ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

Accredited with B^+ Grade by NAAC

TIRUPPATTUR

DEPARTMENT OF MATHEMATICS

ALAGAPPA UNIVERSITY

B.Sc., MATHS – SYLLABUS

2018-2019 to 2023-2024

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ALAGAPPA UNIVERSITY, KARAIKUDI

NEW SYLLABUS UNDER CBCS PATTERN (w.e.f.2014-15) & (w.e.f.2017-18)

B.Sc. MATHEMATICS – PROGRAMME STRUCTURE

B.Sc., MATHS – ODD & Even Semester - 2018-2019 Academic Year

Sem.	Part	Course Code	Title of the Course	Cr.	Hrs. / Week	Max. Marks		
						Int.	Ext.	Total
I	I	**711T**	**Tamil**– Tharkala kavithium Urainadaium	3	6	25	75	100
	II	**712E**	**English** – I English Of Enrichment-I	3	6	25	75	100
	III	**7BMA1C1**	**Core–I**-Calculus	4	6	25	75	100
		7BMA1C2	**Core–II**-Algebra and Trigonometry	4	6	25	75	100
		7BPHA1	**Allied** – Physics Properties of Matter, Thermal Physics and Optics	5	5	25	75	100
		7BPHAP1	**Allied – I (Theory cum Practical)** Physics Properties of Matter, Thermal Physics and Optics	4	3	15	60	75
	IV	**7NME1C**	**(1) Non-Major Elective – I** Communicative English	2	1	25	75	100
			Total (Allied Theory only)	**21**	**30**	**--**	**--**	**600**
			Total (Allied Theory cum Practical)	**20**				**575**
II	I	**721T**	**Tamil –II** Idaikala Ilakiyamum Sirukathaium	3	6	25	75	100
	II	**722E**	**English – II** English Of Enrichment-II	3	6	25	75	100
	III	**7BMA2C1**	**Core–III**-Analytical Geometry of 3D and Vector Calculus	4	6	25	75	100
		7BMA2C2	**Core–IV**-Sequences and Series	4	5	25	75	100
		7BPHA2	**Allied-II**--Physics-Electricity, Electronics,Atomic Nuclear Physics	5	5	25	75	100
		7BPHAP2	**Allied–II)—Practical**--Physics- Electricity,Electronics,Atomic Nuclear Physics	4	3	15	60	75
			Allied Practical – I	2	2	20	30	50
	IV	**7BES2**	(3) Environmental Studies	2	2	25	75	100

			Total (Allied Theory only)	**21**	**30**	--	--	**600**
			Total (Allied Theory cum Practical)	**22**				**625**
III	I	**731T**	**Tamil**- Kappiyamum Puthinamum	3	6	25	75	100
	II	**732E**	**English – III**- English Of Enrichment-III	3	6	25	75	100
	III	**7BMA3C1**	**Core–V**-Abstract Algebra	4	5	25	75	100
	III	**7BMA3C2**	**Core–VI-**Differential Equations and its Applications	4	5	25	75	100
	III	**7BCEA3**	**Allied – III** -Programming in C	5	5	25	75	100
		7BCEAP3	**Allied–III (Theory cum Practical)-** Programming in C	4	3	15	60	75
	IV	**7NME3C**	**Non-major Elective – II-** Effective Employability skills	2	1	25	75	100
		7SBS3A1	**Skill Based Subjects– I-** Competitive Examination skills	2	2	25	75	100
	V	**7BEA3**	Extension Activities	1	-	100	-	100
			Total (Allied Theory only)	**24**	**30**	**-**	**-**	**800**
			Total (Allied Theory cum Practical)	**23**				**775**
IV	I	**741T**	**Tamil**- Pandaya lakiyamum Nadahamum	3	6	25	75	100
	II	**742E**	**English – IV**- English Of Enrichment-IV	3	6	25	75	100
	III	**7BMA4C1**	**Core–VII-**Transform Techniques	4	5	25	75	100
	III	**7BMA4C2**	**Core–VIII**-Linear Algebra	4	4	25	75	100
	III	**7BCEA4**	**Allied – IV**- Programming in C++	5	5	25	75	100
		7BCEAP1	**Allied –IV**(Theory cum Practical)- Programming in c and C++ Lab	4	3	15	60	75
			Allied Practical - II	2	2	20	30	50
	IV	**7SBS4B2**	**Skill Based Subjects** – II Emergency and Medical Lab Skills	2	2	25	75	100
		7BMY4	**Value Education** - Manavalakalai Yoga	2	2	25	75	100

			Total (Allied Theory only)	**23**	**30**	-	-	**700**
			Total (Allied Theory cum Practical)	**24**				**725**
V	III	**4BMA5C1**	**Core – IX** – Modern Analysis	4	6	25	75	100
	III	**4BMA5C2**	**Core – X** – Mathematical Statistics	4	5	25	75	100
	III	**4BMA5C3**	**Core – XI** – Statics	4	5	25	75	100
	III	**4BMA5C4**	**Core –XII**– Linear Programming	4	5	25	75	100
	III	**4BMAE1 A**	**Elective – I** – Graph Theory	5	5	25	75	100
	IV	**4SBS5A4**	**(2) SBS-I** Heritage and Tourism	2	2	25	75	100
		4SBS5A5	**(2)SBS – I** Marketing and Sales Manegement	2	2	25	75	100
			Total	**25**	**30**	**-**	**-**	**700**
VI	III	**4BMA6C1**	**Core – XIII** – Complex Analysis	4	6	25	75	100
	III	**4BMA6C2**	**Core –XIV** – Operations Research	4	5	25	75	100
	III	**4BMA6C3**	**Core –XV** - Dynamics	4	5	25	75	100
	III	**4BMAE2 A/ 4BMAE2 B**	**Elective – II** – Fuzzy Algebra	5	5	25	75	100
	III	**4BMAE3 A/ 4BMAE3 B**	**Elective – III** – Numerical Analysis	5	5	25	75	100
	IV	**4SBS6B3**	**(2)SBS– II** Basic Internet andOffice Automation Lab	2	2	25	75	100
		4SBS6B4	**(2)SBS–II** Fruit,Vegetable,Preservation Skills	2	2	25	75	100
			Total	**26**	**30**	**--**	**--**	**700**
			Grand Total	**140**	**180**	**--**	**--**	**4100**

SEMESTER-1

S.No.	Class	Semester	Title of the Course	Course Code
1.	I B.Sc Maths	I	Tamil-I- Tharkala kavithium Urainadaium English-I English Of Enrichment-I Core-I Calculus Core-II-Algebra & Trigonometry Allied-I Physics Properties of Matter, Thermal Physics and Optics NME-1 Communicative English	711T 712E 7BMA1C1 7BMA1C2 7BPHA1 7NME1C

Kjyhk; Mz;L - Kjy; gUtk;
ghlf;FwpaPl;L vz;:711T

nghJj;jkpo; jhs; - 1 - jw;fhyf; ftpijAk; ciueilAk;

myF 1

m. kuGf; ftpij

ghujp - epyhTk; thd;kPDk; fhw;Wk; (KOikAk;)

ghujpjhrd; - NjhoNd! cd;dplk; nrhy;Ntd;!

ehkf;fy; ftpQH - cyfk; tho;f!

[Pthde;jk; - Nfhbf;fhy; g+jklh

Kbaurd; - jiyik tfpg;Nghk; (ghLq;Fapy;> g.8)

fz;zjhrd; - GjpaNjhH cyF nra;Nthk; (VohtJ njhFjp)

M. GJf;ftpij

K.Nkj;jh - Njrg;gpjhtpw;F xU njUg; ghlfdpd; mQ;ryp (fz;zPH g+f;fs;)

ftpf;Nfh mg;Jy;uFkhd; - khDlj;jpd; kFlhgpN\fk; (ghy;tPjp)

kPuh - fhjy; vd;d fj;jpupf;fhah? (Crpfs;)

ituKj;J - kuq;fisg; ghLNtd; (,e;jg; g+f;fs; tpw;gidf;F my;y)

myF 2

1. vz;zq;fs; - vk;.v];.cja%Hj;jp.

myF 3 ,yf;fzk;

vOj;jpyf;fzk;> vz;> ngaH> Kiw> gpwg;G> tbtk;> khj;jpiu> nkhop Kjy; vOj;Jf;fs;> nkhop ,Wjp vOj;Jf;fs;> ,ilepiy nkak;;kaf;fk;> nkhop> gFgj cWg;G> tlnkhop vOj;J> (M.rptypq;fdhH> jkpo; ,yf;fz czHTfs;> gf;fk; 26 Kjy; 69 tiu> fgpyd; gjpg;gfk;> GJr;Nrhp)

myF 4 ,yf;fpa tuyhW

myF 1> myF 2y; cs;s ghlk; njhlHghd ,yf;fpa tiffs; njhlHghd ,yf;fpa tuyhW.

myF 5 gilg;ghw;wy;

nghJf;fl;Liu gilj;jy;.

PART - II – ENGLISH

I YEAR – I SEMESTER

COURSE CODE: 712E

COURSE – I - ENGLISH FOR ENRICHMENT – I

Texts Prescribed

Gate Way to English – *An Anthology of Prose and Poetry* Ed. By the Board of Editors, Harrows Publications, Chennai.

Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.

Unit I Prose

1. Education for New India – C.Rajagopalachari.
2. All about a Dog – A.G.Gardiner
3. I have a Dream – Martin Lutherking

Unit II Prose

1. How I Became a Public Speaker – G.B. Shaw
2. With the Photographer – Stephen Leacock
3. Early Influences: Dr. APJ. Abdul Kalam

Unit III Poetry

1. Gitanjali (Songs : 1-2) Rabindranath Tagore
2. Shall I Compare thee to a Summer's Day(Sonnet 18)–William Shakespeare
3. On his Blindness – John Milton.

Unit IV Grammar

Noun, Pronoun, Verb, Adverb

Unit V Composition

Informal Letter, Comprehension, Dialogue Writing, Hints Developing

COURSE CODE: 7BMA1C1
CORE COURSE - I –CALCULUS

Unit – I

Successive Differentiation – Leibnitz formula – Envelopes – curvatures – circle, radius and centre of curvature – Evolutes.

Unit – II

Polar Coordinates – Radius of curvature in polar coordinates, p-r equation of a curve – Asymptotes – Method of finding asymptotes – problems

Unit – III

Definite Integrals and their properties –problems – Integration by parts —– Reduction formulae - Bernoulli's formula.

Unit – IV

Double and triple integrals and their properties – Jacobian – Change of order of integration.

Unit – V

Beta and Gamma functions – properties – problems

Text Book:

Calculus, Volume I (edi.2015) andVolume II (edi.2016) by S.Narayanan and T.K.ManicavachagomPillay, S.Viswanathan (Printers and Publishers) Pvt. Ltd.

Unit I	Chapter 3 (Volume I) sections 1 & 2 Chapter 10 up to section 2.5 (Volume I)
Unit II	Chapter 10 sections 2.6, 2.7 (Volume I) Chapter 11 upto section 7
Unit III	Chapter 1 sections 11, 12, 13, 14, 15.1(Volume II)
Unit IV	Chapter 5 sections 1, 2, 3, 4 (Volume II) Chapter 6 sections 1, 2 (Volume II)
Unit V	Chapter 7 sections 2, 3, 4, 5, (Volume II)

Books for Reference:

1. Calculus and Fourier series by Dr. M.K.Venkataraman and Mrs. Manorama Sridhar, The National Publishing Company, Chennai.

2. Calculus Volume I and Volume II by Dr. S.Arumugam and A.Thangapandi Isaac, New Gamma Publishing House, Palayamkottai.

COURSE CODE: 7BMA1C2
CORE COURSE - II – ALGEBRA AND TRIGONOMETRY

Unit – I

Summation of Series – Binomial Series – Exponential Series – Logarithmic Series.

Unit – II

Relation between roots and coefficients – Sum of the powers of the roots – Reciprocal Equation – Transformation of Equations.

Unit – III

Multiple Roots – Nature and position of roots –Descarte's rule of Signs, Rolle's theorem – Sturm's functions – Problems – Finding number and position of the real roots – Finding the nature and position of the roots (Cardans&Ferrar's method not included) – Approximate solution of Numerical equations – Newton's method – Horner's method.

Unit – IV

Applications of Demoivre's Theorem – Expression for $\sin n\theta$, $\cos n\theta$, $\tan n\theta$ - Expression for $\sin^n\theta$, $\cos^n\theta$ - Expansion of $\sin\theta$, $\cos\theta$, $\tan\theta$ in powers of θ.

Unit – V

Hyperbolic functions – Inverse hyperbolic functions, and logarithm of a complex number.

Text Books:

Summation of Series and Trigonometry by Dr.S.Arumugam and A.Thangapandi Isaac – New Gamma Publishing House,Palayamkottai.

Theory of Equations, Theory of Numbers and Trigonometry by Dr. S.Arumugam and A.ThangapandiIssac – New Gamma Publishing House, Palayamkottai July 2011.

Unit I	Chapter 1 sections 1.1 – 1.3 of (1)
Unit II	Chapter 5 sections 5.2 to 5.5 of (2)
Unit III	Chapter 5 sections 5.6, 5.7, 5.10 of (2)
Unit IV	Chapter 6 of(2)
Unit V	Chapter 7 and Chapter 8 of (2)

Books for Reference:

Trigonometry by S.Narayanan, T.K.ManicavachagomPillay.Algebra Volume – I by T.K.ManicavachagomPillay, T.Natarajan, KS.Ganapathy.

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B.Sc. PHYSICS

I YEAR – I SEMESTER

COURSE CODE: 7BPHA1

ALLIED COURSE I – PROPERTIES OF MATTER, THERMAL PHYSICS AND OPTICS (THEORY)

Unit I PROPERTIES OF MATTER

Young's modulus – Rigidity modulus – Bulk modulus – Poisson's ratio (definition alone) – Bending of beams – Expression for bending moment – determination of young's modulus – uniform and non-uniform bending.

Expression for Couple per unit twist – work done in twisting a wire – Torsional oscillations of a body– Rigidity modulus of a wire and M.I. of a disc by torsion pendulum.

Unit II VISCOSITY

Viscosity – Viscous force – Co-efficient of viscosity – units and dimensions – Poiseuilles formula for co-efficient of viscosity of a liquid – determination of co-efficient of viscosity using burette and comparison of Viscosities - Bernoulli's theorem – Statement and proof – Venturimeter – Pitot tube.

Unit III CONDUCTION, CONVECTION AND RADIATION

Specific heat capacity of solids and liquids – Dulong and Petit's law – Newton's law of cooling – Specific heat capacity of a liquid by cooling – thermal conduction –coefficient of thermal conductivity by Lee's disc method.

Convention process – Lapse rate – green house effect – Black body radiation – Planck's radiation law – Rayleigh Jean's law, Wien's displacement law – Stefan's law of radiation. (No derivations)

Unit IV THERMODYNAMICS

Zeroth and I Law of thermodynamics – II law of thermodynamics – Carnot's engine and Carnot's cycle – Efficiency of a Carnot's engine – Entropy – Change in entropy in reversible and irreversible process – change in entropy of a perfect gas – change in entropy when ice is converted into steam.

Unit V OPTICS

Interference – conditions for interference maxima and minima – Air wedge – thickness of a thin wire – Newton's rings – determination of wavelength using Newton's rings.

Diffraction – Difference between diffraction and interference – Theory of transmission grating – normal incidence – optical activity – Biot's laws – Specific rotatory power – determination of specific rotatory power using Laurent's half shade polarimeter

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Text Books:

Properties of matter – Brijlal and Subramanyam – Eurasia Publishing co., New Delhi, III Edition 1983

Element of properties of matter – D.S.Mathur – S.Chand & Company Ltd, New Delhi, 10th Edition 1976

Heat and Thermodynamics–Brijlal& Subramanyam, S.Chand & Co, 16th Edition 2005

Heat and Thermodynamics – D.S. Mathur, SultanChand & Sons, 5th Edition 2014.

Optics and Spectroscopy –R.Murugeshan, S.Chand and co., New Delhi, 6th Edition 2008.

A text book of Optics – Subramanyam and Brijlal, S. Chand and co.. New Delhi, 22nd Edition 2004.

Optics – Sathyaprakash, Ratan Prakashan Mandhir, New Delhi, VIIth Edition 1990.

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PART IV (I) – (C)

NON – MAJOR ELECTIVE – COURSE – I

I YEAR – I SEMESTER

COURSE CODE: 7NME1C

COURSE 1 – COMMUNICATIVE ENGLISH

15 hours per Semester – 1 hour per Week

Objective

To enable each learner at the college level to communicate effectively in English both in the spoken and in the written mode

Theory

Practice oriented course. Hence, 75:25 scheme of marking has to be followed. 75 marks for external assessment. 25 marks for internal marks assessment. Internal assessment will be carried out by the teacher who teaches the course while the external evaluation will be done by a group of 2 or 3 teachers who teach the course from the same college or from the nearby colleges.

Unit I BASICS OF ENGLISH

Sentence- Clause- Phrase- Word- Morpheme. Introduction to sounds of English-stress-intonations

Unit II INTRODUCTION TO LSRW SKILLS

Listening –Reading-Speaking-Writing skills

Unit III SPOKEN COMMUNICATION

Participating in Conversation

Preparation of Speech for shorter or longer duration

Unit IV WRITTERN COMMUNICATION-I

Note-Making-Summarizing-Paraphrasing-letter writing

Unit V WRITTEN COMMUNICATION-II

Introduction to preparing curriculum vitae-Creating and verifying personal and official e-mail-Preparing notice circulars, memos and agenda for a meeting-Report writing-Common errors in English Translation.

ACTIVITIES

Arrange the conversation between the students.

Preparing the speeches (for example, introducing a speaker or proposing a vote of thanks at the college function, explaining an experiment & etc.,)

Passage for note making

Passage for summarizing

Writing a paragraph on any topic(Statements and proverbs can be given)

Writing a C.V.

Writing a memo/notice/agenda/email/report

Ten sentences form Tamil to English & English to Tamil

Ten Sentences from error correction.

RECOMMENDED BOOKS

"Success with Spoken English II" Dr. Saraswathi and Dr. Noorjahan kother adham (2000), Common Wealth University books, Chennai.

"Teaching Spoken English and Communication Skills" Rev.Dr.Francis Soundararaj (1995), T.R.Publication, Chennai.

"Developing Communication Skills," Krishna Mohan and Meera Benerji (2002) Macmillan India Limited.

3 volumes – vowels –Consonants –Rhythm and Intonation prepared by Chiefs and published by Oxford University Press, Chennai.

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SEMESTER II

S.No.	Class	Semester	Title of the Course	Course Code
1.	I B.Sc Maths	II	Tamil –II Idaikala Ilakiyamum Sirukathaium	721T
			English–II-English Of Enrichment-II	722E
			Core–III-Analytical Geometry of 3D and Vector Calculus	7BMA2C1
			Core–IV-Sequences and Series	7BMA2C2
			Allied-II-Physics-Electricity, Electronics,Atomic Nuclear Physics	7BPHA2
			Environmental Studies	7BES2

முதலாம் ஆண்டு - இரண்டாம் பருவம்

பாடக்குறியீட்டு எண்: 721T

பொதுத்தமிழ் தாள் -2 இடைக்கால இலக்கியமும் சிறுகதையும்

அலகு 1

அ. திருஞானசம்பந்தர்

1. திருவாடானை - "மாதோர் கூறு" எனத் தொடங்கும் பாடல்.
2. திருப்புனவாசல் - "மின்னியல் செஞ்சடை" எனத் தொடங்கும் பாடல்.
3. திருக்கொடுங்குன்றம் - "வானிற் பொலிவெய்தும்" எனத் தொடங்கும் பாடல்.

ஆ. திருநாவுக்கரசர்

1. திருப்புத்தூர் - "மின்காட்டும்" எனத் தொடங்கும் பாடல்.
2. திருஇராமேச்சுரம் - "பாசமும்" எனத் தொடங்கும் முதல் பாடல்.
3. திருப்பூவணம் - "வடியேறு" எனத் தொடங்கும் பாடல்.

இ. சுந்தரர்

1. திருக்கானப்பேர் - "தொண்டர் அடித் தொழலும்" எனத் தொடங்கும் பாடல்.
2. திருச்சுழியல் - "ஊனாய் உயிர் உகலாய்" எனத் தொடங்கும் பாடல்.

ஈ. மாணிக்கவாசகர் - திருவாசகம்

1. திருப்பெருந்துறை - இன்பம் பெருக்கி எனத் தொடங்கும் பாடல்.(திருவெண்பா.11)
2. திரு உத்தரகோசமங்கை - நீத்தல் விண்ணப்பம், இருதலைக்கொள்ளி என்று தொடங்கும் பாடல்.

உ. திருமூலர் - திருமந்திரம்

1. அன்பும் சிவமும் எனத் தொடங்கும் பாடல்.
2. எட்டிப் பழுத்த எனத் தொடங்கும் பாடல்.
3. படமாடக் கோயில் எனத் தொடங்கும் பாடல்.

ஊ. திருமங்கை ஆழ்வார்

திருப்புல்லாணி - ஒன்பதாம் பத்து நாலாம் திருமொழி "காவார் மடல் பெண்ணை" எனத் தொடங்கும் ஒன்றாம் பாடல் முதல் "வில்லாள் இலங்கை" எனத் தொடங்கும் ஐந்தாம் பாடல் வரை (மொத்தம் ஐந்து பாடல்கள்)

எ. சிற்றிலக்கியம்

1. அபிராமி அந்தாதி - உதிக்கின்ற செங்கதிர் எனத் தொடங்கும் முதற்பாடல் தொடங்கி அதனைத் தொடர்ந்து வரும் 9 பாடல்கள் (ஆக மொத்தம் 10 பாடல்கள்).
2. தமிழ்விடு தூது - 17 ஆம் கண்ணி முதல் 27 ஆம் கண்ணி வரை.
3. திருக்குற்றாலக்குறவஞ்சி, வசந்தவள்ளி பந்தடித்தல்.
4. பாடுவார் முத்தப்பர், செயங்கொண்டார் சதகம் முதல் இரு பாடல்கள்.

அலகு 2 - சிறுகதை

சிறுகதைகள் 10 ஆசிரியர் குழு, அறிவுப் பதிப்பகம்.

அலகு 3 - இலக்கணம்

சொல்லிலக்கணம்

சொல்வகை, பெயர்ச்சொல், வினைச்சொல்,இடைச்சொல், உரிச்சொல்,இலக்கணம், வேற்றுமை, மயக்கம், ஆகுபெயர், (ஆ.சிவலிங்கனார், தமிழ் இலக்கண உணர்வுகள் - கபிலன் பதிப்பகம், புதுச்சேரி).

அலகு 4 - இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு.

அலகு 5 - படைப்பாற்றல் சிறுகதை படைத்தல்.

I YEAR – II SEMESTER

COURSE CODE: 722E

COURSE - II – ENGLISH FOR ENRICHMENT – II

Texts Prescribed

1. Gate Way to English – *An Anthology of Prose and Poetry* Ed. by the Board of Editors, Harrows Publications, Chennai.
2. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.

Unit I Prose

1. My Greatest Olympic Prize – Jesse Owens
2. Voluntary Poverty – Mahatma Gandhi
3. Helen Kellar – Ishbel Ross

Unit II Prose

1. Coffee Worries – R.K. Narayan

2. A Night Among the Pines – R.L. Stevenson

3. Spoon Feeding – W.R.Inge

Unit III Poetry

1. Daffodils - Wordsworth

2. Mending Wall – Robert Frost

3. A River – A.K.Ramanujan

Unit IV Grammar- Adjective, Preposition, Conjunction and Interjection.

Unit V Composition -Formal Letters, Resume Writing, Precise Writing and General Essays.

Allocation of Working Hours per week

Prose	-	3 hours
Poetry	-	1 hours
Grammar &Composition	-	2 hours
	Total -	**6 hours**

COURSE CODE: 7BMA2C1

CORE COURSE-III–ANALYTICAL GEOMETRY OF 3D AND VECTOR CALCULUS

Unit – I

Preliminaries – Direction cosines – Direction – ratios – angle between the lines – Various forms of equation of a plane – angle between two planes – Angle bisectors of two planes – Equation of a plane through the line of intersection of two planes – Straight lines – Equation of a straight line in various forms – problems.

Unit – II

A Plane and a line – Coplanar lines, Skew lines – S.D. between two Skew lines, Spheres Equation of a Sphere – Tangent line and Tangent plane – Section of a Sphere.

Unit – III

Cone – Definition – Equation of the Cone in various forms – Equation of a right circular Cone – Cylinder – Definition – Equation of a right circular cylinder – simple problems.

Unit – IV

Vector Calculus – Vector Differentiation– Vector Algebra – Differentiation of vectors - Gradient – Divergence and Curl – Solenoidal – irrotational – Harmonic Vector.

Unit – V

Line and Surface Integrals – Line Integrals – Surface Integrals - Theorems of GREEN, GAUSS and STOKE'S(Statements only) problems.

Text Books:

- Analytical Geometry of 3D and Vector Calculus by Dr. S.Arumugam and A.ThangaPandi Isaac, New Gamma Publishing House, Palayamkottai,2014
- Analytical Geometry 3D and Vector Calculus by Dr. M.K.Venkataraman and Mrs. Manorama Sridhar, National Publishing Company, Chennai, 2001.

Unit I	Chapter 1,Chapter 2, Chapter 3, Section 3.1 of (1)
Unit II	Chapter 3 section 3.2,Chapter 4 sections 4.1 to 4.3 of (1)
Unit III	Chapter 4 sections 4.13 to 4.16, 4.18 to 4.21 of (2)
Unit IV	Chapter 5 of (1)
Unit V	Chapter 7 of (1)

Books for Reference:

1. A text book of Analytical Geometry Part II – Three Dimensions by T.K.ManicavachagomPillay and T.Natarajan, S.Viswanathan (Printers & Publishers) Pvt. Ltd. 2001
2. Vector Calculus by S.Narayanan and T.K.ManicavachagomPillay, S.Viswanathan (Printers & Publishers) Pvt. Ltd. 1997

COURSE CODE: 7BMA2C2

CORE COURSE - IV – SEQUENCES AND SERIES

Unit – I

Sequences – bounded sequences – Monotonic sequences – Convergent sequences – Divergent and Oscillating sequences – The algebra of limits.

Unit – II

Behaviour of monotonic sequences – Some Theorems on limits – Subsequences – limit points –Cauchy sequences – The upper and lower limits of a sequence.

Unit – III

Series of positive terms –infinite series – Comparison test –Kummer's test – Root test and Condensation test – Integral test

Unit – IV

Series of arbitrary terms – Alternating series – Absolute convergence – Tests for convergence of series of arbitrary terms

Unit – V

Rearrangement (Derangement) of Series – Multiplication of series.

