4	3	4	5	4	5	3	3	5	4	4	4.00
CO - 3	4	3	4	5	4	5	3	3	5	3	4	3.90
CO - 4	4	3	4	5	4	5	3	3	5	3	4	3.90
CO - 5	4	3	4	5	4	5	3	3	5	4	4	4.00
Overall Mean Score												**3.98**

Result: The score for this course is **3.98** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos =   Total of Values
                        Total No. of Pos & PSOs
	Mean Overall Score for Cos= Total of Mean Scores
	                        Total No. of Cos

UNIT I

Red Ribbon Club - Meaning -Vision - Objective - Popular colour - Symbol - Significance **(25 Hours)**

UNIT II

Blood Identification - Blood composition - Blood types - Methods for the identification of blood - Microscopic examination - Chemical methods - Spectrophoto - Metric Analysis - Immunological Methods - DNA analysis - Application of blood identification **(25 Hours)**

UNIT III

Blood Donation - Introduction - Benefits - Procedure - Importance of Blood Donation - Donors - Non-Donors - Donate Blood - Donation Process: Blood Banks - Outdoor camps - Registration - Medical Checkup - Donation - Refreshment

(25 Hours)

UNIT IV

HIV Awareness: Definition - Causes - Effects: HIV Transmission - HIV Prevention - HIV Testing - Living with HIV - HIV Stigma **(25 Hours)**

UNIT V

Blood Donation Camp - Practical and Field Work: Blood Identification Camp - HIV AIDS Awareness Programme - Field visit to Jeevan Jothi - Aundipatti Government Hospital **(30 Hours)**

COURSE BOOKS:

➢ Books offered by Red Ribbon Club Committee Members

BOOKS FOR REFERENCE

1. S. Kartikeyan, R.N. Bharmal, R.P. Tiwari and P.S. Bisen. HIV and AIDS: Basic Elements and Priorities. Springer Publications. 2007.

   "Everytwosecondssomeone NeedsbloodRedCrossurgesblooddonations."

   Http://www.redcross.org/news/article/il/chicago/Everytwosecondssomeone

   NeedsbloodRedCrossurgesblooddonations. Red Cross, n.d.

SCHEME OF EVALUATION

1.	Summative Examination (2 hours)	:	75 marks
2.	Continuous Internal Assessment	:	25 marks
	Total	:	**100 marks**

Scheme of Evaluation of Continuous Internal Assessment		
1.	*Test*	*15 Marks*
2.	*Field Visit*	*5 Marks*
3.	*Attendance*	*5 Marks*
	Total	*25 Marks*

Total the marks of I, II, III & IV will be converted to 25 marks

Question Pattern for External Examination

Total Marks: 75   **Time: 2 hours**

Section - A

Answer All Questions   10 x 1 = 10 Marks

(Multiple Choice Questions)

Section - B

Answer All Questions   5 x 5 =25 Marks

(Either Or Questions)

Section - C

Answer Any Two Questions   2 x 20 = 40 Marks

(Two Questions Out of Three)

YOUTH RED CROSS
PROGRAMME OUTCOMES

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.

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO	PO MAPPED
PSO - 1	Student will get a basic understanding of the origin, growth and development of humanity.	PSO - 1
PSO - 2	Will acquire basic knowledge about social subjects	PSO - 1, PSO - 2
PSO - 3	Could identify various social issues and problems	PSO - 3, PSO - 4
PSO - 4	Will help to build up a good career.	PSO - 1, PSO - 4
PSO - 5	Makes them aware of social responsibilities.	PSO - 1, PSO - 5

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand themselves in relation to their community.	PSO - 1	K
CO - 2	Identify the needs and problems of the community and involve them in problem-solving.	PSO - 2	C
CO - 3	Gain skills in mobilising community participation. Develop capacity to meet emergencies and social harmony.	PSO - 3	C
CO - 4	Educate and empower children and youth in the spirit of the Red Cross through constructive trainings and effective leadership	PSO - 4	AN
CO - 5	Provide opportunities for directing and harnessing their energies and idealism into worthwhile humanitarian activities	PSO - 5	AN