Text Book:

1. Sequences and Series by Dr. S.Arumugam and Prof. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, December 2015.

Unit I	Chapter 3sections 3.1 to 3.6
Unit II	Chapter 3 sections 3.7 to 3.12
Unit III	Chapter 4 sections 4.1 to 4.5
Unit IV	Chapter 5 sections 5.1 to 5.3
Unit V	Chapter 5 sections 5.4 & 5.5

Books for Reference:

1. Algebra Volume-I by T.K.Manicavachagom Pillay, T.Natarajan and K.S.Ganapathy.

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COURSE CODE: 7BPHA2

ALLIED COURSE II – ELECTRICITY, ELECTRONICS, ATOMIC AND NUCLEAR PHYSICS (THEORY)

Unit I CURRENT ELECTRICITY

Ohm's law – Law of resistance in series and parallel – Specific resistance – capacitors – capacitors in serial and parallel – Kirchoff's laws – Wheatstone's network – condition for balance.

Carey-Foster's bridge – measurement of resistance – measurement of specific resistance – determination of temperature coefficient of resistance – Potentiometer – calibration of Voltmeter.

Unit II ELECTROMAGNETISM

Electromagnetic Induction – Faraday's laws – Lenz law – Self Inductance – Mutual Inductance – Coefficient of Coupling.

A.C. Circuits – Mean value – RMS value – Peak value – LCR in series circuit – impedance – resonant frequency – sharpness of resonance.

Unit III ATOMIC AND NUCLEAR PHYSICS

Bohr's atom model – radius energy – Atomic excitation – Ionization potential – Frank and Hertz Method – Nucleus – Nuclear properties – Mass defect – Binding energy.

Radio isotopes – Uses of radio isotopes – Nuclear fusion and Nuclear fission – X-rays – Production – properties –Derivation of Bragg's law – uses in industrial and medical fields.

Unit IVANALOG ELECTRONICS

Semiconductor – PN junction diode – Bridge rectifier – Zener diode – Regulated power supply.Transistor – Working of a transistor – CE Configuration – current gain relationship between α and β – Transistor Characteristics – CE Configuration only – CE amplifier – feedback – Hartley oscillator – Colpitt's oscillator.

Unit V DIGITAL ELECTRONICS

Number system – Decimal – Binary – Octal and Hexadecimal system – Double Dabble method – Binary addition, subtraction and multiplication – conversion of one number system to another number system.Logic gates – OR, AND, NOT, XOR, NAND and NOR gates – truth tables – Half adder and Full adder – Laws and theorems of Boolean's algebra – De Morgan's theorems.

Books for Study and Reference:

- Electricity and Magnetism – R. Murugesan, S. chand & co, 2001.
- Modern Physics – R. Murugesan, S. chand & co, 1998.
- Basic Electronics – B.L. Theraja, S. chand & co, 2003.

PART-IV (3)

COURSE CODE: 7BES2

I YEAR – II SEMESTER

COURSE – ENVIRONMENTAL STUDIES

Unit I The Multidisciplinary Nature of Environmental Studies

Definition, Scope and importance

Need for public awareness

Unit II Natural Resources

Renewable and non-renewable resources

A) FOREST RESOURCES: USE AND OVER-EXPLOITATION, DEFORESTATION, CASE STUDIES, TIMBER EXTRACTION, MINING, DAMS AND THEIR EFFECT ON FORESTS AND TRIBAL PEOPLE
B) WATER RESOURCES: USE AND OVER-UTILIZATION OF SURFACE AND GROUND WATER, FLOODS, DROUGHT, CONFLICTS OVER WATER, DAMS- BENEFITS AND PROBLEMS.
C) MINERAL RESOURCES: USE AND EXPLOITATION, EXPERIMENTAL EFFECTS OF EXTRACTING AND USING MINERAL RESOURCES, CASE STUDIES.
D) FOOD RESOURCES: WORLD FOOD PROBLEMS, CHANGES CAUSED BY AGRICULTURE AND OVERGRAZING, EFFECTS OF MODERN AGRICULTURE, FERTILIZER-PESTICIDE PROBLEMS, WATER LOGGING, SALINITY, CASE STUDIES.
E) ENERGY RESOURCES: GROWING ENERGY NEEDS, RENEWABLE AND NON-RENEWABLE ENERGY SOURCES, USE OF ALTERNATE ENERGY RESOURCES, CASE STUDIES.
F) LAND RESOURCES: LAND AS A RESOURCE, LAND DEGRADATION, MAIN INDUCED LANDSIDES, SOIL-EROSION AND DESERTIFICATION
    - ROLE OF INDIVIDUAL IN CONSERVATION OF NATURAL RESOURCES
    - EQUITABLE USE OF RESOURCES FOR SUSTAINABLE LIFESTYLE

UNIT III ECOSYSTEMS, BIO-DIVERSITY AND ITS CONSERVATION

ECOSYSTEMS

- ✓ CONCEPT OF AN ECOSYSTEM
- ✓ STRUCTURE AND FUNCTION OF AN ECOSYSTEM
- ✓ ENERGY FLOW IN THE ECOSYSTEM
- ✓ FOOD CHAINS, FOOD WEBS AND ECOLOGICAL PYRAMIDS

Biodiversity and its conservation

- ✓ INTRODUCTION- DEFINITION: GENETIC, SPECIES AND ECOSYSTEM DIVERSITY
- ✓ BIO-GEOGRAPHICAL CLASSIFICATION OF INDIA
- ✓ VALUE OF BIODIVERSITY: CONSUMPTIVE USE, PRODUCTIVE USE, SOCIAL ETHICAL, AESTHETIC AND OPTION VALUES.
- ✓ BIODIVERSITY AT GLOBAL, NATIONAL AND LOCAL LEVELS
- ✓ INDIA AS A MEGA-DIVERSITY NATION
- ✓ HOT SPOTS OF BIODIVERSITY
- ✓ THREATS TO BIODIVERSITY: HABITAT LOSS, POACHING OF WILDLIFE, MAN-WILDLIFE CONFLICTS
- ✓ ENDANGERED AND ENDEMIC SPECIES OF INDIA
- ✓ CONSERVATION OF BIODIVERSITY IN-SITU AND EX-SITU CONSERVATION OF BIODIVERSITY

Unit IV Environmental Pollution

- CAUSES, EFFECTS AND CONTROL MEASURES OF:-

A. AIR POLLUTION
B. WATER POLLUTION
C. SOIL POLLUTION
D. MARINE POLLUTION
E. NOISE POLLUTION
F. THERMAL POLLUTION
G. NUCLEAR HAZARDS

Unit V Field Work

- VISIT TO A LOCAL AREA TO DOCUMENT ENVIRONMENTAL ASSETS–RIVER/ FOREST/ GRASSLAND/ HILL/ MOUNTAIN
- VISIT TO A LOCAL POLLUTED SITE- URBAN/RURAL/INDUSTRIAL/AGRICULTURAL
- STUDY OF COMMON PLANTS, INSECTS, BIRDS
- STUDY OF SIMPLE ECOSYSTEM-POND, RIVER, HILL SLOPES, ETC

Books for Reference:

- AGARWAL, K.C.2001 ENVIRONMENTAL BIOLOGY, NIDI PUBL.LTD., BIKANER
- BHARUCHA ERACH THE BIODIVERSITY OF INDIA, MAPIN PUBLISHING PVT. LTD, AHAMEDABAD-380013,INDIA, EMAIL: MAPIN@CENT.NET®
- BURNER R.C. 1989, HAZARDOUS WASTE INCLINERATION MCGRAW HILL INC.480P
- CLARK R.S. MARINE POLLUTION, CLANDERSON PRESS OXFORD(TB)
- CUNNIGHAM, W.P.COOPER, T.H.GORHANI, E& HEPWORTH, M.T 2001 ENVIRONMENTAL ENCYLOPEDIA, JAICO PUBL. HOUSE, MUMBAI, 1196P.
- DE.A.K.ENVIRONMENTAL CHEMISTRY, WILEY EASTERN LTD.
- DOWN TO EARTH, CENTRE FOR SCIENCE AND ENVIRONMENT®
- GLEICK H.P. 1993, WATER IN CRISIS, PACIFIC INSTUTUE FOR STUDIES IN DEV, ENVIRONMENT & SECURITY, STOCKHOLM ENV. INSTITUTE,OXFORD UNIV.PRESS,473P
- HAWLINKS R.E., ENCYCLOPEDIA OF INDIAN NATURAL HISTORY, BOMBAY NATURAL HISTORY SOCIETY, BOMBAY (R)
- HEYWOOD, V.H & WATSON, R.T.1995, GLOBAL BIODIVERSITY ASSESMENT, CAMBRIDGE UNIV.PRESS, 114OP
- JADHAV, H&BHOSALE V.M.1995, ENVIRONMENTAL PROTECTION AND LAWS, HIMALAYA PUB; HOUSE, DELHI 284P
- MCKINNEY, M.L & SCHOCH, RM.1996 ENVIRONMENTAL SCIENCE SYSTEMS& SOLUTIONS, WEB ENHANCED EDITION 639P
- MHASKAR A.K.MATTER HAZARDOUS, TECHNO-SCIENCE PUBLICATIONS(TB)
- MILLER T.G. JR.ENVIRONMENTAL SCIENCE WADSWORTH PUBLICING CO(TB)
- ODURM, E.P.1971 FUDAMENTALOF ECOLOGY, W.B.SAUNDERS CO. USA 584P
- RAO M.N & DATTA, A.K., 1987, TEHCHNO-SCIENCE, WASTE WATER TREATMENT. OXFORD& IBH PUBL, CO.PVT. LTD.,345P
- SHARMA B.K. 2001, ENVIRONEMTAL CHEMISTRY GOEL PUBL,HOUSE,MEERUT
- SURVEY OF THE ENVIRONMENTAL THE HINDU(M)
- TOWNSEND C, HARPER J, AND MICHAEL DEGON,ESSENTIAL OF ECOLOGY,BLAKEWELL SCIENCE (TB)
- TRIVEDI R.K., HAND BOOK OF ENVIRONMENTAL LAWS, RULES, GUIDELINES, COMPLIANCES AND STANDARDS, VOL I AND II, ENVIRO MEIDA ®
- TRIVEDI R.K. & P.K.GOEL INTRODUCTION TO AIR POLLUTION,TECHNO-SCIENCE PUBLICATIONS

SEMESTER-III

S.No.	Class	Semester	Title of the Course	Course Code
1.	II B.Sc Maths	III	Tamil-III Kappiyamum Puthinamum	731T
			English – III English Of Enrichment-III	732E
			Core–V-Abstract Algebra	7BMA3C1
			Core–VI-Differential Equations and its Applications	7BMA3C2
			Allied – III- Programming in C	7BCEA3
			Non-major Elective – II- Effective Employability skills	7NME3C
			Skill Based Subjects– I- Competitive Examination skills	7SBS3A1
			Extension Activities	7BEA3

இரண்டாம் ஆண்டு - மூன்றாம் பருவம் -

பாடக்குறியீட்டு எண்: 731T

பொதுத் தமிழ் தாள் - 3 - காப்பியமும் புதினமும்

அலகு 1

1. சிலப்பதிகாரம் - மங்கல வாழ்த்துப்பாடல்.
2. மணிமேகலை - பாத்திர மரபு கூறிய காதை.
3. கம்பராமாயணம் - சேது பந்தனப்படலம்.
4. பெரியபுராணம் - கோச்செங்கட்சோழ நாயனார் புராணம்.
5. தேம்பாவணி - கோலியாத் படலம்.
6. சீறாப்புராணம் - மானுக்குப் பிணை நின்ற படலம்

அலகு 2 - புதினம்

வேரில் பழுத்தபலா - சு.சமுத்திரம்.

அலகு 3 - இலக்கணம்

யாப்பும் அணியும்

செய்யுள் உறுப்புகள், எழுத்து, அசை, சீர், தளை, அடி, தொடை ஆகியன பற்றிய விளக்கம். பாவகை, வெண்பா, ஆசிரியப்பா ஆகியவற்றின் பொது இலக்கணங்கள்.

அணி, வகைகள், உவமை, உருவகம், வேற்றுமை, பின்வருநிலை, சிலேடை அணிகள்.

அலகு 4 - இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு.

அலகு 5 - படைப்பாற்றல்

மரபுக் கவிதை - புதுக்கவிதை படைத்தல்.

II YEAR – III SEMESTER

COURSE CODE: 732E

COURSE – III - ENGLISH FOR ENRICHMENT – III

Texts Prescribed

1. *Six Short Stories*, Ed. by the Board of Editors, Harrows Publications, Chennai.
2. *One Act Plays*, Ed. by the Board of Editors, Harrows Publications, Chennai.
3. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.
4. *English for Communication*, Ed. by the Board of Editors, Harrows Publications, Chennai.

Unit I Short Stories

1. Two Old Men – Leo Tolstoy
2. The Diamond Necklace – Guy de Maupassant
3. The Verger – Somerset Maugham
4. The Postmaster – Rabindranath Tagore.

Unit II One Act Plays

1.Riders to the Sea – J.M.Synge

2 .The Rising of the Moon – Lady Gregory

Unit III One Act Plays

1. A Kind of Justice – Margaret Wood
2. The Refugee – Asif Currimbhoy

Unit IV Grammar

Tenses, Voices, Degrees of Comparison

Unit V Composition

Agenda, Minutes, Notice, Descriptive Writing

Allocation of Working Hours per week

Grammar & Composition	- 2 hours
One Act Plays	- 2 hours
Short Stories	- 2 hours
Total	**- 6 hours**

II YEAR - III SEMESTER

COURSE CODE: 7BMA3C1

CORE COURSE - V – ABSTRACT ALGEBRA

Unit – I

Groups : Definition and Examples – Elementary Properties of a Group – Equivalent Definitions of a Group – Permutation Groups.

Unit – II

Subgroups – Cyclic Groups – Order of an Element – Cosets and Lagrange's Theorem.

Unit – III

Normal Subgroups and Quotient Groups – Isomorphism – Homomorphism.

Unit – IV

Rings : Definitions and Examples – Elementary properties of rings – Isomorphism – Types of rings – Characteristic of a ring – Subrings – Ideals – Quotient rings.

Unit – V

Maximal and Prime Ideals – Homomorphism of rings – Field of quotients of an Integral domain – Unique factorization domain – Euclidean domain.

Text Book:

1. S.Arumugam and A.ThangapandiIssac, Modern Algebra, SciTech Publications Pvt. Ltd., Chennai, 2003.

Unit I	Chapter 3sections 3.1 to 3.4
Unit II	Chapter 3 sections 3.5 to 3.8
Unit III	Chapter 3 sections 3.9 to 3.11
Unit IV	Chapter 4 sections 4.1 to 4.8
Unit V	Chapter 4 sections 4.9 to 4.11, 4.13 & 4.14

Books for Reference:

- N.Herstein, Topics in Algebra, John Wiley & Sons, Student 2nd edition, 1975.
- Vijay, K.Khanna and S.K.Bhambri, A course in Abstract Algebra, Vikas Publishing House Pvt. Ltd.
- Dr. R.Balakrishnan and N.Ramabadran, A text book of Modern Algebra, Vikas Publishing House Pvt. Ltd, New Delhi, 1994.

II YEAR - III SEMESTER
COURSE CODE: 7BMA3C2
CORE COURSE - VI – DIFFERENTIAL EQUATIONS AND ITS APPLICATIONS

Unit – I

Exact Differential Equations – Conditions for equation to be exact –Working rule for solving it – problems – Equations of the first order but of higher degree – Equations solvable for p, x, y, clairaut's form – Equations that do not contain (i) x explicitly (ii) y explicitly – Equations homogenous in x and y–Linear Equation with constant coefficients.

Unit – II

Linear equations with variable coefficients – Equations reducible to the linear equations – Simultaneous Differential Equations – First order and first degree – Simultaneous linear Differential Equations.

Unit – III

Linear equations of the second order – Complete Solution given a known integral – Reduction to Normal form – Change of the independent variable – Variation of parameters – Total Differential Equations – Necessary and Sufficient condition of integrability of Pdx + Qdy + Rdz = 0, Rule for solving it.

Unit – IV

Partial Differential Equations of the First oder – classifications of integrals – Derivations of Partial Differential Equations – Special methods – Standard forms – Charpit's method.

Unit – V

Flow of water from an Orifice – Falling bodies and other rate problems – Brachistochrone Problem – Tautochronous property of the Cycloid – Trajectories.

Text Book:

1. Differential Equations and its Applications by S.Narayanan&T.K.ManickavachagomPillay, S.Viswanathan (Printers& Publishers) Pvt. Ltd., 2015.

Unit I	Chapter 2 –sections 6.1 to 6.3; Chapter 4; Chapter5 –sections 1, 2, 3, 4
Unit II	Chapter 5–sections 5, 6; Chapter 6 – sections 1to 6
Unit III	Chapter 8–sections 1 to 4; Chapter 11
Unit IV	Chapter 12 – sections 1, 2, 3, 4, 5.1 to 5.4 & Section 6
Unit V	Chapter 3 – sections 2, 3, 4, 5; Chapter 10 – sections 1.1 – 1.3

Book for Reference:

1. Differential Equations and its Applications by Dr. S.Arumugam and Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, Edition, 2014.

II YEAR – III SEMESTER
COURSE CODE: 7BCEA3
ALLIED COURSE - III – PROGRAMMING IN C (THEORY & LAB)

Unit I

Overview of C: History of C – Importance of C – Basic Structure of C Programs – Programming Style – Character Set – C Tokens – Keywords and Identifiers – Constants, Variables and Data Types – Declaration of Variables – Defining Symbolic Constants – Declaring a variable as a constant – overflow and underflow of data – **Operators and Expressions:** Arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators – Arithmetic Expressions- Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical functions.

Unit II

Managing I/O Operations: Reading and Writing a Character – Formatted Input, Output – **Decision Making & Branching:** if statement - if else statement - nesting of if else statements - else if ladder – switch statement – the ?: operator – goto statement – the while statement – do statement – the for statement – jumps in loops.

Unit III

Arrays: One-Dimensional Arrays – Declaration, Initialization – Two-Dimensional Arrays – Multi-dimensional Arrays – Dynamic Arrays – Initialization. **Strings:** Declaration, Initialization of string variables – reading and writing strings – string handling functions.

Unit IV

User-defined functions: need – multi-function programs – elements of user defined functions – definition – return values and their types – function calls, declaration, category – all types of arguments and return values – nesting of functions – recursion – passing arrays, strings to functions – scope visibility and life time of variables. **Structures and Unions:** Defining a structure – declaring a structure variable – accessing structure members – initialization – copying and comparing – operation on individual members – array of structures – arrays within structures – structures within structures – structures and functions –unions – size of structures – bit fields.

Unit V

Pointers: the address of a variable – declaring, initialization of pointer variables – accessing a variable through its pointer – chain of pointers – pointer increments and scale factors – pointers and character strings – pointers as function arguments – pointers and structures. **Files**: Defining, opening, closing a file – IO Operations on files – Error handling during IO operations – command line arguments.

Text Book:

1. Programming in ANSI C, E.Balagurusamy, 6th Edition, Tata McGraw Hill Publishing Company, 2012.
   UNIT I: Chapters 1 (Except 1.3-1.7, 1.10-1.12), 2 (Except 2.9, 2.13), 3 (Except 3.13)
   UNIT II: Chapters 4 – 6
   UNIT III: Chapters 7, 8 (Except 8.5, 8.6, 8.7, 8.9, 8.10)
   UNIT IV: Chapters 9 (Except 9.20), 10
   UNIT V: Chapters 11 (Except 11.8, 11.10, 11.12, 11.14, 11.15, 11.17), 12 (Except 12.6)

Books for Reference:

1. Programming with C, Schaum's Outline Series, Gottfried, Tata McGraw Hill, 2006
2. Programming with ANSI and Turbo C , Ashok N.Kamthane , Pearson Education, 2006
3. H. Schildt, C: The Complete Reference, 4th Edition, TMH Edition, 2000.
4. Kanetkar Y., Let us C, BPB Pub., New Delhi, 1999.

PART IV (I) – (C)

NON – MAJOR ELECTIVE – COURSE II

II YEAR – III SEMESTER

COURSE CODE: 7NME3C

COURSE II – EFFECTIVE EMPLOYABILITY SKILLS

Unit I Curriculum Vitae & Facing the Interview

Applying for jobs, Preparing the curriculum Different formats vita, Facing the interviews, Frequently Asked Questions (FAQs).

Unit II Interpersonal Communication

One to one Communication

One to group Communication

Unit III Group Discussion

Listening, Ice-breaking, Leader – Member Moderates his role responsibility, Conflict, Management, Consensus, Steps involved

Unit IV Team Work

Qualities Selection constant & comfort, Orientation Review Tea, Review of the team work

Unit V Motivation

Leadership & Motivation, Behaviour, Motives Managerial Skills

Books for Reference:

- E.H.McGrath, S.J., "Basic Managerial Skills For All", Prentice-Hall of India Private Limited, New Delhi 110 001. ISBN-0-87692-498-4.
- D.K.Sarma, "You & Your Career", Wheeler Publishing, 755, Anna Salai, Chennai 600002. ISBN 81-7544-170-4. -1999
- Indian Jaycees, "Skills" Series, published by Indian Jaycees.
- S.P.Sachdeva, "Interview In A Nutshell", Sudha Publications (P) Ltd., B-5, Prabhat Kiran, Rajendra Place, New Delhi 110 008.

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PART IV (2) – SKILL BASED SUBJECTS (SBS)

GROUP I – SET I

II YEAR – III SEMESTER

COURSE CODE: 7SBS3A1

COURSE I – COMPETITIVE EXAMINATION SKILLS

Objectives:

- To build a sense of awareness among students through proper guidance about various competitive examinations in order to motivate students for prospective career in government and corporate sector.
- To intensively guide students for competitive examinations like TNPSC, UPSC, SSC, RRB, IBPS etc.

Unit I

Public Service Commission: Tamil Nadu Public Service Commission (TNPSC) and its role -History of TNPSC - Constitutional Provisions on the Formation, Functions, and Powers of Public Service Commissions for the Union and for the States - TNPSC and its rules of Procedure.

Eligibility and examination pattern: TNPSC - Union Public Service Commission (UPSC) - Staff Selection Commission (SSC) - Railway Recruitment Board (RRB) – Institute of Banking Personnel Selection (IBPS). **Unit II**

Intelligence, creativity & application, testing & assessment - Types, verbal abilities & fluency

Unit III

Numerical ability:Numbers, simplification, time and work, percentage, fraction, speed and distance, simple and compound interest, ratio and proportion

Unit IV

Spatial and perceptual abilities, situation reaction test

Unit V

Memory and inductive reasoning, Logical reasoning, Coding and Decoding, Direction Test, Syllogism

Books for Reference:

- Ajay rai, “intelligence tests”, sterling paperbacks, published by sterling publishers pvt. Ltd., l- 10, green park extension, new delhi 110 016., 2001
- Competition success review magazines

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PART V

II YEAR – III SEMESTER

COURSE CODE: 7BEA3

PART – V – EXTENSION ACTIVITIES

Extension Activities will be organized for 2 days in the Third Semester. The programme may be organized in any Saturday and Sunday.

A meeting of all the staff of the College (Teaching, Administrative and Technical Staff) be conducted before departing to the camp in which each and every aspect like Programmes to carried out, accommodation, food, medical aid, transport facilities, etc., should be thoroughly discussed.

One credit will be allotted for this Extension Activities. The marks allotted for each camp will be 100. Each student participating in the camp will be evaluated internally for 100 marks. The criteria for evaluation of Extension Activities will be as follows:

S. No.	Criteria	Maximum Marks
1.	Interaction with villagers	10
2.	Participation / Attitude towards work	10
3.	Participation in interaction and discussion	10
4.	Knowledge of problems / issues	10
5.	Organising & decision making ability	20
6.	Expression: a) Cultural programmes	10
	b) Report Writing	20
7.	Ability to adjust and work in a team	10
	Total	**100**

SEMESTER-IV

S.No.	Class	Semester	Title of the Course	Course Code
1.	II B.Sc Maths	IV	Tamil – IV Pandaya lakiyamum Nadahamum	741T
			English – IV English Of Enrichment-IV	742E
			Core–VII-Transform Techniques	7BMA4C1
			Core–VIII-Linear Algebra	7BMA4C2
			Allied – IV- Programming in C++	7BCEA4
			Allied Practical – II- Programming in c and C++ Lab	7BCEAP1
			Skill Based Subjects – II- Emergency and Medical Lab Skills	7SBS4B2
			Value Education-Manavalakalai Yoga	7BMY

இரண்டாம் ஆண்டு - நான்காம் பருவம்

பாடக்குறியீட்டு எண்: 741வு

பொதுத்தமிழ் தாள் - 4 - பண்டைய இலக்கியமும் நாடகமும்

அலகு 1

அ. பத்துப்பாட்டு - சிறுபாணாற்றுப்படை

ஆ. நற்றிணை - வெள்ளிவீதியார் பாடல் எண்கள்: 70,335,348.

இ. குறுந்தொகை -

பாடல் எண்.40 (குறிஞ்சி) - யாயும் ஞாயும் எனத் தொடங்கும் பாடல் செம்புலப்பெயல் நீரார்

பாடல் எண்.43 (பாலை) - செல்வார் அல்லர் எனத் தொடங்கும் பாடல் ஔவையார்

பாடல் எண்.49 (நெய்தல்) - அணிற் பல்லன்ன எனத் தொடங்கும் பாடல் அம்மூவனார்

பாடல் எண்.61 (மருதம்) - தச்சன் செய்த எனத் தொடங்கும் பாடல் தும்பிசேர்கீரன்

பாடல் எண்.110 - வாரார் ஆயினும் எனத் தொடங்கும் பாடல் (முல்லை) கிள்ளிமங்கலக்கிழார்

ஈ. கலித்தொகை - பாடல் எண்.105. அரைசுபட எனத் தொடங்கும் பாடல் (முல்லை) சோழன் நல்லுருத்திரன்.

உ. அகநானூறு - திருமணச் சடங்குப் பாடல்கள் 2 (86,128)

ஊ. புறநானூறு - பிசிராந்தையார் பாடல்கள் (பாடல் எண்கள். 67,184)

எ. திருக்குறள் சேராமை - பெரியாரைத் துணைக்கோடல், சிற்றினம் ஆகிய இரு அதிகாரங்கள்.

ஏ. நாலடியார் -

பாடல் எண்.135 - கல்வி கரையில எனத் தொடங்கும் பாடல்.

பாடல் எண்.215 - கோட்டுப் பூப்போல எனத் தொடங்கும் பாடல்.

பாடல் எண்.248 - நல் நிலைக்கண் தன்னை நிறுப்பானும் எனத் தொடங்கும்

பாடல்.

ஐ. பழமொழி நானூறு

பாடல் எண்.46 - நெடியாது எனத் தொடங்கும் பாடல்.

பாடல் எண்.47 - தோற்றத்தாலர் எனத் தொடங்கும் பாடல்.

பாடல் எண்.48 - மிக்குடையார் ஆகி எனத் தொடங்கும் பாடல்.

அலகு 2 - நாடகம்- நீதிதேவன் மயக்கம் - அறிஞர் அண்ணா.

அலகு 3 - இலக்கணம்

அகப்பொருள், (7 திணைகள்), புறப்பொருள் (12 திணைகள்), களவும், கற்பும், உள்ளுறை, இறைச்சி (ஆ.சிவலிங்கனார், தமிழ் இலக்கண உணர்வுகள், கபிலன் பதிப்பகம், புதுச்சேரி.

அலகு 4 - இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு.

அலகு 5 - படைப்பாற்றல்

ஓரங்க நாடகம் படைத்தல்.

II YEAR – IV SEMESTER

COURSE CODE: 742E

COURSE – IV- ENGLISH FOR ENRICHMENT – IV

Texts Prescribed

1. *Pygmalion* – G.B. Shaw
2. *Swami and Friends* – R.K. Narayan
3. *Tales from Shakespeare* Ed. by the Board of Editors, Harrows Publications, Chennai.
4. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.

Unit I Drama

Pygmalion – G.B. Shaw

Unit II – Fiction

Swami and Friends – R.K.Narayan

Unit III – Tales from Shakespeare

1. The Merchant of Venice
2. Romeo and Juliet
3. The Winter's Tale

Unit IV - Grammar

1. Concord
2. Question Tag
3. Kinds of Sentences
4. Direct and Indirect speeches

Unit V - Composition

1. Expansion of Proverbs
2. Group Discussion
3. Conversation (Apologizing, Requesting, Thanking)

Allocation of Working Hours per week

Drama - 2 hours

Fiction - 2 hours

Grammar & Composition - 2 hours

Total - 6 hours

II YEAR – IV SEMESTER
COURSE CODE: 7BMA4C1
CORE COURSE - VII – TRANSFORM TECHNIQUES

Unit – I

Laplace Transform – Definition – Laplace Transform of Standard functions – Elementary Theorems – Laplace Transform of periodic functions – problems.

Unit – II

Inverse Laplace Transforms – Standard formulae – Basic Theorems – Solving Ordinary Differential Equations with constant coefficients, variable coefficients and simultaneous linear equations using Laplace Transform.

Unit – III

Fourier Series – Definition – To find the Fourier coefficients of Periodic functions of period 2π - even and odd functions – Half range series – problems.

Unit – IV

Fourier Transforms – Complex form of Fourier Integral Formula – Fourier Integral theorem – properties of Fourier Transform – Fourier sine and cosine Transforms – properties – Parsivals Identity - Problems

Unit – V

Z Transforms – Definition – Proprieties – Z Transforms of some basic functions – Problems – Inverse Z Transforms – Methods to find the inverse Z Transform – Use of Z – Transforms to solve finite Difference Equations – problems.

Text Books:

1. Calculus Volume III by S.Narayanan and T.K.ManicavachagomPillay, S.Viswanathan (Printers & Publishers) Pvt. Ltd., 2014.
2. Engineering Mathematics 3rd Edition by T.Veerarajan, Tata McGraw Hill Publishing Company Limited, New Delhi.

Unit I	Chapter 5sections 1 to 5 of (1)
Unit II	Chapter 5 sections 6 to 10 of (1)
Unit III	Chapter 6 sections 1 to 4, 5.1,5.2 of (1)
Unit IV	Chapter 6 sections 9.1 to 9.3, 10, 11.1, 11.2, 12, 13, 14, 14.1, 15 of (1)
Unit V	Chapter 7 sections 7.1 to 7.5 of (2)

Book for Reference:

1. Transforms and Partial Differential Equations by Dr.A.Singaravelu, Meenakshi Agency, Chennai

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II YEAR - IV SEMESTER
COURSE CODE: 7BMA4C2
CORE COURSE - VIII – LINEAR ALGEBRA

Unit – I

Vector Spaces – Definition and examples – Subspaces – Linear Transformation – Span of a set.

Unit – II

Linear Independence – Basis and Dimension – Rank and Nullity.

Unit – III

Matrix of a Linear Transformation – Inner Product Space – Definition and examples – Orthogonality – Orthogonal complement.

Unit – IV

Algebra of Matrices – Types of Matrices – The inverse of a matrix – Elementary Transformations – Rank of a Matrix– Simultaneous linear equations.

Unit – V

Characteristic Equation and Cayley – Hamilton theorem Eigen values and Eigen Vectors, Bilinear forms – Quadratic forms.

Text Book:

1. Dr. S.Arumugam and Mr. A.ThangapandiIssac, Modern Algebra, SciTech Publications (India) Pvt. Ltd., Chennai, 2003.

Unit I	Chapter 5sections 5.1 to 5.4
Unit II	Chapter 5 sections 5.5 to 5.7
Unit III	Chapter 5 sections 5.8, Chapter VI sections 6.1 to 6.3
Unit IV	Chapter 7 sections 7.1 to 7.6
Unit V	Chapter 7 sections 7.7, 7.8 Chapter VIII sections 8.1, 8.2

Books for Reference:

- S.Lang, Introduction to Linear Algebra 2nd Edition, Springer 2005.
- AR.Vasistha, Modern Algebra, Krishna Prakashan Publication.

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II YEAR – III SEMESTER
COURSE CODE: 7BCEA4
ALLIED COURSE IV – PROGRAMMING IN C++ (THEORY & LAB)

Unit I

Software Crisis – Software Evolution – Basic Concepts of Object-Oriented Programming – Benefits of OOP – Object-Oriented Languages - Applications of OOP – Application of C++ - Structure of a C++ Program – Tokens – Keywords – Identifiers – Basic Data Types – Userdefined Data types – Derived data types – Symbolic constants – Type compatibility – Declaration of variables – Dynamic initialization of variables –Reference variables – Operators in C++ - Manipulators – Type cast operator – Expressions and their types-Implicit conversions – Control structures – The main function – Function prototyping – inline functions – Function overloading.

Unit II

Specifying a class – Defining member functions – Making an outside function inline – Nesting of member functions – Private member functions – Array within a class – Memory allocation for objects – Static data members – Static member functions – Array of objects - Objects as function arguments – Friendly functions – Returning objects – Constant member functions – Constructors – Parameterized constructor – Multiple constructors in a class – Constructors with default arguments – Dynamic initialization of objects – Copy constructor – Destructors.

Unit III

Defining operator overloading – Overloading unary operators – Overloading binary operators – Overloading binary operators using friend function – Rules for overloading operators - Defining derived classes – Single inheritance – Making a private member inheritable – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance - Virtual base classes – Constructors in derived class – Member classes: Nesting of classes.

Unit IV

Pointer to objects – this pointer – Pointers to derived classes – Virtual functions – Pure virtual functions – C++ Stream classes – Unformatted I/O operations – Managing outputWith manipulators.

Unit V

Classes of file stream operations – Opening and Closing files – Detecting end of file – More about open() function – File modes, File pointers and their manipulation – Sequential input and output operations – Command-line arguments- Templates: class templates and function templates.

Text Book:

1. Object Oriented Programming with C++**,** E. Balagurusamy, Sixth Edition-2013, McGraw Hill Education (India) Private Limited, New Delhi.

UNIT I – Chapter 1 (Except 1.3, 1.4),
Chapter 2 (Only 2.6),
Chapter 3 (Except 3.20, 3.21, 3.22), Chapter 4
UNIT II – Chapter 5 (Except 5.18, 5.19), Chapter 6 (Except 6.8, 6.9, 6.10)
UNIT III – Chapter 7, Chapter 8
UNIT IV – Chapter 9, Chapter 10
UNIT V – Chapter 11 (Except 11.8), Chapter 12 (Only 12.2, 12.3 and 12.4)

Books for Reference:

1. C++ - The Complete Reference, Herbert Schildt, TMH, 1998.
2. C++ How to Program, Paul Deitel, Harvey Deitel, PHI, Ninth edition (2014).
3. Ashok N.Kamthane, Object Oriented Programming with ANSI & Turbo C ++,Pearson Education, 2006.
4. Object-Oriented Programming With C++, Poornachandra Sarang, 2nd Edition, PHI Learning Private Limited, New Delhi, 2009.
5. Object-Oriented Programming Using C++, Alok Kumar Jagadev, Amiya Kumar Rath and Satchidananda Dehuri, Prentice-Hall of India Private Limited, New Delhi, 2007.

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COURSE CODE: 7BCEAP2
ALLIED PRACTICAL – II - PROGRAMMING IN C AND C++ LAB

1. Write a C Program to find the sum of digits.
2. Write a C Program to check whether a given number is Armstrong or not.
3. Write a C Program to check whether a given number is Prime or not.
4. Write a C Program to generate the Fibonacci series.
5. Write a C Program to display the given number is Adam number or not.
6. Write a C Program to print reverse of the given number and string.
7. Write a C Program to find minimum and maximum of 'n' numbers using array.
8. Write a C Program to arrange the given number in ascending order.
9. Write a C Program to add and multiply two matrices.
10. Write a C Program to calculate NCR and NPR
11. Write a program in C++ to add complex numbers using operator overloading
12. Write a program in C++ to multiply complex numbers using operator overloading
13. Write a program in C++ to convert temperature from Fahrenheit to Celsius
14. Write a program in C++ to calculate variance and standard deviation of N numbers
15. Write a program in C++ to find largest value of two numbers using nesting of member functions.
16. Write a program in C++ to find the sum of digits using constructor
17. Write a program in C to prepare the pay bill of employees
18. Write a program in C++ to calculate the volume of sphere, cone and cylinder using inline function
19. Write a program in C++ to prepare the student mark list
20. Write a program in C++ to perform the matrix addition, subtraction, and multiplication using single level inheritance
21. Write a program in C++ to find out the standard deviation using hybrid inheritance

II YEAR – IV SEMESTER
COURSE CODE: 7SBS4B2
COURSE II – EMERGENCY AND MEDICAL LAB SKILLS

Objectives:

- To recognize the nature and seriousness of the patient's condition or extent of Injuries to assess requirements for emergency medical care
- Administer appropriate emergency medical care based on assessment findings of the patient's condition
- To Perform safely and effectively the expectations of the job

Unit I

- First Aid – Fracture and Fire
- First Aid – Drowning and Snake animal, rodent bites.
- First Aid – Diarrhoea, Dysentery and Heat Stroke

Unit II

Traffic Rules

Road accidents: precautions, preventions & emergency steps to be taken on the spot advantages of 108 ambulance.

Unit III

Basic Clinical lab Tests

Blood, Urine, saliva, stool Tests

Unit IV

Awareness Programmes on the importance of locally available herbal plants and Vegetables. Skin lashes poor eye-sight anemia

Unit V

Project on Locally available native treatments for various Health Problems (Project Report 15 to 25 Pages)

Books for Reference:

1. Era.Su.Muthu and Meera Ravishankar, "First Aid", aug-2013 published by Sura Books (PVT) Ltd., 1620, 'J' Block, 16th Main Road, Anna Nagar, Chennai – 600 040.
2. Dr.Rama Rao, "Handbook of First Aid", Chennai.

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PART – IV (4)
II YEAR – IV SEMESTER
COURSE CODE: 7BVE4
COURSE – VALUE EDUCATION

DEFINITION

THE LEARNING AND PRACTICE OF FACTS WHICH HAVE ETERNAL VALUE IS WHAT IS CONTEMPLATED BY VALUE EDUCATION. IT CAN ALSO BE THE PROCESS BY WHICH A GOOD CITIZEN IS MOULDED OUT OF A HUMAN BEING. THE EVOLUTION OF A GOOD HUMAN BEING IS WHEN HE REALISES THAT HIS CONSCIENCE SHOWS TO HIM THE RIGHTNESS OF HIS ACTION.

OBJECTIVE

TO CREATE AN AWARENESS TO VALUES AMONG LEARNERS AND HELP THEM ADOPT THEM IN THEIR LIVES.

UNIT I

DEFINITION – NEED FOR VALUE EDUCATION – HOW IMPORTANT HUMAN VALUES ARE – HUMANISM AND HUMANISTIC MOVEMENT IN THE WORLD AND IN INDIA – LITERATURE ON THE TEACHING OF VALUES UNDER VARIOUS RELIGIONS LIKE HINDUISM, BUDDHISM, CHRISTIANITY, JAINISM, ISLAM, ETC. AGENCIES FOR TEACHING VALUE EDUCATION IN INDIA – NATIONAL RESOURCE CENTRE FOR VALUE EDUCATION – NCERT– IITS AND IGNOU.

UNIT II

VEDIC PERIOD – INFLUENCE OF BUDDHISM AND JAINISM – HINDU DYNASTIES – ISLAM INVASION – MOGHUL INVASION – BRITISH RULE – CULTURE CLASH – BHAKTI CULT – SOCIAL REFORMERS – GANDHI – SWAMI VIVEKANANDA – TAGORE – THEIR ROLE IN VALUE EDUCATION.

UNIT III

VALUE CRISIS – AFTER INDEPENDENCE

INDEPENDENCE – DEMOCRACY – EQUALITY – FUNDAMENTAL DUTIES – FALL OF STANDARDS IN ALL FIELDS – SOCIAL, ECONOMIC, POLITICAL, RELIGIOUS AND ENVIRONMENTAL – CORRUPTION IN SOCIETY.

POLITICS WITHOUT PRINCIPLE – COMMERCE WITHOUT ETHICS – EDUCATION WITHOUT CHARACTER – SCIENCE WITHOUT HUMANISM – WEALTH WITHOUT WORK – PLEASURE WITHOUT CONSCIENCE – PRAYER WITHOUT SACRIFICE – STEPS TAKEN BY THE GOVERNMENTS – CENTRAL AND STATE – TO REMOVE DISPARITIES ON THE BASIS OF CLASS, CREED, GENDER.

UNIT IV

VALUE EDUCATION ON COLLEGE CAMPUS

TRANSITION FROM SCHOOL TO COLLEGE – PROBLEMS – CONTROL – FREE ATMOSPHERE – FREEDOM MISTAKEN FOR LICENSE – NEED FOR VALUE EDUCATION – WAYS OF INCULCATING IT – TEACHING OF ETIQUETTES – EXTRA-CURRICULAR ACTIVITIES – N.S.S., N.C.C., CLUB ACTIVITIES – RELEVANCE OF DR.A.P.J. ABDUAL KALAM'S EFFORTS TO TEACH VALUES – MOTHER TERESA.

UNIT V

PROJECT WORK

- COLLECTING DETAILS ABOUT VALUE EDUCATION FROM NEWSPAPERS, JOURNALS AND MAGAZINES.
- WRITING POEMS, SKITS, STORIES CENTERING AROUND VALUE-EROSION IN SOCIETY.
- PRESENTING PERSONAL EXPERIENCE IN TEACHING VALUES.
- SUGGESTING SOLUTIONS TO VALUE – BASED PROBLEMS ON THE CAMPUS.

RECOMMENDED BOOKS:

- SATCHIDANANDA. M.K. (1991), "ETHICS, EDUCATION, INDIAN UNITY AND CULTURE" – DELHI, AJANTHA PUBLICATIONS.
- SARASWATHI. T.S. (ED) 1999. CULTURE", SOCIALISATION AND HUMAN DEVELOPMENT: THEORY, RESEARCH AND APPLICATION IN INDIA" – NEW DELHI SAGE PUBLICATIONS.
- VENKATAIAH. N (ED) 1998, "VALUE EDUCATION" NEW DELHI PH. PUBLISHING CORPORATION.
- CHAKRABORTI, MOHIT (1997) "VALUE EDUCATION: CHANGING PERSPECTIVES" NEW DELHI: KANISHKA PUBLICATIONS.
- "VALUE EDUCATION – NEED OF THE HOUR" TALK DELIVERED IN THE HTED SEMINAR – GOVT. OF MAHARASHTRA, MUMBAI ON 1-11-2001 BY N.VITTAL, CENTRAL VIGILANCE COMMISSIONER.
- "SWAMI VIVEKANANDA'S ROUSING CALL TO HINDU NATION": EKNATH RANADE (1991) CENTENARY PUBLICATION

- RADHAKRISHNAN, S. “RELIGION AND CULTURE” (1968), ORIENT PAPERBACKS, NEW DELHI.

ANNEXURE – II

DETAILS OF NUMBER OF CENTRES AND YOGA MASTERS IN EACH DISTRICT OF TAMIL NADU

S. NO.	DISTRICT	CENTRES	YOGA MASTERS
1.	Ariyalur District	9	39
2.	Chennai District	127	676
3.	Coimbatore District	122	678
4.	Cuddalore District	50	212
5.	Dharmapuri District	22	118
6.	Dindigul District	41	186
7.	Erode District	101	506
8.	Kanchipuram District	109	522
9.	Kanniyakumari District	11	79
10.	Karur District	16	67
11.	Krishnagiri District	13	72
12.	Madurai District	29	182
13.	Nagapattinam District	16	64
14.	Namakkal District	34	185
15.	The Nilgiri District	37	172
16.	Perambalur District	21	88
17.	Pudukottai District	34	152
18.	Ramanathapuram District	15	79
19.	Salem District	75	403
20.	Sivaganga District	20	100
21.	Thanjavur District	66	306
22.	Theni District	18	101
23.	Thirunelveli District	98	457
24.	Thiruvallur District	68	303
25.	Thiruvannamalai District	34	222
26.	Thiruvarur District	66	276
27.	Tutikorin District	36	162
28.	Tiruchy District	77	379
29.	Vellore District	80	418
30.	Villupuram District	31	160
31.	Viruthunagar District	13	110
	Total	**1489**	**7667**

SEMESTER-V

S.No.	Class	Semester	Title of the Course	Course Code
1.	III B.Sc Maths	V	Core–IX- Modern Analysis	4BMA5C1
			Core–X- Mathematical Statistics	4BMA5C2
			Core–XI- Statics	4BMA5C3
			Core –XII - Linear Programming	4BMAE1A
			Elective (I)- Graph Theory	4BMAE2A
			Skill Based Subjects – I Heritage and Tourism	4SBS5A5
			Skill Based Subjects – I Marketing and sales Management	4SBS5A6

III YEAR – V SEMESTER

COURSE CODE: 4BMA5C1

CORE COURSE IX – MODERN ANALYSIS

Unit I

Introduction – Countable and uncountable sets – Inequalities of Holder Minkowski – Metric space – Definitions and examples – open sets – Equivalent metric space – Subspace – closed sets.

Unit II

Completeness – 'Definition and Examples – Cantor intersection theorem – Baire Category theorem

Unit III

Continuity – Definition and Examples – Uniform continuity – Homeomorphism.

Unit IV

Connectedness – definition and examples – connected subsets *of R* connectedness and continuity– Intermediate value theorem.

Unit V

Compactness – definition and examples – compact subset of *R*. Equivalent characterization for compactness – continuity and compactness.

Text Book

Modern Analysis by S. Arumugam and Issac

Reference Book

Modern Analysis by A.R.Vasishta

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III YEAR – V SEMESTER

COURSE CODE: 4BMA5C2

CORE COURSE X – MATHEMATICAL STATISTICS

Unit I

Probability density function, Mathematical expectation moment generating Function

Unit II

Probability distribution, Binomial, Poisson, Normal distribution

Unit III

Test of significance (Large Samples)

Unit IV

Test of Significance (Small Samples)

Unit V

Test based on X^2 – distributions, Analysis of Variance: One way classification, two way classification and Latin square design.

Text Book

Statistics by Arumugam and Issac

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III YEAR – V SEMESTER

COURSE CODE: 4BMA5C3

CORE COURSE XI - STATICS

Unit – I

Law of parallelogram of forces-Lami's theorem-Resolution of forces.

Unit – II

Like Parallel forces-Unlike Parallel forces-Moments-Varignon's theorem of Moments-Generalized theorem of Moments-Couples-Definition equilibrium of couples-resultant of coplanar couples.

Unit – III

Equilibrium of three forces acting on a rigid body-three coplanar forces-conditions of equilibrium-Coplanar forces-Reduction of coplanar forces-Equation to the line of action of the resultant.

Unit – IV

Forces of Friction-Laws of Friction-Limiting Friction-Limiting equilibrium-Cone of Friction-Angle of Friction.

Unit – V

Equation to Common Catenary-Tension at any point-Geometrical properties of Common Catenary.

Text Book:

Venkataraman M.K, Statics, Agasthiar Publishers, Eleventh

Chapter 2 Sections 1-4 & 6-12 Pages: 9 to 16 & 17 to 51
Chapter 3 Sections 1-13; Chapter 4 Sections 1-10 Pages: 52-78 & 84-97
Chapter 5 Sections 1-6; Chapter 6 Sections 1-9 Pages: 98 to 122 &143-167
Chapter 7 Sections 1-13 Pages: 206-234
Chapter 11 Sections1-6 Pages: 375-391

III YEAR – V SEMESTER
COURSE CODE: 4BMA5C4
CORE COURSE XII - LINEAR PROGRAMMING

Unit I

Linear Programming problem: Introduction - Mathematical formulation - Graphical solution method - General linear programming problem - canonical and standard forms of L.P.P. Simplex method: Solution - feasible solution - basic solution - basic feasible solution- Degenerate basic feasible solution - optimal solution. Improved basic solution, unbounded solution, condition of optimality, convex combination of K-different optimum solutions to L.P.P is again an optimum solution.

Unit II

Simplex Algorithm use of artificial variables. Two phase method, Big-M-method. Solution of simultaneous linear equations. Inventing a matrix using simplex method.

Unit III

Duality: General primal-dual pair. Formulation of dual problem for a given L.P.P. Duality theorems: Dual of dual is primal. Weak duality theorem, fundamental theorem of duality. Duality and simplex method. Dual simplex method.

Unit IV

Transportation problem: Definition of a transportation problem, mathematical formulation, obtaining initial solution by

a. Northwest Corner method
b. Least cost method
c. V.A method (Vogel's Approximation method)
d. Obtaining optimum solution: Modi method
e. Unbalanced T.P. and its solution, maximization T.P

Unit V

Assignment problem: Definition, mathematical formulation and Hungarian method. Unbalanced assignment problem. Traveling Salesman problem, Sequencing problem: For n jobs on 2 machines. For n jobs on k machines, For 2 jobs on k machines.

Text Book

Operations Research by Kanti Swarup, P.K. Gupta & Man Mohan

Reference Books

1. Operations Research by Hamdy A. Taha
2. Linear Programming by M.K. Venkataraman

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III YEAR – V SEMESTER

COURSE CODE: 4BMAE1A

ELECTIVE COURSE I (A) – GRAPH THEORY

Unit I

Definition examples – sub graphs – isomorphism – Ramsey Numbers – Independent sets – coverings Intersection graphs – line graph, Matrices – degree sequences – Graphic sequences

Unit II

Walks, trials, paths – connectedness and components "A graph is bipartite if and only if all its cycles are of even length" – cut point – bridge. Trees – characterization of trees – center of a tree.

Unit III

Planarity – Euler's formula – deductions Kuratowski graphs are non planar

Unit IV

Colourability: Chromatic number – chromatic Index – Five colour theorem – Four colour problem, chromatic polynomials and their properties.

Unit V

Directed graphs – connectivity in digraph, strong orientation graphs – tournaments (S.A.Choudam Book only)

Text Books

1. Invitation to graph Theory: Dr. S Arumugam and others
2. A first course in Graph Theory: S.A. Choudam. (For directed graph)

Reference

Graph Theory – Bondy Mur

GROUP I – SET II

III YEAR – V SEMESTER

COURSE CODE: 4SBS5A6

COURSE III – MARKETING AND SALES MANAGEMENT

Objectives:

- To acquire analytical skills for solving marketing related problems and challenges and to familiar with the strategic marketing management process
- To learn the elements of sales force to be an effective component of an organization's overall marketing strategy.

Unit I

Introduction: Evolution of Marketing – Types of Marketing: Consumer Products Marketing, Industrial Marketing and Services Marketing – Demographic and Behavioural Dimensions of Marketing – Marketing Planning

Unit II

Basics of Market Segmentation, Targeting and Positioning – Components of The Marketing Mix: Product – Price – Place – Promotion – Distribution Channels: Types – Merits and Demerits

Unit III

Marketing Vs Selling – Nature and Scope of Sales Management – Personal Selling and Salesmanship – Selling Function – Understanding Consumer's Decision Making Process – Sales Organization and Types Of Selling

Unit IV

Prospecting – Approaching The Customer – Sales Presentation – Sales Demonstration – Negotiating Buyer Concerns – Closing The Sale – Post Sales Service and Complaint Handling

Unit V

Modern Trends in Marketing and Sales: Internet Marketing – Direct Marketing – Multi Level Marketing – Relationship Marketing – Selling through Kiosks

Books for Reference:

1. Chunawalla, S. A., Sales Management, 5th Edition (2007), Himalaya Publishing House
2. Havaldar, Krishna; Sales And Distribution Management, 1st Edition (2006), Tata Mcgraw Hill
3. Perreault, Jr., William; Mccarthy, E. Jerome, Basic Marketing, 15th Edition, 2006, Tata Mcgraw Hill

III YEAR – V SEMESTER

COURSE CODE: 4SBS5A5

COURSE II – HERITAGE AND TOURISM

Objectives:

- To understand the definitions, terminology and concepts of cultural heritage and its relationships with tourism.
- To Understand heritage tourism supply by examining different categories of heritage attractions and the contexts within which heritage exists and additional perspectives on scale from the supply perspective
- To understand the role of interpretation in cultural heritage sites and the relevance of such interpretation approaches to visitors.
- Provide a framework to plan, design, and assess interpretation programs for tourists

Unit I

Tourism – Introduction – Concepts – Significance – Forms of Tourism – Effects of Tourism – Social, Economic and Environmental aspects – Human Rights

Unit II

Importance of preserving heritage – Heritage Spots in India – In Tamil Nadu – Brief history of the heritage spots – The role of heritage spots in promoting tourism – UNESCO guidelines on Heritage

Unit III

Role of Government in promoting tourism – ITDC- TTDC-Palace on wheels – Travel industry service network – Land (rail and road) Air – Water – Travel Agency – Hospitality and Accommodation

Unit IV

Travel Guide – Features – requirements – One's role as a guide – Income and Employability – Qualities and skills of a professional travel or tourist guide

Unit V

Project work – Field visit to heritage and tourism spots in Sivagangai and Ramanathapuram Districts and submission of a report (15 to 25 pages)

Books for Reference:

Bhatia, A. K – Tourism Development Principles and Practices, terling Publishers (P) Ltd., New Delhi)

Ananand M. M–Tourism and Hotel Industry in India (Sterling Publishers (P) Ltd., New Delhi)

Acharya Ram –Tourism and Cultural Heritage (Rosa Publications: Jaipur, 1986)

Jha, S.M – Tourism Marketing (Himalaya Publishing House)

SEMESTER-VI

S.No.	Class	Semester	Title of the Course	Course Code
1.	III B.Sc Maths	VI	Core – XII Complex Analysis	4BMA6C1
			Core – XIII Operations Research	4BMA6C2
			Core – XIV Dynamics	4BMA6C3
			Elective – II- Fuzzy Algebra	4BMAE2B
			Elective – III-Numerical Analysis	4BMAE3A
			Skill Based Subjects – II Fruit and Vegetable Preservative Skills	4SBS6B4
			Skill Based Subjects – II Basic Internet and Automation Lab	4SBS6B3

III YEAR – VI SEMESTER

COURSE CODE: 4BMA6C1

CORE COURSE XIII – COMPLEX ANALYSIS

Unit I

Complex numbers: Modulus amplitude and product of complex numbers – Equations of straight line, circle – Reflection points, concyclic point, inverse point, meaning of

$\frac{Z-Z_1}{Z-Z_2}$ $\frac{Z-Z_1}{Z-Z_2}$

Mod (----------) and amp (-------)

Unit II

Analytic function – C.R equations – C.R. equations in Polar forms – Harmonic functions.