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester: I - IV							YOUTH RED CROSS					Hours: 120
Code : 20STPRC01												Credits: 2*

Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	5	5	4	3	2	2	5	5	3	2	2	3.45
CO - 2	5	5	4	3	2	2	5	5	4	2	2	3.55
CO - 3	5	4	4	3	4	2	5	5	5	3	3	3.91
CO - 4	5	4	5	4	3	3	5	5	5	3	3	4.09
CO - 5	5	4	5	4	3	3	5	5	5	3	3	4.09
Overall Mean Score												3.82

Result: The score for this course is **3.82** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores / Total No. of Cos

BASICS OF YOUTH RED CROSS

Semester: I & II   **Hours: 60**

Code: 20STPRC01

UNIT I

History of Red Cross - Henri Dunant's Early Life - The Battle of Solferino - The Man in White -The birth of Red cross - Charity in the Midst of Battle. Clara Barton: Pioneer of Disaster Relief - Death of Dunant.

UNIT II

Idea of the Red Cross Movement - Foundation of the Red Cross Movement - A Global Movement - The Emblems - History of the Emblems - Who can use the emblem in India?- Misuse of the Emblem - Why respect the Emblem?

UNIT III

The Seven Fundamental Principles - International Humanitarian Law - Re-establishing Family Links

UNIT IV

Birth of the Indian Red Cross Society - Introduction to the programmes of the IRCS - Humanitarian Values - Disaster Management - Health and Care in the Community.

UNIT V

Volunteering - Trainings

COURSE BOOK:

Material Prepared By Parent Department

BOOKS FOR REFERENCE:

1. "The Story of the Red Cross", Krishna Satyanand, Reprint 2002, Published by the Director, National Book Trust, India.

2. "Basic about YRC", Indian Red Cross Society, National Headquarters.

SIGN OF YOUTH RED CROSS

Semester: III & IV   **Hours: 60**

Code: 20STPRC01   **Credits: 2***

UNIT I

The International Committee of the Red Cross (ICRC) - Origin and history - International Status - ICRC- Legal status - ICRC'S Humanitarian activities - Administration and Structure of ICRC - **National Red Cross and Red Crescent Societies.**

UNIT II

International Federation of Red Cross and Red Crescent Societies - Mission - Strength -Global Network -International Red Cross and Red Crescent movement - **Geneva Conventions and their Additional Protocols** - Protection and care - protection of persons - Protection of civilian medical and religious personnel - Methods and means of warfare - Improper use of emblems - fundamental guarantees.

UNIT III

Indian Red Cross Society - Headquarters - Resources - Partnerships - Strategic Development plan - **Indian Red Cross Society - Tamil Nadu Branch** - Indian Red Cross Society, District Red Cross Branch and Sub-Branch

UNIT IV

Youth Red Cross - Junior Red Cross

UNIT V

Field Visit

COURSE BOOK:

Material Prepared By Parent Department

BOOK FOR REFERENCE:

1. "History of Red Cross", Youth Red Cross, Indian Red Cross Society Tamil Nadu Branch

SCHEME OF EVALUATION

1.	Summative Examination (3 hours)	:	75 marks
2.	Continuous Internal Assessment	:	25 marks
	Total	:	**100 marks**

	Scheme of Evaluation of Continuous Internal Assessment	
1.	*Attendance - 120 hours*	*10 Marks*
2.	*Field Visit*	*10 Marks*
3.	*Assignment*	*5 Marks*
	Total	*25 Marks*

QUESTION PATTERN FOR SUMMATIVE EXAMINATION

Total Marks: 75   **Time: 3 hours**

EXTERNAL QUESTION PATTERN

PART - A

10 Questions × 1Mark = 10 Marks

(Multiple Choice Questions)

PART - B

5 Questions × 5 Marks = 25 Marks

Answer All Questions

(Either Or Questions)

PART - C

4 Questions × 10 Marks = 40 Marks

Answer Any Four Questions

(Four Questions Out of Six)