Unit III

Bilinear transformation Cross ratio fixed points–Transformations which map real axis to real axis – unit circle to unit circle and real axis to unit circle. $W=Z^2$, $W=Z^{1/2}$, $w = e^z$

$w= 1/z$, $w = Sin\ z$, $w = 1/2(z+ 1/z)$.

Unit IV

Complex integration Cauchy integral theorem – Cauchy Integral formula Derivatives of analytic function Moreras theorem, Cauchy's inequality, Liouvilles theorem – fundamental theorem of Algebra – Taylor's theorem – Taylor Laurentz series

Unit V

Singular points – argument principle Rouche's theorem – Calculus of Residue – Residue theorem – Evaluation of definite integrals.

Text Book Complex Analysis by S. Arumugam & Issac

Reference Book

- Complex Analysis by Dr. N. Sridharan
- Complex Analysis by S.Narayanan & T.K.Manickavasagam Pillai

III YEAR – VI SEMESTER
COURSE CODE: 4BMA6C2
CORE COURSE XIV – OPERATIONS RESEARCH

Unit I

Nature and features of Operations Research, Modelling in Operations Research. Classification of models, General solution methods for O.R. models. Methodology of operations research. Replacement problem: Replacement of equipment/ asset that deteriorates gradually, replacement of equipment that fails suddenly.

Unit II

Inventory control: The inventory decisions costs associated with inventories

a. Deterministic inventory problems with no shortages
b. Production problem, problem with finite replenishment
c. Deterministic inventory problems with shortages
   (a) Purchasing model
   (b) Production model (finite replenishment)

EOQ problems with Price breaks, Probabilistic inventory problems: Single period problem without set up-cost, two models

1. The demand is uniform
2. The demand is not uniform

Unit III

Queuing Theory: Queue characteristics, Probability distribution of queuing system, pure birth process, distribution of interarrival times, distributions of departures, transient and steady states, Kendal notation solution of queue models

1. (M/M/1): (α/FIFO), (M/M/1): (α/ ISRO)
2. (M/M/1): (N/FIFO)

Unit IV

Network scheduling by PERT/CPM, Network and basic components – drawing networks, critical path analysis. PERT Analysis

Unit V

Game Theory: Two person zero sum games, The maximin – minimax principle, Games without saddle points – mixed strategies, graphical solution of $2 \times n$ and $m \times 2$ games, General solution of $m \times n$ rectangular games (L.P.P. method)

Text Book

Operations Research by

1. Kanti Swarup, P.K.Gupta & Man mohan
2. Sultan Chand & Sons, New Delhi, Nineth Edition Chapters 1,17, 18,19, 20 and 21

Reference Books

1. Hamdy A Taha: Operations Research
2. Sundaresan & others Operations Research

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III YEAR – VI SEMESTER

COURSE CODE: 4BMA6C3

CORE COURSE XV – DYNAMICS

Unit – I

Motion in a plane without air resistance-path of a projectile – Time of flight-Horizontal range –Motion of a projectile up an inclined plane.

Unit – II

Fundamental laws of impact – Impact of a smooth sphere on a fixed smooth plane – Direct impact of smooth elastic spheres – oblique impact of smooth elastic spheres.

Unit – III

Definition – Geometrical representation of S.H.M. – Composition of S.H.M.'S of the same period and in the same line - Composition of S.H.M.'S of the same period and in two perpendicular directions.

Unit – IV

Radial and transverse components of velocity and acceleration – Differential equation of a central orbit – Given the orbit to find the law of force – Given the law of force to find the orbit.

Unit – V

Kinetic Energy – Angular momentum – Equation of motion – Conservation of angular momentum – Principle of energy – Compound pendulum – Centers of suspension and oscillation.

Text Book

M.K.Venkataraman, Dynamics, Agasthiar Publications.

Chapter 6 Sections 6.1 to 6.10,6.12 to 6.16
Chapter 8 Sections 8.1 to 8.11
Chapter 10 Sections 10.1 to 10.8
Chapter 11 Sections 11.1 to 11.13
Chapter 13 Sections 13.1 to 13.8

III YEAR – VI SEMESTER

COURSE CODE: 4BMAE2B

ELELCTIVE COURSE II (B) – FUZZY ALGEBRA

Unit – I

Fuzzy sets – Basic types – Basic concepts – α-cuts – Additional properties of α-cuts –Extension principle for Fuzzy sets.

Unit – II

Operations on Fuzzy sets –Types of operations – Fuzzy complements - t-Norms – Fuzzy Unions.

Unit – III

Combinations of operations - Fuzzy Arithmetic – Fuzzy numbers.

Unit – IV

Arithmetic operations on intervals – Arithmetic operations on Fuzzy numbers – Fuzzy relations – Binary fuzzy relations – Fuzzy equivalence relations – Fuzzy compatibility relations.

Unit – V

Fuzzy ordering relations – fuzzy morphisms

Text Book

1. George J.Klir and Bo Yuan, Fuzzy Sets and Fuzzy Logic, Prentice Hall of India, New Delhi, 2004.

References

1. Fuzzy Set Theory and its Applications, Allied Publishers Limited, New Delhi, 1991

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III YEAR – VI SEMESTER

COURSE CODE: 4BMAE3A

ELECTIVE COURSE III (A) – NUMERICAL ANALYSIS

Unit I

Basic concepts of operators Δ, ∇ and *E*- their basic properties – factorial polynomial – difference of polynomial – simple problems.

Unit II

Interpolation – Newton's forward and backward formula – divided differences and their properties– Newton's divided difference formula – Gauss's formula – Stirling formula Lagrange's formula – simple problems – Inverse interpolation using Lagrange's formula – Successive approximation – simple problems.

Unit III

Numerical differentiation – upto second order – maxima and minima. Numerical integration – quadrature formula – Trapezoidal rule – Simpson's – 1/3 rule, 3/8 rule – Weddle's rule – Gregory's formula – Euler Maclaurin's formula – Newton cote's formula.

Unit IV

Summation of series using finite difference techniques – Euler Maclaurin's summation problems– simple problem – Differential equation – solution of first and second order equation with constant co-efficient.

Unit V

Solution of ordinary differential equation of first order by Euler, Taylor and Runge – Kutta methods of second and fourth order

Text Book

Numerical Analysis – S.Arumugam & Issac

Reference

Numerical methods in Science and Engineering – M.K.Venkatraman

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III YEAR – VI SEMESTER
COURSE CODE: 4SBS6B3
COURSE I – BASIC INTERNET AND OFFICE AUTOMATION LAB

The course will have a professional computer skill and practical oriented.

Unit I - INTERNET

1. Create & demonstrate an E-mail Id in any one of the mail server?
2. Write the step by step procedure to send a letter to your friend through E-mail and demonstrate with your system.
3. Write and demonstrate the procedure to apply for the post with the attachment of your BIODATA to any one of the company through E-mail
4. a) Demonstrate the procedure to copy a given file to the CD,USB DEVICE, FLOPPY DISK

b) Write the steps to zip & unzip the given file in Windows.
c) Demonstrate the steps to scan the picture with the help of the scanner & to perform the zooming operation.
5. Website using any one of the search engine.

Unit II - MS-WORD

1. Prepare a PONGAL and DEEPAVALI greeting cards with picture insertion and alignment, write the procedure to take hard copy.
2. Prepare a letter using mail merge facilities to send the admission cards to the selected candidates for the various courses offered by the University.
3. Using MS-Word Prepare your own biodata with the help of the template and using numbering and bullets where ever necessary.
4. Create the table with following data:
Account number, Debit, Credit, Balance amount
Enter the data and perform the various operations in Table.
5. Type the document and do the following:
a) Find and replace the word.
b) Extract some paragraph to another file
c) Perform spell check operations
d) Perform the various operations in the format menu.

Unit III - MS-EXCEL

1. Create the worksheet in MS-EXCEL to store the following information:
Reg.no Name Mark1 Mark2 Mark3 Total Average
a) using formula and function find the total, average maximum, minimum total marks
b) sort the names in alphabetical order

c) create the bar chart for average mark with proper titles, legend and gridlines. 2. Prepare the attendance report for the following in Excel
STUDENT ATTENDANCE REPORT
Course Name: BCA Semester II
Total number of working days: 80
RegNo Name No. of Absent No. of Present Percentage of Attendance
-------- ------- ---------- ---------- ----------
3. Create a worksheet in MS-Excel with following details
a) Employee number, Employee name, Designation, Basic pay and LIC, PF
b) Calculate HRA = 20% of Basic

DA = 30% of Basic
Gross Pay = Basic Pay + HRA + DA
Net Pay = Gross Pay – (LIC+PF)
4. Create a worksheet in ms excel with the following details:

Name, Description of the item, price of each item, quantity purchased, stock in hand, Enter the 5 data in the above format
a) Calculate amount=price* quantity
b) In table sort the field item wise

Unit IV - POWERPOINT
1. Prepare three slides in Power point showing the features of MS OFFICE and also set timings to view it.
2. Prepare three slides for showing the types of computers with the following settings:
a) Set different slide transitions
b) Give header & footer for each slide
c) Set slide timings for each slide
3. Prepare three slides with a text & picture expressing the introduction of new product.
4. Prepare five slides with a text and picture for various courses offered by the University with animation effect.

Unit V
DTP – Page maker – Coral Draw – Photoshop- Flash
References
1. PC Software For Windows By R.K.Taxali – Tata Mc Graw-Hill
2. DTP Course Kit by Vikas Gupta – 2007 Comdex publications
3. Photoshop 6 In Depth–David Xenakis Benjamin Levisa–Dream Tech Press,New Delhi

GROUP II – SET II

III YEAR – VI SEMESTER

COURSE CODE: 4SBS6B4

COURSE II – FRUIT AND VEGETABLE PRESERVATION SKILLS

Objectives:

- To understand the science, principles and techniques involved in fruits and vegetables preservation techniques
- To impart thorough knowledge on the technical skills in various aspects of food processing and preservation

Unit I

Principles, Methods, types of Preservation.

Preservation media and mode of action of preservation. Traditional & Modern methods.

Unit II

Study of various types of equipments – care & precautions and usage.

Study of various types of containers.

Unit III

Vegetables & their product preservation Methods

Importance of personal hygiene and sanitary standards

Unit IV

Fruits & their preservation

Unit V

Project:

- Mapping of preservation practices & centre's

(or)

- Preservation practices specific to fruits & Vegetables in your area

(Project Report 15 to 25 Pages)

Books for Reference:

- Srivastava R.P. and Kumar.S "Fruit and Vegetable Preservation: Principles"
- Ranjit Singh "Fruits" National Book Trust.
- Girdhari Lal Tandon et al "Preservation of Fruit and Vegetable Products".

ALAGAPPA UNIVERSITY, KARAIKUDI

NEW SYLLABUS UNDER CBCS PATTERN (w.e.f. 2017-2018)

B.Sc. MATHEMATICS – PROGRAMME STRUCTURE

B.Sc., MATHS – ODD & Even Semester - 2019-2020 Academic Year

Sem.	Part	Course Code	Title of the Course	Cr.	Hrs. / Week	Max. Marks		
						Int.	Ext.	Total
I	I	711T	**Tamil / Other Languages – I**	3	6	25	75	100
	II	712E	**English – I**	3	6	25	75	100
	III	7BMA1C1	**Core–I-**Calculus	4	6	25	75	100
		7BMA1C2	**Core–II-**Algebra and Trigonometry	4	6	25	75	100
		7BPHA1	**Allied – I** (Theory only) **(or)** **Allied – I** (Theory cum Practical)	5 4	5 3	25 15	75 60	100 75
			Allied Practical – I	-	2**	--	--	---
	IV	7NME1C	**(1) Non-Major Elective – I** Communicative English	2	1	25	75	100
			Total (Allied Theory only)	**21**	**30**	--	--	**600**
			Total (Allied Theory cum Practical)	**20**				**575**
II	I	721T	**Tamil / Other Languages – II**	3	6	25	75	100
	II	722E	**English – II**	3	6	25	75	100
	III	7BMA2C1	**Core–III-**Analytical Geometry of 3D and Vector Calculus	4	6	25	75	100
		7BMA2C2	**Core–IV-**Sequences and Series	4	5	25	75	100
		7BPHA2	**Allied – II** (Theory only) **(or)** **Allied– II** (Theory cum Practical)	5 4	5 3	25 15	75 60	100 75
		7BPHAP1	**Allied Practical – I**	2	2	20	30	50
	IV	7BES2	(3) Environmental Studies	2	2	25	75	100
			Total (Allied Theory only)	**21**	**30**	--	--	**600**
			Total (Allied Theory cum Practical)	**22**				**625**
III	I	731T	**Tamil / Other Languages – III**	3	6	25	75	100
	II	732E	**English – III**	3	6	25	75	100

	III	7BMA3C1	**Core–V-**Abstract Algebra	4	5	25	75	100
	III	7BMA3C2	**Core–VI-**Differential Equations and its Applications	4	5	25	75	100
	III	7BCEA3	**Allied – III** (Theory only) **(or) Allied–III** (Theory cum Practical)	5 4	5 3	25 15	75 60	100 75
			Allied Practical – II	-	2**	--	--	---
	IV	7NME3C	**(1) Non-major Elective – II** Effective Employability Skills	2	1	25	75	100
		7SBS3A1	**(2) Skill Based Subjects– I** Competitive Examination Skills	2	2	25	75	100
	V	7BEA3	Extension Activities	1	-	100	-	100
			Total (Allied Theory only)	**24**	**30**	**-**	**-**	**800**
			Total (Allied Theory cum Practical)	**23**				**775**
IV	I	741T	**Tamil / Other Languages – IV**	3	6	25	75	100
	II	742E	**English – IV**	3	6	25	75	100
	III	7BMA4C1	**Core–VII-**Transform Techniques	4	5	25	75	100
	III	7BMA4C2	**Core–VIII-**Linear Algebra	4	4	25	75	100
	III	7BCEA4	**Allied – IV(Theory only) (or) Allied –IV(Theory cum Practical)**	5 4	5 3	25 15	75 60	100 75
		7BCEAP2	**Allied Practical - II**	2	2	20	30	50
	IV	7SBS4B2/	**(2) Skill Based Subjects – II** Emergency and Medical Lab Skills	2	2	25	75	100
		7BMY4	**(4)** Manavalakalai Yoga	2	2	25	75	100
			Total (Allied Theory only)	**23**	**30**	**-**	**-**	**700**
			Total (Allied Theory cum Practical)	**24**				**725**
V	III	7BMA5C1	**Core–IX-**Real Analysis	4	6	25	75	100
	III	7BMA5C2	**Core–X-**Statistics I	4	5	25	75	100
	III	7BMA5C3	**Core–XI-**Operations Research I	4	5	25	75	100
	III	7BMAE1A	**Elective (I) - A)** Graph Theory	5	5	25	75	100

	III	7BMAE2A	**Elective (II)** – Numerical Analysis	5	5	25	75	100
	IV	7SBS5A5	**(2) Skill Based Subjects – I** Heritage and Tourism	2	2	25	75	100
		7SBS5A6	**(2) Skill Based Subjects – I** Marketing and Sales Management	2	2	25	75	100
			Total	**26**	**30**	**-**	**-**	**700**
VI	III	7BMA6C1	**Core – XII** Mechanics	4	6	25	75	100
	III	7BMA6C2	**Core – XIII** Complex Analysis	4	5	25	75	100
	III	7BMA6C3	**Core – XIV** Statistics II	4	5	25	75	100
	III	7BMA6C4	**Core – XV** Operations Research II	4	5	25	75	100
	III	7BMAE3A/ 7BMAE3B	**Elective – III A)** Discrete Mathematics **(or) B)** Fuzzy Algebra	5	5	25	75	100
	IV	7SBS6B4	**(2) Skill Based Subjects – II** Fruits and Vegetable Preservation Skills	2	2	25	75	100
		7SBS6B7	**(2) Skill Based Subjects – II** National Cadet Corps	2	2	25	75	100
			Total	**25**	**30**	**-**	**-**	**700**
			Grand Total	**140**	**180**	**-**	**-**	**4100**

SEMESTER-1

S.No.	Class	Semester	Title of the Course	Course Code
1.	I B.Sc Maths	I	Tamil-I- Tharkala kavithium Urainadaium	711T
			English-I English Of Enrichment-I	712E
			Core-I Calculus	7BMA1C1
			Core-II- Algebra and Trigonometry	7BMA1C2
			Allied-I Physics Properties of Matter, Thermal Physics and Optics	7BPHA1
			NME-1 Communicative English	7NME1C

முதலாம் ஆண்டு - முதல் பருவம்

பாடக்குறியீட்டு எண்:711வு

பொதுத்தமிழ் தாள் - 1 - தற்காலக் கவிதையும் உரைநடையும்

அலகு 1

அ. மரபுக் கவிதை

1.	பாரதி	-	நிலாவும் வான்மீனும் காற்றும் (முழுமையும்)
2.	பாரதிதாசன்	-	தோழனே! உன்னிடம் சொல்வேன்!
3.	நாமக்கல் கவிஞர்	-	உலகம் வாழ்க!
4.	ஜீவானந்தம்	-	கோடிக்கால் பூதமடா
5.	முடியரசன்	-	தலைமை வகிப்போம் (பாடுங்குயில், ப.8)
6.	கண்ணதாசன்	-	புதியதோர் உலகு செய்வோம் (ஏழாவது தொகுதி)

ஆ. புதுக்கவிதை

7.	மு.மேத்தா	-	தேசப்பிதாவிற்கு ஒரு தெருப் பாடகனின் அஞ்சலி (கண்ணீர் பூக்கள்)
8.	கவிக்கோ அப்துல்ரகுமான்	-	மானுடத்தின் மகுடாபிஷேகம் (பால்வீதி)
9.	மீரா	-	காதல் என்ன கத்திரிக்காயா? (ஊசிகள்)
10.	வைரமுத்து	-	மரங்களைப் பாடுவேன் (இந்தப் பூக்கள் விற்பனைக்கு அல்ல)

அலகு 2

1. எண்ணங்கள் - எம்.எஸ்.உதயமூர்த்தி.

அலகு 3 இலக்கணம்

எழுத்திலக்கணம், எண், பெயர், முறை, பிறப்பு, வடிவம், மாத்திரை, மொழி முதல் எழுத்துக்கள், மொழி இறுதி எழுத்துக்கள், இடைநிலை மெயம்மயக்கம், மொழி, பகுபத உறுப்பு, வடமொழி எழுத்து, (ஆ.சிவலிங்கனார், தமிழ் இலக்கண உணர்வுகள், பக்கம் 26 முதல் 69 வரை, கபிலன் பதிப்பகம், புதுச்சேரி)

அலகு 4 இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு.

அலகு 5 **படைப்பாற்றல்** பொதுக்கட்டுரை படைத்தல்.

PART - II – ENGLISH

I YEAR – I SEMESTER

COURSE CODE: 712E

COURSE – I - ENGLISH FOR ENRICHMENT – I

Texts Prescribed

1. Gate Way to English – *An Anthology of Prose and Poetry* Ed. By the Board of Editors,
   Harrows Publications, Chennai.
2. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.

Unit I **Prose**

1. Education for New India – C.Rajagopalachari.
2. All about a Dog – A.G.Gardiner
3. I have a Dream – Martin Lutherking

Unit II **Prose**

1. How I Became a Public Speaker – G.B. Shaw
2. With the Photographer – Stephen Leacock
3. Early Influences: Dr. APJ. Abdul Kalam

Unit III **Poetry**

1. Gitanjali (Songs : 1-2) Rabindranath Tagore
2. Shall I Compare thee to a Summer's Day(Sonnet 18)–William Shakespeare
3. On his Blindness – John Milton.

Unit IV **Grammar**

Noun, Pronoun, Verb, Adverb

Unit V **Composition**

Informal Letter, Comprehension, Dialogue Writing, Hints Developing

Allocation of Working Hours per week

Prose	- 2 hours
Poetry	- 2 hours
Grammar & Composition	- 2 hours

Total	**- 6 hours**

COURSE CODE: 7BMA1C1

CORE COURSE - I –CALCULUS

Unit – I

Successive Differentiation – Leibnitz formula – Envelopes – curvatures – circle, radius and centre of curvature – Evolutes.

Unit – II

Polar Coordinates – Radius of curvature in polar coordinates, p-r equation of a curve – Asymptotes – Method of finding asymptotes – problems

Unit – III

Definite Integrals and their properties –problems – Integration by parts –– Reduction formulae - Bernoulli's formula.

Unit – IV

Double and triple integrals and their properties – Jacobian – Change of order of integration.

Unit – V

Beta and Gamma functions – properties – problems

Text Book:

1. Calculus, Volume I (edi.2015) andVolume II (edi.2016) by S.Narayanan and T.K.ManicavachagomPillay, S.Viswanathan (Printers and Publishers) Pvt. Ltd.

Unit I	Chapter 3 (Volume I) sections 1 & 2 Chapter 10 up to section 2.5 (Volume I)
Unit II	Chapter 10 sections 2.6, 2.7 (Volume I) Chapter 11 upto section 7
Unit III	Chapter 1 sections 11, 12, 13, 14, 15.1(Volume II)
Unit IV	Chapter 5 sections 1, 2, 3, 4 (Volume II) Chapter 6 sections 1, 2 (Volume II)
Unit V	Chapter 7 sections 2, 3, 4, 5, (Volume II)

Books for Reference:

1. Calculus and Fourier series by Dr. M.K.Venkataraman and Mrs. Manorama Sridhar, The National Publishing Company, Chennai.
2. Calculus Volume I and Volume II by Dr. S.Arumugam and A.Thangapandi Isaac, New Gamma Publishing House, Palayamkottai.

COURSE CODE: 7BMA1C2

CORE COURSE - II – ALGEBRA AND TRIGONOMETRY

Unit – I

Summation of Series – Binomial Series – Exponential Series – Logarithmic Series.

Unit – II

Relation between roots and coefficients – Sum of the powers of the roots – Reciprocal Equation – Transformation of Equations.

Unit – III

Multiple Roots – Nature and position of roots –Descarte's rule of Signs, Rolle's theorem – Sturm's functions – Problems – Finding number and position of the real roots – Finding the nature and position of the roots (Cardans&Ferrar's method not included) – Approximate solution of Numerical equations – Newton's method – Horner's method.

Unit – IV

Applications of Demoivre's Theorem – Expression for $\sin n\theta$, $\cos n\theta$, $\tan n\theta$ - Expression for $\sin^n\theta$, $\cos^n\theta$ - Expansion of $\sin\theta$, $\cos\theta$, $\tan\theta$ in powers of θ.

Unit – V

Hyperbolic functions – Inverse hyperbolic functions, and logarithm of a complex number.

Text Books:

1. Summation of Series and Trigonometry by Dr.S.Arumugam and A.Thangapandi Isaac – New Gamma Publishing House,Palayamkottai.
2. Theory of Equations, Theory of Numbers and Trigonometry by Dr. S.Arumugam and A.ThangapandiIssac – New Gamma Publishing House, Palayamkottai July 2011.

Unit I	Chapter 1 sections 1.1 – 1.3 of (1)
Unit II	Chapter 5 sections 5.2 to 5.5 of (2)
Unit III	Chapter 5 sections 5.6, 5.7, 5.10 of (2)
Unit IV	Chapter 6 of(2)
Unit V	Chapter 7 and Chapter 8 of (2)

Books for Reference:

1. Trigonometry by S.Narayanan, T.K.ManicavachagomPillay.Algebra Volume – I by T.K.ManicavachagomPillay, T.Natarajan, KS.Ganapathy.

I YEAR – I SEMESTER
COURSE CODE: 7BPHA1

ALLIED COURSE I – PROPERTIES OF MATTER, THERMAL PHYSICS AND OPTICS (THEORY)

Unit I PROPERTIES OF MATTER

Young's modulus – Rigidity modulus – Bulk modulus – Poisson's ratio (definition alone) – Bending of beams – Expression for bending moment – determination of young's modulus – uniform and non-uniform bending.Expression for Couple per unit twist – work done in twisting a wire – Torsional oscillations of a body– Rigidity modulus of a wire and M.I. of a disc by torsion pendulum.

Unit II VISCOSITY

Viscosity – Viscous force – Co-efficient of viscosity – units and dimensions – Poiseuilles formula for co-efficient of viscosity of a liquid – determination of co-efficient of viscosity using burette and comparison of Viscosities - Bernoulli's theorem – Statement and proof – Venturimeter – Pitot tube.

Unit III CONDUCTION, CONVECTION AND RADIATION

Specific heat capacity of solids and liquids – Dulong and Petit's law – Newton's law of cooling – Specific heat capacity of a liquid by cooling – thermal conduction –coefficient of thermal conductivity by Lee's disc method.

Convention process – Lapse rate – green house effect – Black body radiation – Planck's radiation law – Rayleigh Jean's law, Wien's displacement law – Stefan's law of radiation. (No derivations)

Unit IVTHERMODYNAMICS

Zeroth and I Law of thermodynamics – II law of thermodynamics – Carnot's engine and Carnot's cycle – Efficiency of a Carnot's engine – Entropy – Change in entropy in reversible and irreversible process – change in entropy of a perfect gas – change in entropy when ice is converted into steam.

Unit V OPTICS

Interference – conditions for interference maxima and minima – Air wedge – thickness of a thin wire – Newton's rings – determination of wavelength using Newton's rings.

Diffraction – Difference between diffraction and interference – Theory of transmission grating – normal incidence – optical activity – Biot's laws – Specific rotatory power – determination of specific rotatory power using Laurent's half shade polarimeter.