SKILL DEVELOPMENT PROGRAMME (SDP) CERTIFICATE COURSE
MATHEMATICS FOR COMPETITIVE EXAMINATIONS

Code : 20MA1SD01 **Hours: 2**

Credits: 2

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Understand and grasp the fundamental mathematical concepts	PSO - 4	K
CO-2	Develop numerical ability and logical thinking.	PSO - 1	S
CO-3	Effectively solve problems and think strategically.	PSO – 4	E
CO-4	Acquire the knowledge of simple real life problems	PSO - 3	C
CO-5	Analyze and interpret the data using graphs	PSO- 2	An, Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Semester : -												Hours: 2
Code : 20MA1SD01		MATHEMATICS FOR COMPETITIVE EXAMINATIONS										
												Credits: 2
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	4	3	4	3	3	3	4	3	3	3	3	3.27
CO-2	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-3	3	4	3	3	3	3	3	3	3	4	3	3.18
CO-4	4	4	4	3	3	3	3	4	3	3	3	3.36
CO-5	4	4	4	3	3	3	3	4	3	3	3	3.36
Overall Mean Score												3.31

Result: The Score for this Course is 3.31 (High Relationship)

Note:

Mapping	1 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos = Total of Mean Scores / Total No. of Cos

UNIT I

Average: Average of prime numbers - even numbers - average speed - average weight. Time and Distance: Speed - time - Distance - Simple Problems-Ratio and Proportion: Ratio of two quantities - finding third proportion - fourth proportion - comparison - duplicate ratio. **(12 Hours**)

UNIT II

Percentage: Express percentage as fraction, decimal - problems on population depreciation - Interest: Simple interest - Compound interest - amount - compound interest calculated annually, half yearly, quarterly. **(12 Hours)**

UNIT III

Calendar: Leap year - ordinary year - odd days - clock. Problems on ages: Calculating the age with the given data-partnership-blood relations.

(12 Hours)

UNIT IV

Problems on numbers: Problems on difference between two numbers - consecutive numbers(simple problems) - Time and work: Time-work- Simple problems-Permutations and Combinations: Permutations - Number of Permutations-Combinations - Number of Combinations. **(12 Hours)**

UNIT V

Profit and Loss: Profit-Loss-cost price-selling price-profit per cent- loss per cent-Directions: Problems on directions-Probability : Random Experiment-Sample space-Event-Probability of occurrence of an event-Data interpretation: Tabulation, bar graphs, pie charts, line graphs. **(12 Hours)**

COURSE BOOK:

Course Material prepared by the Department.

SKILL DEVELOPMENT PROGRAMME (CERTIFICATE COURSE)

GANDHIAN THOUGHT

PROGRAMME OUTCOMES

PO. NO.	UPON COMPLETION OF THIS COURSE 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

PSO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PO MAPPED
PSO - 1	Analyse the social, political, economic, cultural and religious conditions of the various dynasties of India, British India, Indian Constitution, Indian Administration and Indian Economy to acquire the special skill in the field of administration.	PO- 1, PO-2, PO-4
PSO - 2	Evaluate the History of World Civilizations and Europe in the world politics and compare the various types of constitution and the constitutional development in England.	PO- 1, PO-2
PSO - 3	Get knowledge on the principles of Economics, functions of banking system, development of Science and Technology, Tourism, the importance of Human Rights and equip with computer knowledge and applications for all competitive examinations.	PO- 1, PO-4, PO-5
PSO - 4	Recognize the sacrifice of the freedom fighters in the National Movement and picturize the traditional values in the right perception on Women Studies and Women Entrepreneurship.	PO- 1, PO- 5, PO- 6
PSO - 5	Participate in discussions by listening to others perspectives, asking productive questions, articulating original ideas, correspond efficiently with good vocabulary, realize the need of historical research and excel in General Studies for Competitive Examinations.	PO- 2, PO- 5, PO- 6

PAPER I: LIFE OF MAHATMA GANDHI - CCHYGT01

Code: CCHYGT01   **Hour: 1**
                                                                      Credit: 1

COURSE OUTCOMES:

CO. NO	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Gain Knowledge on the Early Life of Mahatma Gandhi	PSO - 5	K
CO - 2	Analyse the racial equality and Mahatma Gandhi's Experience in South Africa	PSO - 5	An
CO - 3	Explain the role of Mahatma Gandhi in Indian Freedom Struggle	PSO - 2	Ap
CO - 4	Assess the constructive works of Mahatma Gandhi in Indian Nationalism	PSO - 2	Ap
CO - 5	Discuss the major Incidents from the Life of Mahatma Gandhi	PSO - 5	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PAPER I: LIFE OF MAHATMA GANDHI -											Hours: 1
Code: CCHYGT01	CCHYGT01											**Credit: 1**
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	
CO - 1	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 2	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 3	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 4	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 5	5	5	5	5	5	5	4	5	4	3	3	4.45
Overall Mean Score												**4.45**

Result: The score for this course is High

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

UNIT I

Family background and beginnings of the Mahatma - Birth and childhood - Education and family life - lessons learned - The London Experience

UNIT II

Making of the Mahatma: Gandhi in South Africa - From a barrister to a people's leader - Towards racial equality - From family life to ashram life - Birth of Satyagraha and constructive work - experiments with truth

UNIT III

Beginnings of Indian Freedom Struggle: Early resistances and 1857 Revolt - Birth of Indian National Congress: Moderates, Extremists and Terrorists - Gandhi leads the nation in a new direction - Early micro satyagrahas

UNIT IV

Mahatma Gandhi leads the Freedom struggle to victory: Major satyagrahas - Constructive Work - Sabarmathi and Sevagram - Various currents of Indian Nationalism - Towards partition and freedom - The final martyrdom

UNIT V

Video shows on Gandhi - Field and life experiences - Incidents from the life of Gandhi that inspired and shaped your life.

PAPER II: NON VIOLENCE AND SARVODAYA - CCHYGT02

Code: CCHYGT02   **Hour: 1**

Credit: 1

COURSE OUTCOMES:

CO. NO	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO- 1	Gain Knowledge on Mahatma Gandhi's Non - violence	PSO - 5	As
CO-2	Discuss the Policies of Mahatma Gandhi on Truth and Action	PSO - 5	An
CO-3	Analyse Sarvodaya and Antyodaya	PSO - 5	K
CO-4	Assess the values introduced through Brahmacharya and Aparigraha	PSO - 5	Ap
CO-5	Relate violence and Truth in our day today life with the teachings of Gandhiji	PSO - 2	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Code: CCHYGT02	PAPER II: NON VIOLENCE AND SARVODAYA - CCHYGT02											Hour: 1
												Credit: 1
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 2	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 3	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 4	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 5	5	5	5	5	5	5	4	5	4	3	3	4.45
Overall Mean Score												4.45

Result: The score for this course is High

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values / Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores / Total No. of Cos

UNIT I

Meaning of Nonviolence (*ahimsa*): Nonkilling and noninjuring - Love, service and forgiving - Nonviolent Action: Peaceful resolution of conflict, nonviolent life style & constructive work and Satyagraha - Nonviolent values and ethics

UNIT II

Truth: Absolute and Relative - Moving beyond falsehood, errors and mistakes - Truth and pluralism - Truth and action - Truth and Nonviolence

UNIT III

Sarvodaya (welfare of all at all levels) and Antyodaya (welfare of the last first) - Means and Ends - Removal of untouchability - Communal Harmony - Uplift of Women

UNIT IV

Removal of poverty: Full & total appropriate employment - Self-dependence, Self - reliance, Swaraj and Swadeshi (love thy neighbour) - Self-control and Sublimation (*brahmacharya*) - Simple and Ethical living - *Aparigraha* (nonpossession) and Trusteeship (stewardship) - Appropriate and Holistic Science and Technology.

UNIT V

Place of Nonviolence and truth in our day to-day life and ways to enhance them - learn and practice three skills which would enhance your self-reliance and ability to help (serve) others in need - Resolve conflicts peacefully - Experience inter-religious relationships, dialogue and prayers.