Text Books:

1. Properties of matter – Brijlal and Subramanyam – Eurasia Publishing co., New Delhi, III Edition 1983
2. Element of properties of matter – D.S.Mathur – S.Chand & Company Ltd, New Delhi, 10th Edition 1976
3. Heat and Thermodynamics–Brijlal& Subramanyam, S.Chand & Co, 16th Edition 2005
4. Heat and Thermodynamics – D.S. Mathur, SultanChand & Sons, 5th Edition 2014.
5. Optics and Spectroscopy –R.Murugeshan, S.Chand and co., New Delhi, 6th Edition 2008.
6. A text book of Optics – Subramanyam and Brijlal, S. Chand and co.. New Delhi, 22nd Edition 2004.
7. Optics – Sathyaprakash, Ratan Prakashan Mandhir, New Delhi, VIIth Edition 1990.

PART IV (I) – (C)

NON – MAJOR ELECTIVE – COURSE – I

I YEAR – I SEMESTER

COURSE CODE: 7NME1C

COURSE 1 – COMMUNICATIVE ENGLISH

15 hours per Semester – 1 hour per Week

Objective

To enable each learner at the college level to communicate effectively in English both in the spoken and in the written mode

Theory

Practice oriented course. Hence, 75:25 scheme of marking has to be followed. 75 marks for external assessment. 25 marks for internal marks assessment. Internal assessment will be carried out by the teacher who teaches the course while the external evaluation will be done by a group of 2 or 3 teachers who teach the course from the same college or from the nearby colleges.

Unit I BASICS OF ENGLISH

Sentence- Clause-Phrase-Word-Morpheme. Introduction to sounds of English-stress-intonations

Unit II INTRODUCTION TO LSRW SKILLS

Listening –Reading-Speaking-Writing skills

Unit III SPOKEN COMMUNICATION

Participating in Conversation

Preparation of Speech for shorter or longer duration

Unit IV WRITTERN COMMUNICATION-I

Note-Making-Summarizing-Paraphrasing-letter writing

Unit V WRITTEN COMMUNICATION-II

Introduction to preparing curriculum vitae-Creating and verifying personal and official e-mail-Preparing notice circulars, memos and agenda for a meeting-Report writing-Common errors in English Translation.

ACTIVITIES

1. Arrange the conversation between the students.
2. Preparing the speeches (for example, introducing a speaker or proposing a vote of thanks at the college function, explaining an experiment & etc.,)
3. Passage for note making
4. Passage for summarizing
5. Writing a paragraph on any topic(Statements and proverbs can be given)
6. Writing a C.V.
7. Writing a memo/notice/agenda/email/report
8. Ten sentences form Tamil to English & English to Tamil
9. Ten Sentences from error correction.

RECOMMENDED BOOKS

1. "Success with Spoken English II" Dr. Saraswathi and Dr. Noorjahan kother adham (2000), Common Wealth University books, Chennai.
2. "Teaching Spoken English and Communication Skills" Rev.Dr.Francis Soundararaj (1995), T.R.Publication, Chennai.
3. "Developing Communication Skills," Krishna Mohan and Meera Benerji (2002) Macmillan India Limited.
4. 3 volumes – vowels – Consonants – Rhythm and Intonation prepared by Ciefc and published by Oxford University Press, Chennai.

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SEMESTER-II

S.No.	Class	Semester	Title of the Course	Course Code
1.	I B.Sc Maths	II	Tamil –II Idaikala Ilakiyamum Sirukathaium	721T
			English–II-English Of Enrichment-II	722E
			Core–III-Analytical Geometry of 3D and Vector Calculus	7BMA2C1
			Core–IV-Sequences and Series	7BMA2C2
			Allied-II-Physics-Electricity, Electronics,Atomic Nuclear Physics	7BPHA2
			Environmental Studies	7BES2

முதலாம் ஆண்டு - இரண்டாம் பருவம்
பாடக்குறியீட்டு எண்: 721வு

பொதுத்தமிழ் தாள் -2 இடைக்கால இலக்கியமும் சிறுகதையும்

அலகு 1

அ. திருஞானசம்பந்தர்

1. திருவாடானை - ''மாதோர் கூறு'' எனத் தொடங்கும் பாடல்.
2. திருப்புனவாசல் - ''மின்னியல் செஞ்சடை'' எனத் தொடங்கும் பாடல்.
3. திருக்கொடுங்குன்றம் - ''வானிற் பொலிவெய்தும்'' எனத் தொடங்கும் பாடல்.

ஆ. திருநாவுக்கரசர்

1. திருப்புத்தூர் - ''மின்காட்டும்'' எனத் தொடங்கும் பாடல்.
2. திருஇராமேச்சுரம் - ''பாசமும்'' எனத் தொடங்கும் முதல் பாடல்.
3. திருப்பூவணம் - ''வடியேறு'' எனத் தொடங்கும் பாடல்.

இ. சுந்தரர்

2. திருக்கானப்பேர் - ''தொண்டர் அடித் தொழலும்'' எனத் தொடங்கும் பாடல்.
2. திருச்சுழியல் - ''ஊனாய் உயிர் உகலாய்'' எனத் தொடங்கும் பாடல்.

ஈ. மாணிக்கவாசகர் - திருவாசகம்

1. திருப்பெருந்துறை - இன்பம் பெருக்கி எனத் தொடங்கும் பாடல்.(திருவெண்பா.11)
2. திரு உத்தரகோசமங்கை - நீத்தல் விண்ணப்பம், இருதலைக்கொள்ளி என்று தொடங்கும் பாடல்.

உ. திருமூலர் - திருமந்திரம்

1. அன்பும் சிவமும் எனத் தொடங்கும் பாடல்.
2. எட்டிப் பழுத்த எனத் தொடங்கும் பாடல்.
3. படமாடக் கோயில் எனத் தொடங்கும் பாடல்.

ஊ. திருமங்கை ஆழ்வார்

திருப்புல்லாணி - ஒன்பதாம் பத்து நாலாம் திருமொழி ''காவார் மடல் பெண்ணை'' எனத் தொடங்கும் ஒன்றாம் பாடல் முதல் ''வில்லாள் இலங்கை'' எனத் தொடங்கும் ஐந்தாம் பாடல் வரை (மொத்தம் ஐந்து பாடல்கள்)

எ. சிற்றிலக்கியம்

5. அபிராமி அந்தாதி - உதிக்கின்ற செங்கதிர் எனத் தொடங்கும் முதற்பாடல் தொடங்கி அதனைத் தொடர்ந்து வரும் 9 பாடல்கள் (ஆக மொத்தம் 10 பாடல்கள்).
6. தமிழ்விடு தூது - 17 ஆம் கண்ணி முதல் 27 ஆம் கண்ணி வரை.
7. திருக்குற்றாலக்குறவஞ்சி, வசந்தவள்ளி பந்தடித்தல்.
8. பாடுவார் முத்தப்பர், செயங்கொண்டார் சதகம் முதல் இரு பாடல்கள்.

அலகு 2 - சிறுகதை

சிறுகதைகள் 10 ஆசிரியர் குழு, அறிவுப் பதிப்பகம்.

அலகு 3 - இலக்கணம்

சொல்லிலக்கணம்

சொல்வகை, பெயர்ச்சொல், வினைச்சொல்,இடைச்சொல், உரிச்சொல்,இலக்கணம், வேற்றுமை, மயக்கம், ஆகுபெயர், (ஆ.சிவலிங்கனார், தமிழ் இலக்கண உணர்வுகள் - கபிலன் பதிப்பகம், புதுச்சேரி).

அலகு 4 - இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு. **அலகு 5 - படைப்பாற்றல்** சிறுகதை படைத்தல்

I YEAR – II SEMESTER
COURSE CODE: 722E

COURSE - II – ENGLISH FOR ENRICHMENT – II

Texts Prescribed

3. Gate Way to English – *An Anthology of Prose and Poetry* Ed. by the Board of Editors, Harrows Publications, Chennai.
4. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.

Unit I Prose

1. My Greatest Olympic Prize – Jesse Owens

2. Voluntary Poverty – Mahatma Gandhi

3. Helen Kellar – Ishbel Ross

Unit II Prose

1. Coffee Worries – R.K. Narayan

2. A Night Among the Pines – R.L. Stevenson

3. Spoon Feeding – W.R.Inge

Unit III Poetry

1. Daffodils - Wordsworth

2. Mending Wall – Robert Frost

3. A River – A.K.Ramanujan

Unit IV Grammar

Adjective, Preposition, Conjunction and Interjection.

Unit V Composition

Formal Letters, Resume Writing, Precise Writing and General Essays.

Allocation of Working Hours per week

Prose	-	3 hours
Poetry	-	1 hour
Grammar & Composition	-	2 hours
Total	-	6 hours

COURSE CODE: 7BMA2C1
CORE COURSE-III–ANALYTICAL GEOMETRY OF 3D AND VECTOR CALCULUS

Unit – I

Preliminaries – Direction cosines – Direction – ratios – angle between the lines – Various forms of equation of a plane – angle between two planes – Angle bisectors of two planes – Equation of a plane through the line of intersection of two planes – Straight lines – Equation of a straight line in various forms – problems.

Unit – II

A Plane and a line – Coplanar lines, Skew lines – S.D. between two Skew lines, Spheres Equation of a Sphere – Tangent line and Tangent plane – Section of a Sphere.

Unit – III

Cone – Definition – Equation of the Cone in various forms – Equation of a right circular Cone – Cylinder – Definition – Equation of a right circular cylinder – simple problems.

Unit – IV

Vector Calculus – Vector Differentiation– Vector Algebra – Differentiation of vectors - Gradient – Divergence and Curl – Solenoidal – irrotational – Harmonic Vector.

Unit – V

Line and Surface Integrals – Line Integrals – Surface Integrals - Theorems of GREEN, GAUSS and STOKE'S(Statements only) problems.

Text Books:

- Analytical Geometry of 3D and Vector Calculus by Dr. S.Arumugam and A.ThangaPandi Isaac, New Gamma Publishing House, Palayamkottai,2014
- Analytical Geometry 3D and Vector Calculus by Dr. M.K.Venkataraman and Mrs. Manorama Sridhar, National Publishing Company, Chennai, 2001.

Unit I	Chapter 1,Chapter 2, Chapter 3, Section 3.1 of (1)
Unit II	Chapter 3 section 3.2,Chapter 4 sections 4.1 to 4.3 of (1)
Unit III	Chapter 4 sections 4.13 to 4.16, 4.18 to 4.21 of (2)
Unit IV	Chapter 5 of (1)
Unit V	Chapter 7 of (1)

Books for Reference:

- A text book of Analytical Geometry Part II – Three Dimensions by T.K.ManicavachagomPillay and T.Natarajan, S.Viswanathan (Printers & Publishers) Pvt. Ltd. 2001
- Vector Calculus by S.Narayanan and T.K.ManicavachagomPillay, S.Viswanathan (Printers & Publishers) Pvt. Ltd. 1997

COURSE CODE: 7BMA2C2
CORE COURSE - IV – SEQUENCES AND SERIES

Unit – I

Sequences – bounded sequences – Monotonic sequences – Convergent sequences – Divergent and Oscillating sequences – The algebra of limits.

Unit – II

Behaviour of monotonic sequences – Some Theorems on limits – Subsequences – limit points –Cauchy sequences – The upper and lower limits of a sequence.

Unit – III

Series of positive terms –infinite series – Comparison test –Kummer's test – Root test and Condensation test – Integral test

Unit – IV

Series of arbitrary terms – Alternating series – Absolute convergence – Tests for convergence of series of arbitrary terms

Unit – V

Rearrangement (Derangement) of Series – Multiplication of series.

Text Book:

2. Sequences and Series by Dr. S.Arumugam and Prof. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, December 2015.

Unit I	Chapter 3sections 3.1 to 3.6
Unit II	Chapter 3 sections 3.7 to 3.12
Unit III	Chapter 4 sections 4.1 to 4.5
Unit IV	Chapter 5 sections 5.1 to 5.3
Unit V	Chapter 5 sections 5.4 & 5.5

Books for Reference:

1. Algebra Volume-I by T.K.Manicavachagom Pillay, T.Natarajan and K.S.Ganapathy.

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COURSE CODE: 7BPHA2

ALLIED COURSE II – ELECTRICITY, ELECTRONICS, ATOMIC AND NUCLEAR PHYSICS (THEORY)

Unit I CURRENT ELECTRICITY

Ohm's law – Law of resistance in series and parallel – Specific resistance – capacitors – capacitors in serial and parallel – Kirchoff's laws – Wheatstone's network – condition for balance.Carey-Foster's bridge – measurement of resistance – measurement of specific resistance – determination of temperature coefficient of resistance – Potentiometer – calibration of Voltmeter.

Unit II ELECTROMAGNETISM

Electromagnetic Induction – Faraday's laws – Lenz law – Self Inductance – Mutual Inductance – Coefficient of Coupling.A.C. Circuits – Mean value – RMS value – Peak value – LCR in series circuit – impedance – resonant frequency – sharpness of resonance.

Unit III ATOMIC AND NUCLEAR PHYSICS

Bohr's atom model – radius energy – Atomic excitation – Ionization potential – Frank and Hertz Method – Nucleus – Nuclear properties – Mass defect – Binding energy.

Radio isotopes – Uses of radio isotopes – Nuclear fusion and Nuclear fission – X-rays – Production – properties –Derivation of Bragg's law – uses in industrial and medical fields.

Unit IV ANALOG ELECTRONICS

Semiconductor – PN junction diode – Bridge rectifier – Zener diode – Regulated power supply.

Transistor – Working of a transistor – CE Configuration – current gain relationship between α and β – Transistor Characteristics – CE Configuration only – CE amplifier – feedback – Hartley oscillator – Colpitt's oscillator.

Unit V DIGITAL ELECTRONICS

Number system – Decimal – Binary – Octal and Hexadecimal system – Double Dabble method – Binary addition, subtraction and multiplication – conversion of one number system to another number system.Logic gates – OR, AND, NOT, XOR, NAND and NOR gates – truth tables – Half adder and Full adder – Laws and theorems of Boolean's algebra – De Morgan's theorems.

Books for Study and Reference:

1. Electricity and Magnetism – R. Murugesan, S. chand & co, 2001.
2. Modern Physics – R. Murugesan, S. chand & co, 1998.
3. Basic Electronics – B.L. Theraja, S. chand & co, 2003.

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PART-IV (3)

COURSE CODE: 7BES2

I YEAR – II SEMESTER

COURSE – ENVIRONMENTAL STUDIES

Unit I The Multidisciplinary Nature of Environmental Studies

Definition, Scope and importance

Need for public awareness

Unit II Natural Resources

Renewable and non-renewable resources

G) FOREST RESOURCES: USE AND OVER-EXPLOITATION, DEFORESTATION, CASE STUDIES, TIMBER EXTRACTION, MINING, DAMS AND THEIR EFFECT ON FORESTS AND TRIBAL PEOPLE
H) WATER RESOURCES: USE AND OVER-UTILIZATION OF SURFACE AND GROUND WATER, FLOODS, DROUGHT, CONFLICTS OVER WATER, DAMS- BENEFITS AND PROBLEMS.
I) MINERAL RESOURCES: USE AND EXPLOITATION, EXPERIMENTAL EFFECTS OF EXTRACTING AND USING MINERAL RESOURCES, CASE STUDIES.
J) FOOD RESOURCES: WORLD FOOD PROBLEMS, CHANGES CAUSED BY AGRICULTURE AND OVERGRAZING, EFFECTS OF MODERN AGRICULTURE, FERTILIZER-PESTICIDE PROBLEMS, WATER LOGGING, SALINITY, CASE STUDIES.
K) ENERGY RESOURCES: GROWING ENERGY NEEDS, RENEWABLE AND NON-RENEWABLE ENERGY SOURCES, USE OF ALTERNATE ENERGY RESOURCES, CASE STUDIES.
L) LAND RESOURCES: LAND AS A RESOURCE, LAND DEGRADATION, MAIN INDUCED LANDSIDES, SOIL-EROSION AND DESERTIFICATION
    - ROLE OF INDIVIDUAL IN CONSERVATION OF NATURAL RESOURCES
    - EQUITABLE USE OF RESOURCES FOR SUSTAINABLE LIFESTYLE

UNIT III ECOSYSTEMS, BIO-DIVERSITY AND ITS CONSERVATION

ECOSYSTEMS

- ✓ CONCEPT OF AN ECOSYSTEM
- ✓ STRUCTURE AND FUNCTION OF AN ECOSYSTEM
- ✓ ENERGY FLOW IN THE ECOSYSTEM
- ✓ FOOD CHAINS, FOOD WEBS AND ECOLOGICAL PYRAMIDS

Biodiversity and its conservation

- ✓ INTRODUCTION- DEFINITION: GENETIC, SPECIES AND ECOSYSTEM DIVERSITY
- ✓ BIO-GEOGRAPHICAL CLASSIFICATION OF INDIA
- ✓ VALUE OF BIODIVERSITY: CONSUMPTIVE USE, PRODUCTIVE USE, SOCIAL ETHICAL, AESTHETIC AND OPTION VALUES.
- ✓ BIODIVERSITY AT GLOBAL, NATIONAL AND LOCAL LEVELS
- ✓ INDIA AS A MEGA-DIVERSITY NATION
- ✓ HOT SPOTS OF BIODIVERSITY
- ✓ THREATS TO BIODIVERSITY: HABITAT LOSS, POACHING OF WILDLIFE, MAN-WILDLIFE CONFLICTS
- ✓ ENDANGERED AND ENDEMIC SPECIES OF INDIA
- ✓ CONSERVATION OF BIODIVERSITY IN-SITU AND EX-SITU CONSERVATION OF BIODIVERSITY

Unit IV Environmental Pollution

- CAUSES, EFFECTS AND CONTROL MEASURES OF:-
    H. AIR POLLUTION
    I. WATER POLLUTION
    J. SOIL POLLUTION
    K. MARINE POLLUTION
    L. NOISE POLLUTION
    M. THERMAL POLLUTION
    N. NUCLEAR HAZARDS

Unit V Field Work

- ➢ VISIT TO A LOCAL AREA TO DOCUMENT ENVIRONMENTAL ASSETS–RIVER/ FOREST/ GRASSLAND/ HILL/ MOUNTAIN
- ➢ VISIT TO A LOCAL POLLUTED SITE-URBAN/RURAL/INDUSTRIAL/AGRICULTURAL
- ➢ STUDY OF COMMON PLANTS, INSECTS, BIRDS
- ➢ STUDY OF SIMPLE ECOSYSTEM-POND, RIVER, HILL SLOPES, ETC

Books for Reference:

- AGARWAL, K.C.2001 ENVIRONMENTAL BIOLOGY, NIDI PUBL.LTD., BIKANER
- BHARUCHA ERACH THE BIODIVERSITY OF INDIA, MAPIN PUBLISHING PVT. LTD, AHAMEDABAD-380013,INDIA, EMAIL: MAPIN@CENT.NET®
- BURNER R.C. 1989, HAZARDOUS WASTE INCLINERATION MCGRAW HILL INC.480P
- CLARK R.S. MARINE POLLUTION, CLANDERSON PRESS OXFORD(TB)
- CUNNIGHAM, W.P.COOPER, T.H.GORHANI, E& HEPWORTH, M.T 2001 ENVIRONMENTAL ENCYLOPEDIA, JAICO PUBL. HOUSE, MUMBAI, 1196P.
- DE.A.K.ENVIRONMENTAL CHEMISTRY, WILEY EASTERN LTD.
- DOWN TO EARTH, CENTRE FOR SCIENCE AND ENVIRONMENT®
- GLEICK H.P. 1993, WATER IN CRISIS, PACIFIC INSTUTUE FOR STUDIES IN DEV, ENVIRONMENT & SECURITY, STOCKHOLM ENV. INSTITUTE,OXFORD UNIV.PRESS,473P

- HAWLINKS R.E., ENCYCLOPEDIA OF INDIAN NATURAL HISTORY, BOMBAY NATURAL HISTORY SOCIETY, BOMBAY (R)
- HEYWOOD, V.H & WATSON, R.T.1995, GLOBAL BIODIVERSITY ASSESMENT, CAMBRIDGE UNIV.PRESS, 114OP
- JADHAV, H&BHOSALE V.M.1995, ENVIRONMENTAL PROTECTION AND LAWS, HIMALAYA PUB; HOUSE, DELHI 284P
- MCKINNEY, M.L & SCHOCH, RM.1996 ENVIRONMENTAL SCIENCE SYSTEMS& SOLUTIONS, WEB ENHANCED EDITION 639P
- MHASKAR A.K.MATTER HAZARDOUS, TECHNO-SCIENCE PUBLICATIONS(TB)
- MILLER T.G. JR.ENVIRONMENTAL SCIENCE WADSWORTH PUBLICING CO(TB)
- ODURM, E.P.1971 FUDAMENTALOF ECOLOGY, W.B.SAUNDERS CO. USA 584P
- RAO M.N & DATTA, A.K., 1987, TEHCHNO-SCIENCE, WASTE WATER TREATMENT. OXFORD& IBH PUBL, CO.PVT. LTD.,345P
- SHARMA B.K. 2001, ENVIRONEMTAL CHEMISTRY GOEL PUBL,HOUSE,MEERUT
- SURVEY OF THE ENVIRONMENTAL THE HINDU(M)
- TOWNSEND C, HARPER J, AND MICHAEL DEGON,ESSENTIAL OF ECOLOGY,BLAKEWELL SCIENCE (TB)
- TRIVEDI R.K., HAND BOOK OF ENVIRONMENTAL LAWS, RULES, GUIDELINES, COMPLIANCES AND STANDARDS, VOL I AND II, ENVIRO MEIDA ®
- TRIVEDI R.K. & P.K.GOEL INTRODUCTION TO AIR POLLUTION,TECHNO-SCIENCE PUBLICATIONS (TB)
- WANGER K.D, 1998 ENVIRONMENTAL MANAGEMENT W.B. ENVIRONMENTAL MANAGEMENT. W.B.SAUNDERS CO. PHILADELPHIA, USA.499P

SEMESTER-III

S.No.	Class	Semester	Title of the Course	Course Code
1.	II B.Sc Maths	III	Tamil-III Kappiyamum Puthinamu	731T
			English – III English Of Enrichment-III	732E
			Core–V-Abstract Algebra	7BMA3C1
			Core–VI-Differential Equations and its Applications	7BMA3C2
			Allied – III- Programming in C	7BCEA3
			Non-major Elective – II- Effective Employability skills	7NME3C
			Skill Based Subjects– I- Competitive Examination skills	7SBS3A1
			Extension Activities	7BEA3

இரண்டாம் ஆண்டு - மூன்றாம் பருவம் -

பாடக்குறியீட்டு எண்: 731வு

பொதுத் தமிழ் தாள் - 3 - காப்பியமும் புதினமும்

அலகு 1

7. சிலப்பதிகாரம் - மங்கல வாழ்த்துப்பாடல்.
8. மணிமேகலை - பாத்திர மரபு கூறிய காதை.
9. கம்பராமாயணம் - சேது பந்தனப்படலம்.
10. பெரியபுராணம் - கோச்செங்கட்சோழ நாயனார் புராணம்.
11. தேம்பாவணி - கோலியாத் படலம்.
12. சீறாப்புராணம் - மானுக்குப் பிணை நின்ற படலம்

அலகு 2 - புதினம்

வேரில் பழுத்தபலா - சு.சமுத்திரம்.

அலகு 3 - இலக்கணம்

யாப்பும் அணியும்

செய்யுள் உறுப்புகள், எழுத்து, அசை, சீர், தளை, அடி, தொடை ஆகியன பற்றிய விளக்கம். பாவகை, வெண்பா, ஆசிரியப்பா ஆகியவற்றின் பொது இலக்கணங்கள்.

அணி, வகைகள், உவமை, உருவகம், வேற்றுமை, பின்வருநிலை, சிலேடை அணிகள்.

அலகு 4 - இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு.

அலகு 5 - படைப்பாற்றல்

மரபுக் கவிதை - புதுக்கவிதை படைத்தல்.

II YEAR – III SEMESTER
COURSE CODE: 732E

COURSE – III - ENGLISH FOR ENRICHMENT – III

Texts Prescribed

1. *Six Short Stories*, Ed. by the Board of Editors, Harrows Publications, Chennai.
2. *One Act Plays*, Ed. by the Board of Editors, Harrows Publications, Chennai.
3. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.
4. *English for Communication*, Ed. by the Board of Editors, Harrows Publications, Chennai.

Unit I Short Stories

1. Two Old Men – Leo Tolstoy
2. The Diamond Necklace – Guy de Maupassant
3. The Verger – Somerset Maugham
4. The Postmaster – Rabindranath Tagore.

Unit II One Act Plays

1. Riders to the Sea – J.M.Synge
2. The Rising of the Moon – Lady Gregory

Unit III One Act Plays

1. A Kind of Justice – Margaret Wood
2. The Refugee – Asif Currimbhoy

Unit IV Grammar

Tenses, Voices, Degrees of Comparison

Unit V Composition

Agenda, Minutes, Notice, Descriptive Writing

Allocation of Working Hours per week

Short Stories - 2 hours

One Act Plays - 2 hours

Grammar & - 2 hours

Composition ----------

Total - 6 hours

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II YEAR - III SEMESTER

COURSE CODE: 7BMA3C1

CORE COURSE - V – ABSTRACT ALGEBRA

Unit – I

Groups : Definition and Examples – Elementary Properties of a Group – Equivalent Definitions of a Group – Permutation Groups.

Unit – II

Subgroups – Cyclic Groups – Order of an Element – Cosets and Lagrange's Theorem.

Unit – III

Normal Subgroups and Quotient Groups – Isomorphism – Homomorphism.

Unit – IV

Rings : Definitions and Examples – Elementary properties of rings – Isomorphism – Types of rings – Characteristic of a ring – Subrings – Ideals – Quotient rings.

Unit – V

Maximal and Prime Ideals – Homomorphism of rings – Field of quotients of an Integral domain – Unique factorization domain – Euclidean domain.

Text Book:

2. S.Arumugam and A.ThangapandiIssac, Modern Algebra, SciTech Publications Pvt. Ltd., Chennai, 2003.

Unit I	Chapter 3sections 3.1 to 3.4
Unit II	Chapter 3 sections 3.5 to 3.8
Unit III	Chapter 3 sections 3.9 to 3.11
Unit IV	Chapter 4 sections 4.1 to 4.8
Unit V	Chapter 4 sections 4.9 to 4.11, 4.13 & 4.14

Books for Reference:

- N.Herstein, Topics in Algebra, John Wiley & Sons, Student 2nd edition, 1975.
- Vijay, K.Khanna and S.K.Bhambri, A course in Abstract Algebra, Vikas Publishing House Pvt. Ltd.
- Dr. R.Balakrishnan and N.Ramabadran, A text book of Modern Algebra, Vikas Publishing House Pvt. Ltd, New Delhi, 1994.