RECOMMENDED BOOKS

PAPER I

Mahatma Gandhi	:	An Autobiography சத்திய சோதனை
R. Nanda	:	Mahatma Gandhi - A Biography
டி.டி. திருமலை	:	காந்தி
கல்கி	:	மாந்தருள் ஒரு தெய்வம்
திரு.வி.க.	:	காந்தியடிகளும் மனித வாழ்க்கையும்
ஜெயகாந்தன்	:	வாழ்விக்க வந்த காந்தி
J.B. Kriplani	:	Gandhi His Life and Thought
லூயி பிஷர்	:	மகாத்மா காந்தி
Louis Fischer	:	The Life of Mahatma Gandhi
பா. ஆனந்தி, மங்களவதி கேப்ரியல் **&**	:	காந்திய சிந்தனை வினா-விடை
வி.ஏ. வித்யா		(Gandhian Thought Quiz)
சி. பெரிதாய் **&** பா. ஆனந்தி	:	மகாத்மா காந்தியடிகளின் காலம்

PAPER II

M.K. Gandhi	:	Sarvodaya
——————	:	Nonviolence in Peace and War (2 Vols)
——————	:	Truth is God
Richard B. Gregg	:	Power of Nonviolence
மு. வசந்தா (பதி.)	:	சர்வோதயம்
R.R. Diwakar	:	The Saga of Satyagraha
ச. செயப்பிரகாசம்	:	அகிம்சை

COURSE BOOK:

மகாத்மா காந்தியின் வாழ்வும் அறவியலும் - டாக்டர் பா. ஆனந்தி **&** டாக்டர் ச. செயப்பிரகாசம்

Life and Values of Mahatma Gandhi - Dr. B. Ananthi & Dr. S. Jeyapragasam

Code: CCHYGT01   **Hour: 1**

Credit: 1

COURSE OUTCOMES:

CO. NO	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO- 1	Gain Knowledge on the Early Life of Mahatma Gandhi	PSO - 5	K
CO-2	Analyse the racial equality and Mahatma Gandhi's Experience in South Africa	PSO - 5	An
CO-3	Explain the role of Mahatma Gandhi in Indian Freedom Struggle	PSO - 2	Ap
CO-4	Assess the constructive works of Mahatma Gandhi in Indian Nationalism	PSO - 2	Ap
CO-5	Discuss the major Incidents from the Life of Mahatma Gandhi	PSO - 5	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

												Hour: 1
Code: CCHYGT01		தாள் **I** - மகாத்மா காந்தியின் வாழ்வு - **CCHYGT01**										**Credit: 1**
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	
CO - 1	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 2	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 3	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 4	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 5	5	5	5	5	5	5	4	5	4	3	3	4.45
Overall Mean Score												**4.45**

Result: The score for this course is High

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

அலகு 1

குடும்ப பின்னணியும் மகாத்மாவின் தொடக்கமும் - பிறப்பும் குழந்தைப் பருவமும் - கல்வியும் குடும்ப வாழ்வும் - கற்ற பாடங்கள் - இலண்டன் அனுபவங்கள்.

அலகு 2

மகாத்மா உருவாகிறார் - தென்னாப்பிரிக்காவில் காந்தி - பாரிஸ்டரிலிருந்து மக்கள் தலைவராக - இன சமத்துவத்தை நோக்கி - குடும்ப வாழ்விலிருந்து ஆசிரம வாழ்வுக்கு - சத்தியாகிரகம் மற்றும் தீர்மானப்பணியின் தொடக்கம் - சத்திய பரிசோதனைகள்.

அலகு 3

இந்திய விடுதலைப் போராட்டத்தின் தொடக்கம் - ஆரம்ப கால எதிர்ப்புகளும் 1857 எழுச்சியும் - இந்திய தேசிய காங்கிரசின் தொடக்கம் - மிதவாதிகள், தீவிரவாதிகள் மற்றும் பயங்கரவாதிகள் - காந்தி நாட்டை புதிய திசையில் நடத்துகிறார் - ஆரம்ப வட்டார சத்தியாகிரங்கள்.

அலகு 4

மகாத்மா காந்தி இந்திய விடுதலைப் போராட்டத்தை தலைமையேற்று நடத்துகிறார் - தேசிய சத்தியாகிரங்கள் - நிர்மாணப் பணிகள் - சபர்மதியும் சேவாகிராமும் - இந்திய தேசியத்தின் பல்வேறு போக்குகள் - பிரிவினையும் விடுதலையும் - மகத்தான உயிர் தியாகம்.

அலகு 5

காந்தியைப் பற்றிய படங்கள் - கள மற்றும் வாழ்க்கை அனுபவங்கள் - உங்களது வாழ்வை பரவசப்படுத்திய, உருக்கிய மகாத்மா காந்தியின் வாழ்க்கை நிகழ்ச்சிகள்.

Code: CCHYGT02   **Hour: 1**

                                                                   Credit: 1

COURSE OUTCOMES:

CO. NO	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO- 1	Gain Knowledge on Mahatma Gandhi's Non - violence	PSO - 5	As
CO-2	Discuss the Policies of Mahatma Gandhi on Truth and Action	PSO - 5	An
CO-3	Analyse Sarvodaya and Antyodaya	PSO - 5	K
CO-4	Assess the values introduced through Brahmacharya and Aparigraha	PSO - 5	Ap
CO-5	Relate violence and Truth in our day today life with the teachings of Gandhiji	PSO - 2	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Code: CCHYGT02	தாள் **II** - அகிம்சையும் சர்வோதயமும் - **CCHYGT02**											Hour: 1 / Credit: 1
Course Outcomes	**Programme Outcomes (PO)**						**Programme Specific Outcomes (PSO)**					**Mean Score of CO's**
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 2	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 3	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 4	5	5	5	5	5	5	4	5	4	3	3	4.45
CO - 5	5	5	5	5	5	5	4	5	4	3	3	4.45
Overall Mean Score												**4.45**

Result: The score for this course is High

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values Total No. of Pos & PSOs	Mean Overall Score for Cos= Total of Mean Scores Total No. of Cos

அலகு 1

அகிம்சையின் பொருள் - கொல்லாமையும் துன்பம் செய்யாமையும் - அன்பு, தொண்டு மற்றும் மன்னித்தல் - அகிம்சைச் செயல்- அமைதி வழியில் சிக்கல் தீர்வு, அகிம்சை வாழ்வியலும் நிர்மாணப்பணியும், சத்தியாகிரகம் - அகிம்சை அறவியலும் விழுமியங்களும்.

அலகு 2

உண்மை : பேருண்மையும் (முழுமை உண்மையும்) சார்பு உண்மையும்- பொய்மைகள், தவறுகள் மற்றும் குற்றங்களுக்கு அப்பால் செல்லுதல் - உண்மையும் பன்மியமம் - உண்மையும் செயலும் - உண்மையும் அகிம்சையும்.

அலகு 3

சர்வோதயமும் (அனைவரின் நலம் அனைத்து நிலைகளிலும்) அந்தியோதயமும் (கடையவர் நலன் முதலில்) - குறிக்கோளும் வழிமுறையும் - தீண்டாமை நீக்கம் - சமூக ஒற்றுமை - மகளிர் முன்னேற்றம்.

அலகு 4

வறுமை நீக்கம் : முழுமையான ஏற்புடைய வேலை வாய்ப்பு - தற்சார்பும் தன்னிறைவும், சுயராஜ்ஜியம் மற்றும் சுதேசி (அயலவரை நேசி) - புலனடக்கமும் மேன்மையாக்கமும் (பிரம்மச்சரியம்) - எளிய மற்றும் அறவியல் வாழ்வு உடைமையின்மையும், அறங்காவலர் நெறியும் - ஏற்புடைய மற்றும் முழுமை அறிவியலும் தொழில் நுட்பமும்.

அலகு 5

நமது அன்றாட வாழ்வில் அகிம்சையும் உண்மையும் பெறுமிடமும் அதனை மேம்படுத்தும் வழிகளும் - உங்களது தற்சார்பையும் தேவையில் பிறருக்கு உதவும் ஆற்றலையும் வளர்க்கும் ஏதாவது மூன்று திறன்களைக் (Skills) கற்றல் - அமைதி வழியில் சிக்கல் தீர்வு அனுபவங்கள் - சர்வசமய நட்புறவு, உரையாடல் மற்றும் வழிபாட்டு அனுபவம் பெறல்.