II YEAR - III SEMESTER

COURSE CODE: 7BMA3C2

CORE COURSE - VI – DIFFERENTIAL EQUATIONS AND ITS APPLICATIONS

Unit – I

Exact Differential Equations – Conditions for equation to be exact –Working rule for solving it – problems – Equations of the first order but of higher degree – Equations solvable for p, x, y, clairaut's form – Equations that do not contain (i) x explicitly (ii) y explicitly – Equations homogenous in x and y–Linear Equation with constant coefficients.

Unit – II

Linear equations with variable coefficients – Equations reducible to the linear equations – Simultaneous Differential Equations – First order and first degree – Simultaneous linear Differential Equations.

Unit – III

Linear equations of the second order – Complete Solution given a known integral – Reduction to Normal form – Change of the independent variable – Variation of parameters – Total Differential Equations – Necessary and Sufficient condition of integrability of Pdx + Qdy + Rdz = 0, Rule for solving it.

Unit – IV

Partial Differential Equations of the First oder – classifications of integrals – Derivations of Partial Differential Equations – Special methods – Standard forms – Charpit's method.

Unit – V

Flow of water from an Orifice – Falling bodies and other rate problems – Brachistochrone Problem – Tautochronous property of the Cycloid – Trajectories.

Text Book:

1. Differential Equations and its Applications by S.Narayanan&T.K.ManickavachagomPillay, S.Viswanathan (Printers& Publishers) Pvt. Ltd., 2015.

Unit I	Chapter 2 –sections 6.1 to 6.3; Chapter 4; Chapter5 –sections 1, 2, 3, 4
Unit II	Chapter 5–sections 5, 6; Chapter 6 – sections 1to 6
Unit III	Chapter 8–sections 1 to 4; Chapter 11
Unit IV	Chapter 12 – sections 1, 2, 3, 4, 5.1 to 5.4 & Section 6
Unit V	Chapter 3 – sections 2, 3, 4, 5; Chapter 10 – sections 1.1 – 1.3

Book for Reference:

1. Differential Equations and its Applications by Dr. S.Arumugam and Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, Edition, 2014.

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II YEAR – III SEMESTER
COURSE CODE: 7BCEA3
ALLIED COURSE - III – PROGRAMMING IN C (THEORY & LAB)

Unit I

Overview of C: History of C – Importance of C – Basic Structure of C Programs – Programming Style – Character Set – C Tokens – Keywords and Identifiers – Constants, Variables and Data Types – Declaration of Variables – Defining Symbolic Constants – Declaring a variable as a constant – overflow and underflow of data – **Operators and Expressions:** Arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators – Arithmetic Expressions- Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical functions.

Unit II

Managing I/O Operations: Reading and Writing a Character – Formatted Input, Output – **Decision Making & Branching:** if statement - if else statement - nesting of if else statements - else if ladder – switch statement – the ?: operator – goto statement – the while statement – do statement – the for statement – jumps in loops.

Unit III

Arrays: One-Dimensional Arrays – Declaration, Initialization – Two-Dimensional Arrays – Multi-dimensional Arrays – Dynamic Arrays – Initialization. **Strings:** Declaration, Initialization of string variables – reading and writing strings – string handling functions.

Unit IV

User-defined functions: need – multi-function programs – elements of user defined functions – definition – return values and their types – function calls, declaration, category – all types of arguments and return values – nesting of functions – recursion – passing arrays, strings to functions – scope visibility and life time of variables. **Structures and Unions:** Defining a structure – declaring a structure variable – accessing structure members – initialization – copying and comparing – operation on individual members – array of structures – arrays within structures – structures within structures – structures and functions –unions – size of structures – bit fields.

Unit V

Pointers: the address of a variable – declaring, initialization of pointer variables – accessing a variable through its pointer – chain of pointers – pointer increments and scale factors – pointers and character strings – pointers as function arguments – pointers and structures. **Files**: Defining, opening, closing a file – IO Operations on files – Error handling during IO operations – command line arguments.

Text Book:

1. Programming in ANSI C, E.Balagurusamy, 6th Edition, Tata McGraw Hill Publishing Company, 2012.

UNIT I: Chapters 1 (Except 1.3-1.7, 1.10-1.12), 2 (Except 2.9, 2.13), 3 (Except 3.13)
UNIT II: Chapters 4 – 6
UNIT III: Chapters 7, 8 (Except 8.5, 8.6, 8.7, 8.9, 8.10)
UNIT IV: Chapters 9 (Except 9.20), 10
UNIT V: Chapters 11 (Except 11.8, 11.10, 11.12, 11.14, 11.15, 11.17), 12 (Except 12.6)

Books for Reference:

1. Programming with C, Schaum's Outline Series, Gottfried, Tata McGraw Hill, 2006
2. Programming with ANSI and Turbo C , Ashok N.Kamthane , Pearson Education, 2006
3. H. Schildt, C: The Complete Reference, 4th Edition, TMH Edition, 2000.
4. Kanetkar Y., Let us C, BPB Pub., New Delhi, 1999.

PART IV (I) – (C)
NON – MAJOR ELECTIVE – COURSE II

II YEAR – III SEMESTER

COURSE CODE: 7NME3C

COURSE II – EFFECTIVE EMPLOYABILITY SKILLS

Unit I Curriculum Vitae & Facing the Interview

Applying for jobs, Preparing the curriculum Different formats vita, Facing the interviews, Frequently Asked Questions (FAQs).

Unit II Interpersonal Communication

One to one Communication

One to group Communication

Unit III Group Discussion

Listening, Ice-breaking, Leader – Member Moderates his role responsibility, Conflict, Management, Consensus, Steps involved

Unit IV Team Work

Qualities Selection constant & comfort, Orientation Review Tea, Review of the team work

Unit V Motivation

Leadership & Motivation, Behaviour, Motives Managerial Skills

Books for Reference:

- E.H.McGrath, S.J., "Basic Managerial Skills For All", Prentice-Hall of India Private Limited, New Delhi 110 001. ISBN-0-87692-498-4.
- D.K.Sarma, "You & Your Career", Wheeler Publishing, 755, Anna Salai, Chennai 600002. ISBN 81-7544-170-4. -1999
- Indian Jaycees, "Skills" Series, published by Indian Jaycees.
- S.P.Sachdeva, "Interview In A Nutshell", Sudha Publications (P) Ltd., B-5, Prabhat Kiran, Rajendra Place, New Delhi 110 008.

PART IV (2) – SKILL BASED SUBJECTS (SBS)
GROUP I – SET I
II YEAR – III SEMESTER
COURSE CODE: 7SBS3A1
COURSE I – COMPETITIVE EXAMINATION SKILLS

Objectives:

- To build a sense of awareness among students through proper guidance about various competitive examinations in order to motivate students for prospective career in government and corporate sector.
- To intensively guide students for competitive examinations like TNPSC, UPSC, SSC, RRB, IBPS etc.

Unit I

Public Service Commission: Tamil Nadu Public Service Commission (TNPSC) and its role -History of TNPSC - Constitutional Provisions on the Formation, Functions, and Powers of Public Service Commissions for the Union and for the States - TNPSC and its rules of Procedure.
Eligibility and examination pattern: TNPSC - Union Public Service Commission (UPSC) - Staff Selection Commission (SSC) - Railway Recruitment Board (RRB) – Institute of Banking Personnel Selection (IBPS).

Unit II

Intelligence, creativity & application, testing & assessment - Types, verbal abilities & fluency

Unit III

Numerical ability:
Numbers, simplification, time and work, percentage, fraction, speed and distance, simple and compound interest, ratio and proportion

Unit IV

Spatial and perceptual abilities, situation reaction test

Unit V

Memory and inductive reasoning, Logical reasoning, Coding and Decoding, Direction Test, Syllogism

Books for Reference:

1. Ajay rai, “intelligence tests”, sterling paperbacks, published by sterling publishers pvt. Ltd., l-10, green park extension, new delhi 110 016., 2001
2. Competition success review magazines.

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PART V

II YEAR – III SEMESTER

COURSE CODE: 7BEA3

PART – V – EXTENSION ACTIVITIES

Extension Activities will be organized for 2 days in the Third Semester. The programme may be organized in any Saturday and Sunday.

A meeting of all the staff of the College (Teaching, Administrative and Technical Staff) be conducted before departing to the camp in which each and every aspect like Programmes to carried out, accommodation, food, medical aid, transport facilities, etc., should be thoroughly discussed.

One credit will be allotted for this Extension Activities. The marks allotted for each camp will be 100. Each student participating in the camp will be evaluated internally for 100 marks. The criteria for evaluation of Extension Activities will be as follows:

S. No.	Criteria	Maximum Marks
1.	Interaction with villagers	10
2.	Participation / Attitude towards work	10
3.	Participation in interaction and discussion	10
4.	Knowledge of problems / issues	10
5.	Organising & decision making ability	20
6.	Expression: a) Cultural programmes	10
	b) Report Writing	20
7.	Ability to adjust and work in a team	10
	Total	**100**

SEMESTER-IV

S.No.	Class	Semester	Title of the Course	Course Code
1.	II B.Sc Maths	IV	Tamil – IV Pandaya lakiyamum Nadahamum	741T
			English – IV English Of Enrichment-IV	742E
			Core–VII-Transform Techniques	7BMA4C1
			Core–VIII-Linear Algebra	7BMA4C2
			Allied – IV- Programming in C++	7BCEA4
			Allied Practical – II- Programming in c and C++ Lab	7BCEAP1
			Skill Based Subjects – II- Emergency and Medical Lab Skills	7SBS4B2
			Value Education-Manavalakalai Yoga	7BMY

இரண்டாம் ஆண்டு - நான்காம் பருவம்
பாடக்குறியீட்டு எண்: 741வு
பொதுத்தமிழ் தாள் - 4 - பண்டைய இலக்கியமும் நாடகமும்

அலகு 1

அ. பத்துப்பாட்டு - சிறுபாணாற்றுப்படை

ஆ. நற்றிணை - வெள்ளிவீதியார் பாடல் எண்கள்: 70,335,348.

இ. குறுந்தொகை -

பாடல் எண்.40 - யாயும் ஞாயும் எனத் தொடங்கும் பாடல் (குறிஞ்சி) செம்புலப்பெயல் நீரார்

பாடல் எண்.43 - செல்வார் அல்லர் எனத் தொடங்கும் பாடல் (பாலை) ஔவையார்

பாடல் எண்.49 - அணிற் பல்லன்ன எனத் தொடங்கும் பாடல் (நெய்தல்) அம்மூவனார்

பாடல் எண்.61 - தச்சன் செய்த எனத் தொடங்கும் பாடல் (மருதம்) தும்பிசேர்கீரன்

பாடல் எண்.110 - வாரார் ஆயினும் எனத் தொடங்கும் பாடல் (முல்லை) கிள்ளிமங்கலக்கிழார்

ஈ. கலித்தொகை - பாடல் எண்.105. அரைசுபட எனத் தொடங்கும் பாடல் (முல்லை) சோழன் நல்லுருத்திரன்.

உ. அகநானூறு - திருமணச் சடங்குப் பாடல்கள் 2 (86,128)

ஊ. புறநானூறு - பிசிராந்தையார் பாடல்கள் (பாடல் எண்கள். 67,184)

எ. திருக்குறள் - பெரியாரைத் துணைக்கோடல், சிற்றினம் சேராமை ஆகிய இரு அதிகாரங்கள்

ஏ. நாலடியார் -

பாடல் எண்.135 - கல்வி கரையில எனத் தொடங்கும் பாடல்.

பாடல் எண்.215 - கோட்டுப் பூப்போல எனத் தொடங்கும் பாடல்.

பாடல் எண்.248 - நல் நிலைக்கண் தன்னை நிறுப்பானும் எனத் தொடங்கும் பாடல்.

ஐ. பழமொழி நானூறு

பாடல் எண்.46 - நெடியாது எனத் தொடங்கும் பாடல்.

பாடல் எண்.47 - தோற்றத்தாலர் எனத் தொடங்கும் பாடல்.

பாடல் எண்.48 - மிக்குடையார் ஆகி எனத் தொடங்கும் பாடல்.

அலகு 2 - நாடகம்- நீதிதேவன் மயக்கம் - அறிஞர் அண்ணா.

அலகு 3 - இலக்கணம்

அகப்பொருள், (7 திணைகள்), புறப்பொருள் (12 திணைகள்), களவும், கற்பும், உள்ளுறை, இறைச்சி (ஆ.சிவலிங்கனார், தமிழ் இலக்கண உணர்வுகள், கபிலன் பதிப்பகம், புதுச்சேரி.

அலகு 4 - இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு.

அலகு 5 - படைப்பாற்றல்

ஓரங்க நாடகம் படைத்தல்.

II YEAR – IV SEMESTER
COURSE CODE: 742E
COURSE – IV- ENGLISH FOR ENRICHMENT – IV

Texts Prescribed

1. *Pygmalion* – G.B. Shaw
2. *Swami and Friends* – R.K. Narayan
3. *Tales from Shakespeare* Ed. by the Board of Editors, Harrows Publications, Chennai.
4. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.

Unit I Drama

Pygmalion – G.B. Shaw

Unit II – Fiction

Swami and Friends – R.K.Narayan

Unit III – Tales from Shakespeare

1.The Merchant of Venice
2. Romeo and Juliet
3. The Winter's Tale

Unit IV - Grammar

1. Concord
2. Question Tag
3. Kinds of Sentences
4. Direct and Indirect speeches

Unit V - Composition

1. Expansion of Proverbs
2. Group Discussion
3. Conversation (Apologizing, Requesting, Thanking)

Allocation of Working Hours per week

Drama	-	2 hours
Fiction	-	2 hours
Grammar & Composition	-	2 hours
Total	**-**	**6 hours**

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II YEAR - IV SEMESTER
COURSE CODE: 7BMA4C1
CORE COURSE - VII – TRANSFORM TECHNIQUES

Unit – I

Laplace Transform – Definition – Laplace Transform of Standard functions – Elementary Theorems – Laplace Transform of periodic functions – problems.

Unit – II

Inverse Laplace Transforms – Standard formulae – Basic Theorems – Solving Ordinary Differential Equations with constant coefficients, variable coefficients and simultaneous linear equations using Laplace Transform.

Unit – III

Fourier Series – Definition – To find the Fourier coefficients of Periodic functions of period 2π - even and odd functions – Half range series – problems.

Unit – IV

Fourier Transforms – Complex form of Fourier Integral Formula – Fourier Integral theorem – properties of Fourier Transform – Fourier sine and cosine Transforms – properties – Parsivals Identity - Problems

Unit – V

Z Transforms – Definition – Proprieties – Z Transforms of some basic functions – Problems – Inverse Z Transforms – Methods to find the inverse Z Transform – Use of Z – Transforms to solve finite Difference Equations – problems.

Text Books:

1. Calculus Volume III by S.Narayanan and T.K.ManicavachagomPillay, S.Viswanathan (Printers & Publishers) Pvt. Ltd., 2014.
2. Engineering Mathematics 3rd Edition by T.Veerarajan, Tata McGraw Hill Publishing Company Limited, New Delhi.

Unit I	Chapter 5sections 1 to 5 of (1)
Unit II	Chapter 5 sections 6 to 10 of (1)
Unit III	Chapter 6 sections 1 to 4, 5.1,5.2 of (1)
Unit IV	Chapter 6 sections 9.1 to 9.3, 10, 11.1, 11.2, 12, 13, 14, 14.1, 15 of (1)
Unit V	Chapter 7 sections 7.1 to 7.5 of (2)

Book for Reference:

1. Transforms and Partial Differential Equations by Dr.A.Singaravelu, Meenakshi Agency, Chennai

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II YEAR - IV SEMESTER

COURSE CODE: 7BMA4C2

CORE COURSE - VIII – LINEAR ALGEBRA

Unit – I

Vector Spaces – Definition and examples – Subspaces – Linear Transformation – Span of a set.

Unit – II

Linear Independence – Basis and Dimension – Rank and Nullity.

Unit – III

Matrix of a Linear Transformation – Inner Product Space – Definition and examples – Orthogonality – Orthogonal complement.

Unit – IV

Algebra of Matrices – Types of Matrices – The inverse of a matrix – Elementary Transformations – Rank of a Matrix– Simultaneous linear equations.

Unit – V

Characteristic Equation and Cayley – Hamilton theorem Eigen values and Eigen Vectors, Bilinear forms – Quadratic forms.

Text Book:

Dr. S.Arumugam and Mr. A.ThangapandiIssac, Modern Algebra, SciTech Publications (India) Pvt. Ltd., Chennai, 2003.

Unit I	Chapter 5sections 5.1 to 5.4
Unit II	Chapter 5 sections 5.5 to 5.7
Unit III	Chapter 5 sections 5.8, Chapter VI sections 6.1 to 6.3
Unit IV	Chapter 7 sections 7.1 to 7.6
Unit V	Chapter 7 sections 7.7, 7.8 Chapter VIII sections 8.1, 8.2

Books for Reference:

- S.Lang, Introduction to Linear Algebra 2nd Edition, Springer 2005.
- AR.Vasistha, Modern Algebra, Krishna Prakashan Publication.

II YEAR – III SEMESTER

COURSE CODE: 7BCEA4

ALLIED COURSE IV – PROGRAMMING IN C++ (THEORY & LAB)

Unit I

Software Crisis – Software Evolution – Basic Concepts of Object-Oriented Programming – Benefits of OOP – Object-Oriented Languages - Applications of OOP – Application of C++ - Structure of a C++ Program – Tokens – Keywords – Identifiers – Basic Data Types – Userdefined Data types – Derived data types – Symbolic constants – Type compatibility – Declaration of variables – Dynamic initialization of variables –Reference variables – Operators in C++ - Manipulators – Type cast operator – Expressions and their types-Implicit conversions – Control structures – The main function – Function prototyping – inline functions – Function overloading.

Unit II

Specifying a class – Defining member functions – Making an outside function inline – Nesting of member functions – Private member functions – Array within a class – Memory allocation for objects – Static data members – Static member functions – Array of objects - Objects as function arguments – Friendly functions – Returning objects – Constant member functions – Constructors – Parameterized constructor – Multiple constructors in a class – Constructors with default arguments – Dynamic initialization of objects – Copy constructor – Destructors.

Unit III

Defining operator overloading – Overloading unary operators – Overloading binary operators – Overloading binary operators using friend function – Rules for overloading operators - Defining derived classes – Single inheritance – Making a private member inheritable – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance - Virtual base classes – Constructors in derived class – Member classes: Nesting of classes.

Unit IV

Pointer to objects – this pointer – Pointers to derived classes – Virtual functions – Pure virtual functions – C++ Stream classes – Unformatted I/O operations – Managing outputWith manipulators.

Unit V

Classes of file stream operations – Opening and Closing files – Detecting end of file – More about open() function – File modes, File pointers and their manipulation – Sequential input and output operations – Command-line arguments- Templates: class templates and function templates.

Text Book:

1. Object Oriented Programming with C++**,** E. Balagurusamy, Sixth Edition-2013, McGraw Hill Education (India) Private Limited, New Delhi.

UNIT I – Chapter 1 (Except 1.3, 1.4),
Chapter 2 (Only 2.6),
Chapter 3 (Except 3.20, 3.21, 3.22), Chapter 4

UNIT II – Chapter 5 (Except 5.18, 5.19), Chapter 6 (Except 6.8, 6.9, 6.10)

UNIT III – Chapter 7, Chapter 8

UNIT IV – Chapter 9, Chapter 10

UNIT V – Chapter 11 (Except 11.8), Chapter 12 (Only 12.2, 12.3 and 12.4)

Books for Reference:

1. C++ - The Complete Reference, Herbert Schildt, TMH, 1998.
2. C++ How to Program, Paul Deitel, Harvey Deitel, PHI, Ninth edition (2014).
3. Ashok N.Kamthane, Object Oriented Programming with ANSI & Turbo C ++,Pearson Education, 2006.
4. Object-Oriented Programming With C++, Poornachandra Sarang, 2nd Edition, PHI Learning Private Limited, New Delhi, 2009.
5. Object-Oriented Programming Using C++, Alok Kumar Jagadev, Amiya Kumar Rath and Satchidananda Dehuri, Prentice-Hall of India Private Limited, New Delhi, 2007.

COURSE CODE: 7BCEAP2

ALLIED PRACTICAL – II - PROGRAMMING IN C AND C++ LAB

1. Write a C Program to find the sum of digits.
2. Write a C Program to check whether a given number is Armstrong or not.
3. Write a C Program to check whether a given number is Prime or not.
4. Write a C Program to generate the Fibonacci series.
5. Write a C Program to display the given number is Adam number or not.
6. Write a C Program to print reverse of the given number and string.
7. Write a C Program to find minimum and maximum of 'n' numbers using array.
8. Write a C Program to arrange the given number in ascending order.
9. Write a C Program to add and multiply two matrices.
10. Write a C Program to calculate NCR and NPR
11. Write a program in C++ to add complex numbers using operator overloading
12. Write a program in C++ to multiply complex numbers using operator overloading
13. Write a program in C++ to convert temperature from Fahrenheit to Celsius
14. Write a program in C++ to calculate variance and standard deviation of N numbers
15. Write a program in C++ to find largest value of two numbers using nesting of member functions.
16. Write a program in C++ to find the sum of digits using constructor
17. Write a program in C to prepare the pay bill of employees
18. Write a program in C++ to calculate the volume of sphere, cone and cylinder using inline function
19. Write a program in C++ to prepare the student mark list
20. Write a program in C++ to perform the matrix addition, subtraction, and multiplication using single level inheritance
21. Write a program in C++ to find out the standard deviation using hybrid inheritance

II YEAR – IV SEMESTER
COURSE CODE: 7SBS4B2
COURSE II – EMERGENCY AND MEDICAL LAB SKILLS

Objectives:

- To recognize the nature and seriousness of the patient's condition or extent of Injuries to assess requirements for emergency medical care
- Administer appropriate emergency medical care based on assessment findings of the patient's condition
- To Perform safely and effectively the expectations of the job

Unit I

First Aid – Fracture and Fire

First Aid – Drowning and Snake animal, rodent bites.

First Aid – Diarrhoea, Dysentery and Heat Stroke

Unit II

Traffic Rules

Road accidents: precautions, preventions & emergency steps to be taken on the spot advantages of 108 ambulance.

Unit III

Basic Clinical lab Tests

Blood, Urine, saliva, stool Tests

Unit IV

Awareness Programmes on the importance of locally available herbal plants and Vegetables. Skin lashes poor eye-sight anemia

Unit V

Project on Locally available native treatments for various Health Problems (Project Report 15 to 25 Pages)

Books for Reference:

1. Era.Su.Muthu and Meera Ravishankar, "First Aid", aug-2013 published by Sura Books (PVT) Ltd., 1620, 'J' Block, 16th Main Road, Anna Nagar, Chennai – 600 040.
2. Dr.Rama Rao, "Handbook of First Aid", Chennai.

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PART – IV (4)

II YEAR – IV SEMESTER

COURSE CODE: 7BVE4

COURSE – VALUE EDUCATION

DEFINITION

THE LEARNING AND PRACTICE OF FACTS WHICH HAVE ETERNAL VALUE IS WHAT IS CONTEMPLATED BY VALUE EDUCATION. IT CAN ALSO BE THE PROCESS BY WHICH A GOOD CITIZEN IS MOULDED OUT OF A HUMAN BEING. THE EVOLUTION OF A GOOD HUMAN BEING IS WHEN HE REALISES THAT HIS CONSCIENCE SHOWS TO HIM THE RIGHTNESS OF HIS ACTION.

OBJECTIVE

TO CREATE AN AWARENESS TO VALUES AMONG LEARNERS AND HELP THEM ADOPT THEM IN THEIR LIVES.

UNIT I

DEFINITION – NEED FOR VALUE EDUCATION – HOW IMPORTANT HUMAN VALUES ARE – HUMANISM AND HUMANISTIC MOVEMENT IN THE WORLD AND IN INDIA – LITERATURE ON THE TEACHING OF VALUES UNDER VARIOUS RELIGIONS LIKE HINDUISM, BUDDHISM, CHRISTIANITY, JAINISM, ISLAM, ETC. AGENCIES FOR TEACHING VALUE EDUCATION IN INDIA – NATIONAL RESOURCE CENTRE FOR VALUE EDUCATION – NCERT– IITS AND IGNOU.

UNIT II

VEDIC PERIOD – INFLUENCE OF BUDDHISM AND JAINISM – HINDU DYNASTIES – ISLAM INVASION – MOGHUL INVASION – BRITISH RULE – CULTURE CLASH – BHAKTI CULT – SOCIAL REFORMERS – GANDHI – SWAMI VIVEKANANDA – TAGORE – THEIR ROLE IN VALUE EDUCATION.

UNIT III

VALUE CRISIS – AFTER INDEPENDENCE

INDEPENDENCE – DEMOCRACY – EQUALITY – FUNDAMENTAL DUTIES – FALL OF STANDARDS IN ALL FIELDS – SOCIAL, ECONOMIC, POLITICAL, RELIGIOUS AND ENVIRONMENTAL – CORRUPTION IN SOCIETY.

POLITICS WITHOUT PRINCIPLE – COMMERCE WITHOUT ETHICS – EDUCATION WITHOUT CHARACTER – SCIENCE WITHOUT HUMANISM – WEALTH WITHOUT WORK – PLEASURE WITHOUT CONSCIENCE – PRAYER WITHOUT SACRIFICE – STEPS TAKEN BY THE GOVERNMENTS – CENTRAL AND STATE – TO REMOVE DISPARITIES ON THE BASIS OF CLASS, CREED, GENDER.

UNIT IV

VALUE EDUCATION ON COLLEGE CAMPUS

TRANSITION FROM SCHOOL TO COLLEGE – PROBLEMS – CONTROL – FREE ATMOSPHERE – FREEDOM MISTAKEN FOR LICENSE – NEED FOR VALUE EDUCATION – WAYS OF INCULCATING IT – TEACHING OF ETIQUETTES – EXTRA-CURRICULAR ACTIVITIES – N.S.S., N.C.C., CLUB ACTIVITIES – RELEVANCE OF DR.A.P.J. ABDUAL KALAM'S EFFORTS TO TEACH VALUES – MOTHER TERESA.

UNIT V

PROJECT WORK

- COLLECTING DETAILS ABOUT VALUE EDUCATION FROM NEWSPAPERS, JOURNALS AND MAGAZINES.
- WRITING POEMS, SKITS, STORIES CENTERING AROUND VALUE-EROSION IN SOCIETY.
- PRESENTING PERSONAL EXPERIENCE IN TEACHING VALUES.
- SUGGESTING SOLUTIONS TO VALUE – BASED PROBLEMS ON THE CAMPUS.