SKILL DEVELOPMENT PROGRAMME (SDP)
LIBRARY AND INFORMATION SCIENCE
THEORY PAPER & PRACTICAL
PROGRAMME OUTCOMES (PO)

PO. NO.	UPON COMPLETION OF THIS PROGRAMME THE STUDENTS WILL BE ABLE TO
1.	Think critically, evaluate analytically and apply the expertise of their discipline worldwide.
2.	Enhance the communicative skills and gain confidence to disseminate knowledge through oral/verbal communications effectively at various situations.
3.	Express the cultural and environmental diversity that they have been exposed in various studies.
4.	Identify the different roles in an organizational structure of the work place and carry out multiple roles in social responsibilities.
5.	Develop higher-order thinking, problem solving and self-direction skills through effective use of technologies and other resources.
6.	Increase self-awareness, set and pursue meaningful goals, and develop positive personal qualities.

THEORY PAPER & PRACTICAL
PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PO MAPPED
1.	Have knowledge about the Library Resources and Services.	PO-2, PO-5
2.	To get Equipped with capabilities required for placement in Libraries	PO-2, PO-5
3.	To Use maximum of resources available in the Library.	PO-1
4.	Get the basic practical approaches to use online resources.	PO-5, PO-6
5.	Familiarize with the Principles of Management in Library Services.	PO-4

OBJECTIVES:

➢ To familiarize the students with the methods of maintaining Library Resources and Services.

➢ To equip them with capabilities required for placement in Libraries.

TEACHING HOURS

The Certificate course will be conducted in 60 contact hours per year as follows

Theory = 30 Hours
Practical = 30 Hours

ELIGIBILITY

Any III U.G. and any P.G. Student

THEORY PAPER

Code: 20GL1SD01   **Hours: 2**
                                                                 Credit: 1

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Have knowledge about the various types of Libraries.	PSO - 1	K
CO - 2	Understand the various kinds of Reference sources available in the Library	PSO - 1	C
CO - 3	Get the analytical approaches to classify and Arrange the reading materials in Library	PSO - 2	An
CO - 4	Apply various methods to search the reading material and thereby get it at the earliest	PSO - 3	Ap
CO - 5	To Acquire knowledge about the managerial principles and techniques in Libraries.	PSO - 5	K

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Code: 20GL1SD01			THEORY PAPER								Hours: 2
											Credit: 1
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	3	4	4	4	4	4	3	4	4	4	4	3.82
CO - 2	4	4	4	4	4	4	4	4	4	4	4	4
CO - 3	3	3	4	4	4	3	3	4	4	3	3	3.45
CO - 4	4	4	4	4	4	4	4	4	4	4	4	4
CO - 5	4	4	4	3	3	3	3	3	4	4	4	3.55
Overall Mean Score												**3.76**

Result: The score for this course is **3.76** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

UNIT I: LIBRARY AND SOCIETY

Five Laws of Library Science - Extension services - Types of Library - Orientation to Library Staff and Students

UNIT II: INFORMATION SOURCES & SERVICES

Information - Reference Service, Definition, Kinds - Kinds of Sources of Information - Standard Ready Reference Sources - Bibliography - Definition, Types - Abstract: APA style.

UNIT III: CLASSIFICATION THEORY

Library classification - Definition, need and purposes - Colon Classification 6th Edition and Dewey Decimal Classification 20th Edition : General features.

UNIT IV: CATALOGUING THEORY

Definition, objectives and functions of catalogue - Physical and inner forms of catalogue - OPAC

UNIT V: LIBRARY MANAGEMENT

Principles of Management - Library Rules - Library routines (Selection, Acquisition, Technical processing) - Circulation Systems(Charging & Discharging), Automated charging system - Preservation of reading materials

UNIT VI: INFORMATION TECHNOLOGY

Computer application to Library work - Internet: General features, Search engines -e-resources - E-Library / Digital Library - INFLIBNET N-List, SHODHSINDH

PRACTICAL PAPER

Code: 20GL1SDP1

Hours: 2
Credit: 1

COURSE OUTCOMES:

CO. NO.	UPON COMPLETION OF THIS COURSE THE STUDENTS WILL BE ABLE TO	PSO ADDRESSED	COGNITIVE LEVEL
CO - 1	Apply colon classification scheme in classifying the reading materials.	PSO - 2	Ap
CO - 2	Analyse the title according to Dewey Decimal Classification Scheme.	PSO - 2	An
CO - 3	Synthesis code for the book title according to colon Classification.	PSO - 5	S
CO - 4	Apply code for the book title according to Dewey Decimal Classification.	PSO - 2	Ap
CO - 5	Get practical approaches to search and download online resources.	PSO- 2	Ap

RELATIONSHIP MATRIX FOR COURSE OUTCOMES, PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

Code: 20GL1SDP1						PRACTICAL PAPER						Hours: 2
												Credit: 1
Course Outcomes	Programme Outcomes (PO)						Programme Specific Outcomes (PSO)					Mean Score of CO's
	1	2	3	4	5	6	1	2	3	4	5	
CO - 1	3	3	4	4	4	4	3	4	4	4	3	3.64
CO - 2	4	3	4	4	4	4	4	4	3	4	4	3.82
CO - 3	4	4	4	4	4	3	3	4	4	3	3	3.64
CO - 4	3	4	4	4	4	4	4	4	4	4	4	3.91
CO - 5	3	4	4	3	3	3	3	3	4	4	4	3.45
Overall Mean Score												3.69

Result: The score for this course is **3.69** (High Relationship)

Note:

Mapping	1-20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
Scale	1	2	3	4	5
Relation	0.0 - 1.0	1.1 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of Cos = Total of Values	Mean Overall Score for Cos= Total of Mean Scores
Total No. of Pos & PSOs	Total No. of Cos

Colon Classification -6th edition, Main Classes

1. Dewey Decimal Classification 20th edition - I, II & III Summary

2. Computer - Internet searching and to download information

3. INFLIBNET N-List - Searching process

BOOKS FOR REFERENCE:

1. Library Organisation and Decision Making - J. B.Sharma - Pointer Publishers, Jaipur - 2008

2. Library and Information Science - C.K. Sharma, Akhil Kumar Singh and Rakesh Kumar- Atlantic publishers & distributors (P) Ltd. - 2008

3. Reference Service - Mr. Krishan Kumar

4. Basics of Library and Information Science - K.T.Dilli, Vikas Publishing.

5. Preservation of Library, Archival and Digital Documents - L.S.Ramaiah & G. Sujatha - ESS ESS Publications, New Delhi - 2008

6. E-Libraries in Computer age - C.Praveen S   ingh - Alfa publications, New Delhi - 2008

7. Colon Classification - S.R.Ranganathan - 6th Edition - Asia publishing house, New Delhi - 1960

8. Dewey Decimal Classification - Edited by John P Comaromi etc. - 20th Edition - Forest press, New York - 1989

EVALUATION METHOD

Theory Paper Code : 20GL1SD01		Practical Paper Code : 20GL1SDP1	
Internal	25 Marks	Internal	50 Marks
External	75 Marks	External	50 Marks
Total	**100 Marks**	**Total**	**100 Marks**

QUESTION PATTERN

THEORY PAPER - EXTERNAL QUESTION PATTERN - 75 MARKS

Part - A

Multiple Choice Questions   1 × 10 = 10 Marks

From all units

Part - B

Paragraph Questions - 4 out of 6   4 × 5 = 20 Marks

From all units

Part - C

Essay in 400 words - 3 out of 6   3 × 15 = 45 Marks

From all units

DEPARTMENT OF HINDI

PART I - HINDI - COURSE PATTERN (2020- 2023)

Part	Sem.	Code	Title of the Paper	Hours	Credits
I	I	20GH1GS01	Paper - I - Prose, Short Story and Grammar - I	5	3
	II	20GH2GS02	Paper - II - Novel, One act Play, and Grammar - II	5	3
	III	20GH3GS03	Paper - III Poetry and History of Hindi Literature, Alankar	5	3
	IV	20GH4GS04	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   : 20GH1GS01   **Credits: 3**

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   : 20GH2GS02   **Credits: 3**

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   : 20GH3GS03   **Credits: 3**

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   : 20GH4GS04   **Credits: 3**

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