RECOMMENDED BOOKS:

- SATCHIDANANDA. M.K. (1991), "ETHICS, EDUCATION, INDIAN UNITY AND CULTURE" – DELHI, AJANTHA PUBLICATIONS.
- SARASWATHI. T.S. (ED) 1999. CULTURE", SOCIALISATION AND HUMAN DEVELOPMENT: THEORY, RESEARCH AND APPLICATION IN INDIA" – NEW DELHI SAGE PUBLICATIONS.
- VENKATAIAH. N (ED) 1998, "VALUE EDUCATION" NEW DELHI PH. PUBLISHING CORPORATION.
- CHAKRABORTI, MOHIT (1997) "VALUE EDUCATION: CHANGING PERSPECTIVES" NEW DELHI: KANISHKA PUBLICATIONS.
- "VALUE EDUCATION – NEED OF THE HOUR" TALK DELIVERED IN THE HTED SEMINAR – GOVT. OF MAHARASHTRA, MUMBAI ON 1-11-2001 BY N.VITTAL, CENTRAL VIGILANCE COMMISSIONER.
- "SWAMI VIVEKANANDA'S ROUSING CALL TO HINDU NATION": EKNATH RANADE (1991) CENTENARY PUBLICATION
- RADHAKRISHNAN, S. "RELIGION AND CULTURE" (1968), ORIENT PAPERBACKS, NEW DELHI.

SEMESTER-V

S.No.	Class	Semester	Title of the Course	Course Code
1.	III B.Sc Maths	V	Core–IX-Real Analysis	7BMA5C1
			Core–X-Statistics I	7BMA5C2
			Core–XI-Operations Research I	7BMA5C3
			Elective (I) - Graph Theory	7BMAE1A
			Elective (II)- Numerical Analysis	7BMAE2A
			Skill Based Subjects – I Heritage and Tourism	7SBS5A5
			Skill Based Subjects – I Marketing and sales Management	7SBS5A6

III YEAR - V SEMESTER
COURSE CODE: 7BMA5C1

CORE COURSE - IX – REAL ANALYSIS

Unit – I

Introduction – Sets and functions – Countable and Uncountable sets – Inequalities of Holder and Minkowski – Metric spaces – Definition and examples – Bounded sets in a metric space – Open Ball in a metric space – Opensets.

Unit – II

Subspace – Interior of a set – Closed sets – Closure – limit point – Dense sets – Completeness – Baire's Category Theorem

Unit – III

Continuity – Homeomorphism – Uniform continuity.

Unit – IV

Connectedness – Definition and examples – Connected subsets of R – Connectedness & Continuity.

Unit – V

Compact Metric spaces – Compact subsets of R – Equivalent Characterization for Compactness – Compactness and Continuity.

Text Book:

1. Modern Analysis, Dr. S.Arumugam& Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, Edition 2015.

Unit I	Chapter 1sections 1.1 to 1.4 Chapter 2 sections 2.1 to 2.4
Unit II	Chapter 2 sections 2.5 to 2.10 & Chapter 3
Unit III	Chapter 4 sections 4.1 to 4.3
Unit IV	Chapter 5
Unit V	Chapter 6

Book for Reference:

1. Richard R.Goldberg, Methods of Real analysis, IBM Publishing, New Delhi.

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III YEAR - V SEMESTER
COURSE CODE: 7BMA5C2

CORE COURSE - X – STATISTICS - I

Unit – I

Central Tendencies – Introduction – Arithmetic Mean – Partition Values – Mode – Geometric Mean and Harmonic Mean – Measures of Dispersion.

Unit – II

Moments – Skewness and Kurtosis – Curve fitting – Principle of least squares.

Unit – III

Correlation – Rank correlation Regression – Correlation Coefficient for a Bivariate Frequency Distribution.

Unit – IV

Interpolation – Finite Differences – Newton's Formula – Lagrange's Formula – Attributes – Consistency of Data – Independence and Association of Data.

Unit – V

Index Numbers – Consumer Price Index Numbers – Analysis of Time series – Time series – Components of a Time series – Measurement of Trends.

Text Book:

1. Statistics by Dr. S. Arumugam and Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, June 2015.

Unit I	Chapter 2sections 2.1 to 2.4 Chapter 3 section 3.1
Unit II	Chapter 4 sections 4.1 & 4.2 Chapter 5 section 5.1
Unit III	Chapter 6 sections 6.1 to 6.4
Unit IV	Chapter 7 sections 7.1 to 7.3 Chapter 8 sections 8.1 to 8.3
Unit V	Chapter 9 sections 9.1 & 9.2 Chapter 10 sections 10.1 to 10.3

Book for Reference:

1. Statistics Theory and Practice by R.S.N.Pillai and Bagavathi, S.Chand and Company Pvt. Ltd. New Delhi, 2007.

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III YEAR - V SEMESTER
COURSE CODE: 7BMA5C3
CORE COURSE - XI – OPERATIONS RESEARCH - I

Unit – I

Introduction – Origin and Development of O.R – Nature and features of O.R. – Scientific Method in O.R. – Modelling in O.R. – Advantages and Limitations of Models – General solution methods of O.R. models – Applications of Operations Research – Linear Programming problem – Mathematical formulation of the problem – Illustration on Mathematical formulation of linear programming problems – Graphical solution method – Some exceptional cases – General linear programming problem – Canonical and Standard forms of L.P.P – Simplex method.

Unit – II

Use of Artificial variables (Big M method – Two Phase method) Duality in linear programming – General primal and dual pair – Formulating a Dual problem – Primal – Dual pair in matrix form – Duality Theorems – Complementary Slackness Theorem – Duality and Simplex method – Dual simplex method.

Unit – III

Introduction – L.P. formulation of T.P. – Existence of solution in T.P. – The Transportation table – Loops in T.P. – Solution of a Transportation problem – Finding an initial basic – feasible solution (NWCM – LCM – VAM) – Degeneracy in TP – Transportation Algorithm (MODI Method) – Unbalanced T.P – Maximization T.P.

Unit – IV

Assignment problem – Introduction – Mathematical formulation of the problem – Test for optimality by using Hungarian method – Maximization case in Assignment problem.

Unit – V

Sequencing problem – Introduction – problem of sequencing – Basic terms used in Sequencing– n jobs to be operated on two machines – problems – n jobs to be operated on K machines–problems–Two jobs to be operated on K machines (Graphical method)–problems.

Text Book:

1. Operations Research (14th edition) by KantiSwarup, P.K.Gupta and Man Mohan, Sultan Chand & Sons, New Delhi, 2008.

Unit I	Chapter 1sections 1.1 to 1.7, 1.10 Chapter 2 sections 2.1 to 2.4 Chapter 3 sections 3.1 to 3.5 Chapter 4 sections 4.1 to 4.3
Unit II	Chapter 4 sections 4.4 Chapter 5 sections 5.1 to 5.7, 5.9
Unit III	Chapter 10 sections 10.1 to 10.3, 10.5, 10.6, 10.8, 10.9, 10.12, 10.13, 10.15
Unit IV	Chapter 11 sections 11.1 to 11.4
Unit V	Chapter 12 sections 12.1 to 12.6

Books for Reference:

- P.K.Gupta and D.S.Hira, Operations Research, 2nd Edition, S.Chand& Co., New Delhi, 2004.
- Taha H.A.,Operations Research–An Introduction,8th edition,Pearson Prentice Hall.

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III YEAR - V SEMESTER
COURSE CODE: 7BMAE1A

ELECTIVE COURSE - I (A) – GRAPH THEORY

Unit – I

Graphs – Definition and examples – Degrees – Sub graphs – Isomorphism – Ramsey Numbers – Independent Sets and Coverings – Intersection graphs and Line graphs – Matrices – Operations on Graphs.

Unit – II

Dergee Sequences – Graphic sequences – Walks, Trials and Paths – Connectedness and Components – Blocks – Connectivey – Eulerian Graphs – Hamiltonian Graphs.

Unit – III

Trees – Characterisation of Trees – Centre of a Tree – Matchings–Matchings in Bipartite Graphs.

Unit – IV

Planer graphs and properties – Characterization of Planer graphs – Thickness, crossing and outer planarity – Chromatic number and ChromaticIndex – The Five colour theorem and four colour problem.

Unit – V

Chromatic polynomials – Definitions and Basic properties of Directed Graph – Paths and Connections – Digraphs and Matrices – Tournaments.

Text Book:

1. Invitation to Graph Theory by Dr. S.Arumugam & S.Ramachandran, Scitech Publications (India) Pvt. Ltd,2001 .

Unit I	Chapter 2
Unit II	Chapters 3, 4 & 5
Unit III	Chapters 6 & 7
Unit IV	Chapter 8, Chapter 9, sections 9.1 to 9.3
Unit V	Chapter 9 section 9.4; Chapter 10

Book for Reference:

1. Graph Theory with Applications to Engineering and Computer Science byNarasinghDeo, Prentice Hall of India, New Delhi.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMAE2A

ELECTIVE COURSE - II (A) – NUMERICAL ANALYSIS

Unit – I

Solution of Algebraic and Transcendental equations – Introduction, Bisection Method, Iteration Method, Method of False position, Newton Raphson Method.

Unit – II

Interpolation : Finite differences – Forward differences, Backward differences, Central differences, Symbolic relations, Newton's formula for Interpolation – Interpolation with unevenly spaced points – Lagrange's Interpolation formula.

Unit – III

Numerical Differentiation and Integration – Introduction, Numerical Differentiation – Errors in Numerical Differentiation – Cubic Spline method – maximum and minimum values of a tabulated function, Numerical Integration – Trapezoidal Rule and Simpson's 1/3 and 3/8 rules.

Unit – IV

Matrices and Linear system of Equations – Gaussian Elimination method, Gauss – Jordan method, Modification of the Gauss method to compute the inverse – Method of Factorization – Iterative method – Jacobi and Gauss Seidal methods.

Unit – V

Numerical Solutions of Ordinary Differential Equations – Solution by Taylor Series, Picard's method of Successive approximations, Euler method, Modified Euler method Runge – Kutta Methods.

Text Book:

- Introductory Methods of Numerical Analysis, (4^{th} Edition) by S.S.Sastry, PHI Learning Pvt. Ltd., New Delhi, 2009.

Unit I	Chapter 2sections 2.1 to 2.5
Unit II	Chapter 3 sections 3.3, 3.6, 3.9, 3.9.1.
Unit III	Chapter 5 sections 5.1, 5.2 - 5.2.2, 5.3, 5.4 – 5.4.1, 5.4.2, 5.4.3.
Unit IV	Chapter 6 sections 6.3.2, 6.3.3, 6.3.4, 6.4.
Unit V	Chapter 7 sections 7.2 to 7.4, 7.4.2, 7.5

Books for Reference:

- Numerical Methods by P.Kandasamy and Others S.Chand Publications.
- Numerical Analysis with Programming in C by Dr. S.Arumugam, A.Thangapandi Issac, Dr. A.Somasundaram, New Gamma Publishing House, Palayamkottai, 2013.

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GROUP I – SET II

III YEAR – V SEMESTER

COURSE CODE: 7SBS5A5

COURSE II – HERITAGE AND TOURISM

Objectives:

- To understand the definitions, terminology and concepts of cultural heritage and its relationships with tourism.
- To Understand heritage tourism supply by examining different categories of heritage attractions and the contexts within which heritage exists and additional perspectives on scale from the supply perspective
- To understand the role of interpretation in cultural heritage sites and the relevance of such interpretation approaches to visitors.
- Provide a framework to plan, design, and assess interpretation programs for tourists

Unit I

Tourism – Introduction – Concepts – Significance – Forms of Tourism – Effects of Tourism – Social, Economic and Environmental aspects – Human Rights

Unit II

Importance of preserving heritage – Heritage Spots in India – In Tamil Nadu – Brief history of the heritage spots – The role of heritage spots in promoting tourism – UNESCO guidelines on Heritage

Unit III

Role of Government in promoting tourism – ITDC- TTDC-Palace on wheels – Travel industry service network – Land (rail and road) Air – Water – Travel Agency – Hospitality and Accommodation

Unit IV

Travel Guide – Features – requirements – One's role as a guide – Income and Employability – Qualities and skills of a professional travel or tourist guide

Unit V

Project work – Field visit to heritage and tourism spots in Sivagangai and Ramanathapuram Districts and submission of a report (15 to 25 pages)

Books for Reference:

Bhatia, A. K – Tourism Development Principles and Practices, (Sterling Publishers (P) Ltd., New Delhi)

Ananand M. M – Tourism and Hotel Industry in India (Sterling Publishers (P) Ltd., New Delhi)

Acharya Ram – Tourism and Cultural Heritage (Rosa Publications: Jaipur, 1986)

Jha, S.M – Tourism Marketing (Himalaya Publishing House)

GROUP I – SET II

III YEAR – V SEMESTER

COURSE CODE: 7SBS5A6

COURSE III – MARKETING AND SALES MANAGEMENT

Objectives:

- To acquire analytical skills for solving marketing related problems and challenges and to familiar with the strategic marketing management process
- To learn the elements of sales force to be an effective component of an organization's overall marketing strategy.

Unit I

Introduction: Evolution of Marketing – Types of Marketing: Consumer Products Marketing, Industrial Marketing and Services Marketing – Demographic and Behavioural Dimensions of Marketing – Marketing Planning

Unit II

Basics of Market Segmentation, Targeting and Positioning – Components of The Marketing Mix: Product – Price – Place – Promotion – Distribution Channels: Types – Merits and Demerits

Unit III

Marketing Vs Selling – Nature and Scope of Sales Management – Personal Selling and Salesmanship – Selling Function – Understanding Consumer's Decision Making Process – Sales Organization and Types Of Selling

Unit IV

Prospecting – Approaching The Customer – Sales Presentation – Sales Demonstration – Negotiating Buyer Concerns – Closing The Sale – Post Sales Service and Complaint Handling

Unit V

Modern Trends in Marketing and Sales: Internet Marketing – Direct Marketing – Multi Level Marketing – Relationship Marketing – Selling through Kiosks

Books for Reference:

1. Chunawalla, S. A., Sales Management, 5th Edition (2007), Himalaya Publishing House
2. Havaldar, Krishna; Sales And Distribution Management, 1st Edition (2006), Tata Mcgraw Hill
3. Perreault, Jr., William; Mccarthy, E. Jerome, **Basic Marketing, 15th Edition, 2006, Tata Mcgraw Hill**

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SEMESTER-VI

S.No.	Class	Semester	Title of the Course	Course Code
1.	III B.Sc Maths	VI	Core – XII Mechanics	7BMA6C1
			Core – XIII Complex Analysis	7BMA6C2
			Core – XIV Statistics II	7BMA6C3
			Core – XV Operations Research II	7BMA6C4
			Elective – III- Fuzzy Algebra	7BMAE3B
			Skill Based Subjects – II Fruit and Vegetable Preservative Skills	7SBS6B4
			Skill Based Subjects – II National cadet corps	7SBS6B7

COURSE CODE: 7BMA6C1
CORE COURSE - XII – MECHANICS

Unit – I

Forces acting at a point – Resultant and Components – Definition – Simple cases of finding the resultant – Parallelogram law of forces – Analytical Expression for the resultant of two forces acting at a point – Triangle of forces – Perpendicular Triangle of forces – Converse of Triangle of forces – The polygon of forces – Lami's Theorem – An Extended form of the parallelogram law of forces – Parallel forces – Resultant of like parallel forces – unequal unlike parallel forces – Resultant of a number of parallel forces acting on a rigid body –Conditions of equilibrium of three coplanar parallel forces – Centre of two Parallel forces – moments – Physical significance – Geometrical representation – sign and unit of the moment – Varigon's theorem.

Unit – II

Equilibrium of three forces acting on a Rigid body - Rigid body subjected to any three forces – Three coplanar forces theorem – conditions of Equilibrium – Two Trigonometrical Theorem – Friction – Laws of friction – Theorems – Equilibrium of a particle on a rough inclined plane – (i) under a force parallel to the plane – (ii) under any forces – problems on friction – Uniform string under the action of gravity – Equation of the common catenary – axis, vertex, directrix, span and sag – Tenson at any point – Important formulae – Geometrical properties of the Common Catenary

Unit – III

Projectile – Definition – fundamental principles – path of the projectile – Characteristics of the motion of a projectile – Range on an inclined plane – greatest distance maximum range

Unit – IV

Impulsive force – Impulse – Impact of two bodies – Loss of Kinetic energy in Impact – Collision of elastic bodies – Fundamental laws of Impact – Newton's experimental law – Impact of a smooth sphere on a fixed smooth plane – Direct Impact of two smooth spheres – Loss of kinetic energy due to direct impact – Oblique impact of two smooth spheres – Loss of kinetic energy due to oblique impact.

Unit – V

Motion under the action of Central forces – Velocity and acceleration – Equation of motion in Polar Coordinates – Note on equiangular spiral – Motion under a central force – Differential Equation of Central Orbits – Perpendicular from the pole on the tangent – Formulae in Polar Coordinates – Pedal Equation of the central orbit – Pedal equation of some of the well known curves – Velocities in a central orbit – Two folded problems.

Text Books:

- Statics (17thedition) by Dr. M.K.Venkataraman, Agasthiyar Publications, Tiruchirapalli, 17th Edition, July 2014.
- Dynamics (18th edition) byDr. M.K.Venkataraman, Agasthiyar Publications, Tiruchirapalli, 2017

Unit I	Chapter 2sections 1 – 10 of (1) Chapter 3 sections 1 – 12of (1)
Unit II	Chapter 5 sections 1 – 5 & Chapter 7of (1) Chapter 11 sections 1 – 6 of (1)
Unit III	Chapter 6 sections 1 – 5, 12, 13, 14, of (2)
Unit IV	Chapter 7 sections 1 – 4 of (2) Chapter 8 sections 1 – 8 of (2)
Unit V	Chapter 11 sections 1 – 11 of (2)

Books for Reference:

- Mechanics by P.Duraipandian, Emerald Publishers, Chennai, 1984.
- Statics by S.Narayanan S.Chand & Co., Chennai, 1986.
- Dynamics by S.Narayanan S.Chand & Co., Chennai, 1986.

III YEAR - VI SEMESTER
COURSE CODE: 7BMA6C2

CORE COURSE – XIII – COMPLEX ANALYSIS

Unit – I

Functions of a Complex variable – Limits – Theorems on Limits – Continuous functions – Differentiability – The Cauchy – Riemann equations – Analytic functions – Harmonic functions.

Unit – II

Elementary Transformations – Bilinear Transformations – Cross ratio – Fixed points of Bilinear Transformation – Some special Bilinear transformations.

Unit – III

Complex integration – Definite integral – Cauchy's Theorem – Cauchy's Integral formula – Higher derivatives.

Unit – IV

Series expansions – Taylor's Series – Laurent's Series – Zeros of an analytic function Singularities.

Unit – V

Residues – Cauchy's Residue Theorem – Evaluation of definite integrals.

Text Book:

1. Complex Analysis by Dr.S.Arumugam,A.Thangapandi Isaac &Dr. A.Somasundaram, Scitech Publications (India) Pvt. Ltd, Chennai, 2017.

Unit I	Chapter 1sections 2.1 to 2.8
Unit II	Chapter 3 sections 3.1 to 3.5
Unit III	Chapter 6 sections 6.1 to 6.4
Unit IV	Chapter 7 sections 7.1 to 7.4
Unit V	Chapter 8 sections 8.1 to 8.3

Books for Reference:

- P.P.Gupta – Kedarnath&Ramnath , Complex Variables, Meerut – Delhi.
- J.N.Sharma, Functions of a Complex Variable, Krishna Prakasan Media (P) Ltd, 13th Edition, 1996-97.
- T.K.ManickavachagomPillay, Complex Analysis, S.Viswanathan Publishers Pvt. Ltd, 1994.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMA6C3

CORE COURSE - XIV – STATISTICS - II

Unit – I

Probability – Conditional Probability – Random variables – Discrete Random Variable – Continuous Random Variable – Mathematical Expectations – Moment Generating Function – Characteristic function.

Unit – II

Some Special Distributions – Binomial Distribution – Poisson Distribution – Normal Distribution – Gamma Distribution – Chi-Square Distribution – Student's t-Distribution – Snedecor's F Distribution – Fischer's Z – Distribution.

Unit – III

Tests ofSignificance of large samples – Sampling – Sampling Distribution – Testing of Hypothesis – Procedure for Testing of Hypothesis for large samples – Tests of Significance for large samples.

Unit – IV

Tests of Significance based on 't' Distribution – Test of Significance based on F-Test – Test for Significance of an Observed sample correlation.

Unit – V

Test based on Chi - Square Distribution – Chi - Square Test forPopulation variance – Chi - Square Test – To test the Goodness of fit – Test for Independence of Attributes – Analysis of Variance – One Criterion of Classification – Two Criteria of Classification – Three criteria of Classification – Latin Square.

Text Book:

1. Statistics by Dr. S.Arumugam and Mr. A.Thangapandi Isaac, New Gamma Publishing House, Palayamkottai, June 2015.

Unit I	Chapter 11sections 11.1 & 11.2 Chapter 12sections 12.1 to 12.6
Unit II	Chapter 13 sections 13.1 to 13.4
Unit III	Chapter 14 sections 14.1 to 14.5
Unit IV	Chapter 15 sections 15.1 to 15.3
Unit V	Chapter 16 sections 16.1 to 16.3 Chapter 17sections 17.1 to 17.3

Book for Reference:

1. Statistics Theory and Practice by R.S.N.Pillai and Bagavathi, S.Chand and Company Pvt. Ltd., New Delhi, 2007.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMA6C4

CORE COURSE- XV– OPERATIONS RESEARCH - II

Unit – I

Replacement problem and System Reliability – Introduction – Replacement of Equipment / Assert that Deteriorates Gradually – Replacement of Equipment that fails suddenly.

Unit – II

Inventory Control – Introduction – Types of Inventories – Reason for carrying Inventories – Costs Associated with Inventories – Factors affecting Inventory Control – The Concept of EOQ – Deterministic Inventory problems with no shortages, with shortages Problems of EOQ with Price Breaks.

Unit – III

Queuing Theory – Introduction – Queuing System – Elements of Queuing System – Operating Characteristics of a Queuing System – Deterministic Queuing System – Probability Distributions of Queuing Systems – Classification of Queuing models – Definition of Transient and Steady states – Poisson Queuing systesm – (M/M/1) : (∞/FIFO), (M/M/1) : (∞/SIRO), (M/M/1) : (N/FIFO) Generalized model Birth – Death Process.

Unit – IV

Network Scheduling by PERT / CPM – Network Basic components – Drawing network – Critical path Analysis – PERT Analysis – Distinction between PERT and CPM

Unit – V

Game Theory – Two person Zero – Sum Games – Basic terms – Maximin – Minimax Principle – Games without saddle points – Mixed strategies – Graphical solution of 2× n and m × 2 games – Dominance Property – General solution of m×n rectangular games.

Text Book:

1. Operations Research (14th Edition) by KantiSwarup, P.K.Gupta & ManMohan, Sultan Chand & Sons, Educational Publishers, New Delhi, 2008.

Unit I	Chapter 18sections 18.1 to 18.3
Unit II	Chapter 19 sections 19.1 – 19.3, 19.6, 19.7, 19.9, 19.10 – 19.12
Unit III	Chapter 21 sections 21.1 –21.9 upto model IV
Unit IV	Chapter 25 sections 25.1 – 25.8
Unit V	Chapter 17 sections 17.1 to 17.7, 17.9

Books for Reference:

1. Operations Research (2nd edition) by P.K.Gupta and D.S.Hira, S.Chand& Co., New Delhi, 2004.
2. Operations Research (2nd edition) by S.Kalavathy, Vikas Publishing House, New Delhi, 2002.

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III YEAR - VI SEMESTER

COURSE CODE: 7BMAE3B

ELECTIVE COURSE - III (B) – FUZZY ALGEBRA

Unit – I

Fuzzy sets – Basic types – Basic concepts - α - cuts – Additional prosperities of α - cuts – Extension principle for Fuzzy sets.

Unit – II

Operations on Fuzzy sets – Types of operations – Fuzzy complements – Fuzzy intersections : t-norms – Fuzzy Unions : t-conorms.

Unit – III

Combinations of operations – Fuzzy Arithmetic – Fuzzy numbers

Unit – IV

Arithmetic operations on intervals – Arithmetic operations on Fuzzy numbers – Fuzzy relations – Binary fuzzy relations – Fuzzy equivalence relations – Fuzzy compatibility relations.

Unit – V

Fuzzy ordering relations – fuzzy morphisms.

Text Book:

1. George J.Klir and Bo Yuan, Fuzzy Sets and Fuzzy Logic, Theory and Applications, Prentice Hall Inc., New Jersey. 1995.

Unit I	Chapter 1 sections 1.3, 1.4 Chapter 2 sections 2.1, 2.3
Unit II	Chapter 3 sections 3.1 to 3.4
Unit III	Chapter 3 section 3.5 Chapter 4 section 4.1
Unit IV	Chapter 4 sections 4.3& 4.4 Chapter 5 sections 5.3, 5.5, 5.6
Unit V	Chapter 5 sections 5.7 & 5.8

Books for Reference:

1. H.J.Zimmermann, Fuzzy Set Theory and its Applications, Allied Publishers Limited, New Delhi, 1991.

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GROUP II – SET II

III YEAR – VI SEMESTER

COURSE CODE: 7SBS6B4

COURSE II – FRUIT AND VEGETABLE PRESERVATION SKILLS

Objectives:

- To understand the science, principles and techniques involved in fruits and vegetables preservation techniques
- To impart thorough knowledge on the technical skills in various aspects of food processing and preservation

Unit I

Principles, Methods, types of Preservation.

Preservation media and mode of action of preservation. Traditional & Modern methods.

Unit II

Study of various types of equipments – care & precautions and usage.

Study of various types of containers.

Unit III

Vegetables & their product preservation Methods
Importance of personal hygiene and sanitary standards

Unit IV

Fruits & their preservation

Unit V

Project:

- Mapping of preservation practices & centre's

(or)

- Preservation practices specific to fruits & Vegetables in your area
  (Project Report 15 to 25 Pages)

Books for Reference:

- Srivastava R.P. and Kumar.S "Fruit and Vegetable Preservation: Principles"
- Ranjit Singh "Fruits" National Book Trust.
- Girdhari Lal Tandon et al "Preservation of Fruit and Vegetable Products".

III YEAR – VI SEMESTER
COURSE CODE: 7SBS6B7
COURSE IV- NATIONAL CADET CORPS (NCC)

Objectives:

- After going through this unit, the students would be able to gain an insight into aims and objectives of NCC.
- Explore the importance of NCC in nation building.
- Understand the concept of National Integration and its importance.

Unit – I

National Cadet Corps(NCC)-Introduction to NCC- Genesis –Objectives of NCC- Concept of Training in NCC- Organization of the NCC – Associate NCC officers – Cert Exam.

Unit –II National Integration:

National interests, Objectives, Threats and Opportunities. Religions, culture, traditions and customs of India, Importance and necessity. Freedom struggle and nationalist movement in India **Drill:**Foot drill, Arms drill, Ceremonial drill, Qualities of immediate and implicit obedience of orders.

Unit-III Social Awareness and Community Development:

NGO's Role and Contribution, Drug abuse and trafficking, Basics of social service and its need, Civic responsibility, Contribution of youth towards social welfare, Rural development programmes.

Unit –IV Environmental Awareness and Conservation:

Natural resources conservation and management, Water conservation and rain water harvesting, Hygiene and sanitation, structure and function of the human body, infectious and contagious diseases and its prevention.

Unit –V Personality Development and Leadership:

Introduction to personality development, self awareness, communication skills, Leadership traits, Time management.

Books for Reference:

- Anonymous. 1995. Officers training manual. PRECIS, NCC, OTS, Kamptee
- Bose, R and Faust, L. 2011. Mother Teresa, CEO, Unexpected Principles for Practical Leaders, Tata McGraw Hill Publications, New Delhi.
- Ganapathi, R. 2003. Swami Vivekanandar, Ramakrishna Math Press, Chennai.
- Gandhi, M.K. 1983. An Autobiography or The story of My Experiments with Truth, Navajivan Publishing House, Ahamedabad
- Gupta, S.K. and Joshi, R. 2008. Human Resource Management, Kalyani Publishers, New Delhi.
- Kalam, A.P.J. 1999. Wings of Fire, University Press, Hyderabad
- Mishra, R.C. 2000. A Hand book of NCC, Kanti Prakashan, Etawah.Precis
- Rana, B.S 2004. Maharana Pratap, Diamond Books (P) Ltd., New Delhi. Rana, B.S. 2004. Chatrapati Shivaji, Diamond Books (P) Ltd., New Delhi

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ALAGAPPA UNIVERSITY, KARAIKUDI

NEW SYLLABUS UNDER CBCS PATTERN (w.e.f. 2017-2018)

B.Sc. MATHEMATICS – PROGRAMME STRUCTURE

B.Sc., MATHS – ODD & Even Semester - 2020-2022 Academic Year

Sem.	Part	Course Code	Title of the Course	Cr.	Hrs. / Week	Max. Marks		
						Int.	Ext.	Total
I	I	711T	**Tamil / Other Languages – I**	3	6	25	75	100
	II	712E	**English – I**	3	6	25	75	100
	III	7BMA1C1	**Core–I-**Calculus	4	6	25	75	100
		7BMA1C2	**Core–II-**Algebra and Trigonometry	4	6	25	75	100
		7BPHA1	**Allied – I** (Theory only) **(or)**	5	5	25	75	100
			Allied – I (Theory cum Practical)	4	3	15	60	75
			Allied Practical – I	-	2**	--	--	---
		71BEPP	**Professional English For Physical Science**	4		25	75	100
	IV	7NME1C	**(1) Non-Major Elective – I** Communicative English	2	1	25	75	100
			Total (Allied Theory only)	**21**	**30**	--	--	**700**
			Total (Allied Theory cum Practical)	**20**				**675**
II	I	721T	**Tamil / Other Languages – II**	3	6	25	75	100
	II	722E	**English – II**	3	6	25	75	100
	III	7BMA2C1	**Core–III-**Analytical Geometry of 3D and Vector Calculus	4	6	25	75	100
		7BMA2C2	**Core–IV-**Sequences and Series	4	5	25	75	100
		7BPHA2	**Allied – II** (Theory only) **(or)**	5	5	25	75	100
			Allied– II (Theory cum Practical)	4	3	15	60	75
		7BPHAP1	**Allied Practical – I**	2	2	20	30	50
		72BEPP	**Professional English For Physical Science**	4		25	75	100
	IV	7BES2	**(3) Environmental Studies**	2	2	25	75	100
			Total (Allied Theory only)	**21**	**30**	--	--	**700**
			Total (Allied Theory cum Practical)	**22**				**625**

III	I	731T	**Tamil / Other Languages – III**	3	6	25	75	100
	II	732E	**English – III**	3	6	25	75	100
	III	7BMA3C1	**Core–V-**Abstract Algebra	4	5	25	75	100
	III	7BMA3C2	**Core–VI-**Differential Equations and its Applications	4	5	25	75	100
	III	7BCEA3	**Allied – III** (Theory only) **(or) Allied–III** (Theory cum Practical)	5 4	5 3	25 15	75 60	100 75
			Allied Practical – II	-	2**	--	--	---
	IV	7NME3C	**(1) Non-major Elective – II** Effective Employability Skills	2	1	25	75	100
		7SBS3A1	**(2) Skill Based Subjects– I** Competitive Examination Skills	2	2	25	75	100
	V	7BEA3	**Extension Activities**	1	-	100	-	100
			Total (Allied Theory only)	**24**	**30**	**-**	**-**	**800**
			Total (Allied Theory cum Practical)	**23**				**775**
IV	I	741T	**Tamil / Other Languages – IV**	3	6	25	75	100
	II	742E	**English – IV**	3	6	25	75	100
	III	7BMA4C1	**Core–VII-**Transform Techniques	4	5	25	75	100
	III	7BMA4C2	**Core–VIII-**Linear Algebra	4	4	25	75	100
	III	7BCEA4	**Allied – IV(Theory only) (or)** **Allied –IV(Theory cum Practical)**	5 4	5 3	25 15	75 60	100 75
		7BCEAP2	**Allied Practical - II**	2	2	20	30	50
	IV	7SBS4B2	**(2) Skill Based Subjects – II** Emergency and Medical Lab Skills	2	2	25	75	100
		7BMY4	**(4)** Manavalakalai Yoga	2	2	25	75	100
			Total (Allied Theory only)	**23**	**30**	**-**	**-**	**700**
			Total (Allied Theory cum Practical)	**24**				**725**
V	III	7BMA5C1	**Core–IX-**Real Analysis	4	6	25	75	100
	III	7BMA5C2	**Core–X-**Statistics I	4	5	25	75	100
	III	7BMA5C3	**Core–XI-**Operations Research I	4	5	25	75	100
	III	7BMAE1A	**Elective (I) - A)** Graph Theory	5	5	25	75	100

	III	7BMAE2A	**Elective (II)** – Numerical Analysis	5	5	25	75	100
	IV	7SBS5A5	**(2) Skill Based Subjects – I** Heritage and Tourism	2	2	25	75	100
		7SBS5A6	**(2) Skill Based Subjects – I** Marketing and Sales Management	2	2	25	75	100
			Total	**26**	**30**	**-**	**-**	**700**
VI	III	7BMA6C1	**Core – XII** Mechanics	4	6	25	75	100
	III	7BMA6C2	**Core – XIII** Complex Analysis	4	5	25	75	100
	III	7BMA6C3	**Core – XIV** Statistics II	4	5	25	75	100
	III	7BMA6C4	**Core – XV** Operations Research II	4	5	25	75	100
	III	7BMAE3A/ 7BMAE3B	**Elective – III A)** Discrete Mathematics **(or) B)** Fuzzy Algebra	5	5	25	75	100
	IV	7SBS6B4	**(2) Skill Based Subjects – II** Fruits and Vegetable Preservation Skills	2	2	25	75	100
		7SBS6B7	**(2) Skill Based Subjects – II** National Cadet Corps	2	2	25	75	100
			Total	**25**	**30**	**-**	**-**	**700**
			Grand Total	**140**	**180**	**-**	**-**	**4100**

SEMESTER-1

S.No.	Class	Semester	Title of the Course	Course Code
1.	**I B.Sc Maths**	**I**	**Tamil-I- Tharkala kavithium Urainadaium**	**711T**
			English-I English Of Enrichment-I	**712E**
			Professional English For Physical Science	71BEPP
			Core-I Calculus	**7BMA1C1**
			Core-II- Algebra and Trigonometry	**7BMA1C2**
			Allied-I Physics Properties of Matter, Thermal Physics and Optics	**7BPHA1**
			NME-1 Communicative English	**7NME1C**

முதலாம் ஆண்டு - முதல் பருவம்

பாடக்குறியீட்டு எண்:711வு

பொதுத்தமிழ் தாள் - 1 - தற்காலக் கவிதையும் உரைநடையும்

அலகு 1

அ. மரபுக் கவிதை

11. பாரதி	-	நிலாவும் வான்மீனும் காற்றும் (முழுமையும்)
12. பாரதிதாசன்	-	தோழனே! உன்னிடம் சொல்வேன்!
13. நாமக்கல் கவிஞர்	-	உலகம் வாழ்க!
14. ஜீவானந்தம்	-	கோடிக்கால் பூதமடா
15. முடியரசன்	-	தலைமை வகிப்போம் (பாடுங்குயில், ப.8)
16. கண்ணதாசன்	-	புதியதோர் உலகு செய்வோம் (ஏழாவது தொகுதி)

ஆ. புதுக்கவிதை

17. மு.மேத்தா	-	தேசப்பிதாவிற்கு ஒரு தெருப் பாடகனின் அஞ்சலி (கண்ணீர் பூக்கள்)
18. கவிக்கோ அப்துல்ரகுமான்	-	மானுடத்தின் மகுடாபிஷேகம் (பால்வீதி)
19. மீரா	-	காதல் என்ன கத்திரிக்காயா? (ஊசிகள்)
20. வைரமுத்து	-	மரங்களைப் பாடுவேன் (இந்தப் பூக்கள் விற்பனைக்கு அல்ல)

அலகு 2

1. எண்ணங்கள் - எம்.எஸ்.உதயமூர்த்தி.

அலகு 3 இலக்கணம்

எழுத்திலக்கணம், எண், பெயர், முறை, பிறப்பு, வடிவம், மாத்திரை, மொழி முதல் எழுத்துக்கள், மொழி இறுதி எழுத்துக்கள், இடைநிலை மெயம்மயக்கம், மொழி, பகுபத உறுப்பு, வடமொழி எழுத்து, (ஆ.சிவலிங்கனார், தமிழ் இலக்கண உணர்வுகள், பக்கம் 26 முதல் 69 வரை, கபிலன் பதிப்பகம், புதுச்சேரி)

அலகு 4 இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு.

அலகு 5 **படைப்பாற்றல்** பொதுக்கட்டுரை படைத்தல்.

PART - II – ENGLISH

I YEAR – I SEMESTER

COURSE CODE: 712E

COURSE – I - ENGLISH FOR ENRICHMENT – I

Texts Prescribed

3. Gate Way to English – *An Anthology of Prose and Poetry* Ed. By the Board of Editors, Harrows Publications, Chennai.
4. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.

Unit I Prose

1. Education for New India – C.Rajagopalachari.
2. All about a Dog – A.G.Gardiner
3. I have a Dream – Martin Lutherking

Unit II Prose

1. How I Became a Public Speaker – G.B. Shaw
2. With the Photographer – Stephen Leacock
3. Early Influences: Dr. APJ. Abdul Kalam

Unit III Poetry

1. Gitanjali (Songs : 1-2) Rabindranath Tagore
2. Shall I Compare thee to a Summer's Day(Sonnet 18)–William Shakespeare
3. On his Blindness – John Milton.

Unit IV Grammar

Noun, Pronoun, Verb, Adverb

Unit V Composition

Informal Letter, Comprehension, Dialogue Writing, Hints Developing

Allocation of Working Hours per week

Prose	- 2 hours
Poetry	- 2 hours
Grammar & Composition	- 2 hours

Total	**- 6 hours**

PROFESSIONAL ENGLISH FOR PHYSICALSCIENCES

Subject Code: 71BEPP

OBJECTIVES:

- To develop the language skills of students by offering adequate practice in professionalcontexts.
- To enhance the lexical, grammatical and socio-linguistic and communicative competence of first year physical sciencesstudents
- To focus on developing students' knowledge of domain specificregisters and the required language skills.
- To develop strategic competence that will help in efficient communication
- To sharpen students' critical thinking skills and make students culturally aware of the targetsituation.

LEARNINGOUTCOMES:

- Recognise their own ability to improve their own competence in using the language
- Use language for speaking with confidence in an intelligible and acceptablemanner
- Understand the importance of reading forlife
- Read independently unfamiliar texts withcomprehension
- Understand the importance of writing in academiclife
- Write simple sentences without committing error of spelling orgrammar (Outcomes based on guidelines in UGC LOCF – GenericElective)

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

UNIT 1: COMMUNICATION

Listening: Listening to audio text and answering questions

- Listening toInstructions

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 2: 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 3: 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 4: 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 LSRWtasks

UNIT 5: 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 CODE: 7BMA1C1

CORE COURSE - I –CALCULUS

Unit – I

Successive Differentiation – Leibnitz formula – Envelopes – curvatures – circle, radius and centre of curvature – Evolutes.

Unit – II

Polar Coordinates – Radius of curvature in polar coordinates, p-r equation of a curve – Asymptotes – Method of finding asymptotes – problems

Unit – III

Definite Integrals and their properties –problems – Integration by parts –– Reduction formulae - Bernoulli's formula.

Unit – IV

Double and triple integrals and their properties – Jacobian – Change of order of integration.

Unit – V

Beta and Gamma functions – properties – problems

Text Book:

1. Calculus, Volume I (edi.2015) andVolume II (edi.2016) by S.Narayanan and T.K.ManicavachagomPillay, S.Viswanathan (Printers and Publishers) Pvt. Ltd.

Unit I	Chapter 3 (Volume I) sections 1 & 2 Chapter 10 up to section 2.5 (Volume I)
Unit II	Chapter 10 sections 2.6, 2.7 (Volume I) Chapter 11 upto section 7
Unit III	Chapter 1 sections 11, 12, 13, 14, 15.1(Volume II)
Unit IV	Chapter 5 sections 1, 2, 3, 4 (Volume II) Chapter 6 sections 1, 2 (Volume II)
Unit V	Chapter 7 sections 2, 3, 4, 5, (Volume II)

Books for Reference:

- Calculus and Fourier series by Dr. M.K.Venkataraman and Mrs. Manorama Sridhar, The National Publishing Company, Chennai.
- Calculus Volume I and Volume II by Dr. S.Arumugam and A.Thangapandi Isaac, New Gamma Publishing House, Palayamkottai.

COURSE CODE: 7BMA1C2
CORE COURSE - II – ALGEBRA AND TRIGONOMETRY

Unit – I

Summation of Series – Binomial Series – Exponential Series – Logarithmic Series.

Unit – II

Relation between roots and coefficients – Sum of the powers of the roots – Reciprocal Equation – Transformation of Equations.

Unit – III

Multiple Roots – Nature and position of roots –Descarte's rule of Signs, Rolle's theorem – Sturm's functions – Problems – Finding number and position of the real roots – Finding the nature and position of the roots (Cardans&Ferrar's method not included) – Approximate solution of Numerical equations – Newton's method – Horner's method.

Unit – IV

Applications of Demoivre's Theorem – Expression for $\sin n\theta$, $\cos n\theta$, $\tan n\theta$ - Expression for $\sin^n\theta$, $\cos^n\theta$ - Expansion of $\sin\theta$, $\cos\theta$, $\tan\theta$ in powers of θ.

Unit – V

Hyperbolic functions – Inverse hyperbolic functions, and logarithm of a complex number.

Text Books:

1. Summation of Series and Trigonometry by Dr.S.Arumugam and A.Thangapandi Isaac – New Gamma Publishing House,Palayamkottai.

2. Theory of Equations, Theory of Numbers and Trigonometry by Dr. S.Arumugam and A.ThangapandiIssac – New Gamma Publishing House, Palayamkottai July 2011.

Unit I	Chapter 1 sections 1.1 – 1.3 of (1)
Unit II	Chapter 5 sections 5.2 to 5.5 of (2)
Unit III	Chapter 5 sections 5.6, 5.7, 5.10 of (2)
Unit IV	Chapter 6 of(2)
Unit V	Chapter 7 and Chapter 8 of (2)

Books for Reference:

1. Trigonometry by S.Narayanan, T.K.ManicavachagomPillay.Algebra Volume – I by T.K.ManicavachagomPillay, T.Natarajan, KS.Ganapathy.

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I YEAR – I SEMESTER
COURSE CODE: 7BPHA1
ALLIED COURSE I – PROPERTIES OF MATTER, THERMAL PHYSICS AND OPTICS (THEORY)

Unit I PROPERTIES OF MATTER

Young's modulus – Rigidity modulus – Bulk modulus – Poisson's ratio (definition alone) – Bending of beams – Expression for bending moment – determination of young's modulus – uniform and non-uniform bending.Expression for Couple per unit twist – work done in twisting a wire – Torsional oscillations of a body– Rigidity modulus of a wire and M.I. of a disc by torsion pendul

Unit II VISCOSITY

Viscosity – Viscous force – Co-efficient of viscosity – units and dimensions – Poiseuilles formula for co-efficient of viscosity of a liquid – determination of co-efficient of viscosity using burette and comparison of Viscosities - Bernoulli's theorem – Statement and proof – Venturimeter – Pitot tube.

Unit III CONDUCTION, CONVECTION AND RADIATION

Specific heat capacity of solids and liquids – Dulong and Petit's law – Newton's law of cooling – Specific heat capacity of a liquid by cooling – thermal conduction –coefficient of thermal conductivity by Lee's disc method.Convention process – Lapse rate – green house effect – Black body radiation – Planck's radiation law – Rayleigh Jean's law, Wien's displacement law – Stefan's law of radiation. (No derivations)

Unit IVTHERMODYNAMICS

Zeroth and I Law of thermodynamics – II law of thermodynamics – Carnot's engine and Carnot's cycle – Efficiency of a Carnot's engine – Entropy – Change in entropy in reversible and irreversible process – change in entropy of a perfect gas – change in entropy when ice is converted into steam.

Unit V OPTICS

Interference – conditions for interference maxima and minima – Air wedge – thickness of a thin wire – Newton's rings – determination of wavelength using Newton's rings.Diffraction – Difference between diffraction and interference – Theory of transmission grating – normal incidence – optical activity – Biot's laws – Specific rotatory power – determination of specific rotatory power using Laurent's half shade polarimeter

Text Books:

- Properties of matter – Brijlal and Subramanyam – Eurasia Publishing co., New Delhi, III Edition 1983
- Element of properties of matter – D.S.Mathur – S.Chand & Company Ltd, New Delhi, 10th Edition 1976
- Heat and Thermodynamics–Brijlal& Subramanyam, S.Chand & Co, 16th Edition 2005
- Heat and Thermodynamics – D.S. Mathur, SultanChand & Sons, 5th Edition 2014.
- Optics and Spectroscopy –R.Murugeshan, S.Chand and co., New Delhi, 6th Edition 2008.
- A text book of Optics – Subramanyam and Brijlal, S. Chand and co.. New Delhi, 22nd Edition 2004.
- Optics – Sathyaprakash, Ratan Prakashan Mandhir, New Delhi, VIIth Edition 1990.

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PART IV (I) – (C)
NON – MAJOR ELECTIVE – COURSE – I

I YEAR – I SEMESTER

COURSE CODE: 7NME1C

COURSE 1 – COMMUNICATIVE ENGLISH

15 hours per Semester – 1 hour per Week

Objective

To enable each learner at the college level to communicate effectively in English both in the spoken and in the written mode

Theory

Practice oriented course. Hence, 75:25 scheme of marking has to be followed. 75 marks for external assessment. 25 marks for internal marks assessment. Internal assessment will be carried out by the teacher who teaches the course while the external evaluation will be done by a group of 2 or 3 teachers who teach the course from the same college or from the nearby colleges.

Unit I BASICS OF ENGLISH

Sentence- Clause-Phrase-Word-Morpheme. Introduction to sounds of English-stress-intonations

Unit II INTRODUCTION TO LSRW SKILLS

Listening –Reading-Speaking-Writing skills

Unit III SPOKEN COMMUNICATION

Participating in Conversation

Preparation of Speech for shorter or longer duration

Unit IV WRITTERN COMMUNICATION-I

Note-Making-Summarizing-Paraphrasing-letter writing

Unit V WRITTEN COMMUNICATION-II

Introduction to preparing curriculum vitae-Creating and verifying personal and official e-mail-Preparing notice circulars, memos and agenda for a meeting-Report writing-Common errors in English Translation.

ACTIVITIES

1. Arrange the conversation between the students.
2. Preparing the speeches (for example, introducing a speaker or proposing a vote of thanks at the college function, explaining an experiment & etc.,)
3. Passage for note making
4. Passage for summarizing
5. Writing a paragraph on any topic(Statements and proverbs can be given)
6. Writing a C.V.
7. Writing a memo/notice/agenda/email/report
8. Ten sentences form Tamil to English & English to Tamil
9. Ten Sentences from error correction.

RECOMMENDED BOOKS

1. "Success with Spoken English II" Dr. Saraswathi and Dr. Noorjahan kother adham (2000), Common Wealth University books, Chennai.
2. "Teaching Spoken English and Communication Skills" Rev.Dr.Francis Soundararaj (1995), T.R.Publication, Chennai.
3. "Developing Communication Skills," Krishna Mohan and Meera Benerji (2002) Macmillan India Limited.

volumes – vowels Consonants –Rhythm and Intonation prepared by Ciefc and published by Oxford University Press, Chennai.

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SEMESTER-II

S.No.	Class	Semester	Title of the Course	Course Code
1.	**I B.Sc Maths**	**II**	**Tamil –II Idaikala Ilakiyamum Sirukathaium**	**721T**
			English–II-English Of Enrichment-II	**722E**
			Professional English For Physical Science	72BEPP
			Core–III-Analytical Geometry of 3D and Vector Calculus	**7BMA2C1**
			Core–IV-Sequences and Series	**7BMA2C2**
			Allied-II-Physics-Electricity, Electronics,Atomic Nuclear Physics	**7BPHA2**
			Environmental Studies	**7BES2**

முதலாம் ஆண்டு - இரண்டாம் பருவம்
பாடக்குறியீட்டு எண்: 721வு

பொதுத்தமிழ் தாள் -2 இடைக்கால இலக்கியமும் சிறுகதையும்

அலகு 1

அ. திருஞானசம்பந்தர்

1. திருவாடானை - "மாதோர் கூறு" எனத் தொடங்கும் பாடல்.
2. திருப்புனவாசல் - "மின்னியல் செஞ்சடை" எனத் தொடங்கும் பாடல்.
3. திருக்கொடுங்குன்றம் - "வானிற் பொலிவெய்தும்" எனத் தொடங்கும் பாடல்.

ஆ. திருநாவுக்கரசர்

1. திருப்புத்தூர் - "மின்காட்டும்" எனத் தொடங்கும் பாடல்.
2. திருஇராமேச்சுரம் - "பாசமும்" எனத் தொடங்கும் முதல் பாடல்.
3. திருப்பூவணம் - "வடியேறு" எனத் தொடங்கும் பாடல்.

இ. சுந்தரர்

3. திருக்கானப்பேர் - "தொண்டர் அடித் தொழலும்" எனத் தொடங்கும் பாடல்.
2. திருச்சுழியல் - "ஊனாய் உயிர் உகலாய்" எனத் தொடங்கும் பாடல்.

ஈ. மாணிக்கவாசகர் - திருவாசகம்

1. திருப்பெருந்துறை - இன்பம் பெருக்கி எனத் தொடங்கும் பாடல்.(திருவெண்பா.11)
2. திரு உத்தரகோசமங்கை - நீத்தல் விண்ணப்பம், இருதலைக்கொள்ளி என்று தொடங்கும் பாடல்.

உ. திருமூலர் - திருமந்திரம்

1. அன்பும் சிவமும் எனத் தொடங்கும் பாடல்.
2. எட்டிப் பழுத்த எனத் தொடங்கும் பாடல்.
3. படமாடக் கோயில் எனத் தொடங்கும் பாடல்.

ஊ. திருமங்கை ஆழ்வார்

திருப்புல்லாணி - ஒன்பதாம் பத்து நாலாம் திருமொழி "காவார் மடல் பெண்ணை" எனத் தொடங்கும் ஒன்றாம் பாடல் முதல் "வில்லாள் இலங்கை" எனத் தொடங்கும் ஐந்தாம் பாடல் வரை (மொத்தம் ஐந்து பாடல்கள்)

எ. சிற்றிலக்கியம்

9. அபிராமி அந்தாதி - உதிக்கின்ற செங்கதிர் எனத் தொடங்கும் முதற்பாடல் தொடங்கி அதனைத் தொடர்ந்து வரும் 9 பாடல்கள் (ஆக மொத்தம் 10 பாடல்கள்).
10. தமிழ்விடு தூது - 17 ஆம் கண்ணி முதல் 27 ஆம் கண்ணி வரை.
11. திருக்குற்றாலக்குறவஞ்சி, வசந்தவள்ளி பந்தடித்தல்.
12. பாடுவார் முத்தப்பர், செயங்கொண்டார் சதகம் முதல் இரு பாடல்கள்.

அலகு 2 - சிறுகதை

சிறுகதைகள் 10 ஆசிரியர் குழு, அறிவுப் பதிப்பகம்.

அலகு 3 - இலக்கணம்

சொல்லிலக்கணம்

சொல்வகை, பெயர்ச்சொல், வினைச்சொல்,இடைச்சொல், உரிச்சொல்,இலக்கணம், வேற்றுமை, மயக்கம், ஆகுபெயர், (ஆ.சிவலிங்கனார், தமிழ் இலக்கண உணர்வுகள் - கபிலன் பதிப்பகம், புதுச்சேரி).

அலகு 4 - இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு.

அலகு 5 - படைப்பாற்றல் சிறுகதை படைத்தல்

I YEAR – II SEMESTER
COURSE CODE: 722E
COURSE - II – ENGLISH FOR ENRICHMENT – II

Texts Prescribed

5. Gate Way to English – *An Anthology of Prose and Poetry* Ed. by the Board of Editors, Harrows Publications, Chennai.
6. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.

Unit I Prose

1. My Greatest Olympic Prize – Jesse Owens
2. Voluntary Poverty – Mahatma Gandhi
3. Helen Kellar – Ishbel Ross

Unit II Prose

1. Coffee Worries – R.K. Narayan
2. A Night Among the Pines – R.L. Stevenson
3. Spoon Feeding – W.R.Inge

Unit III Poetry

1. Daffodils - Wordsworth
2. Mending Wall – Robert Frost
3. A River – A.K.Ramanujan

Unit IV Grammar

Adjective, Preposition, Conjunction and Interjection.

Unit V Composition

Formal Letters, Resume Writing, Precise Writing and General Essays.

Allocation of Working Hours per week

Prose	-	3 hours
Poetry	-	1 hour
Grammar & Composition	-	2 hours
Total	-	6 hours

Professional English for Physical Science-72BEPP

Objectives:

The Professional Communication Skills Course is intended to help Learners in Arts and Science colleges

- Develop their competence in the use of English with particular reference to the workplace situation.
- Enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the workplace.
- Develop their competence and competitiveness and thereby improve their employability skills.
- Help students with a research bent of mind develop their skills in writing reports and research proposals.

Unit 1- Communicative Competence

Listening – Listening to two talks/lectures by specialists on selected subject specific topics - (TED Talks) and answering comprehension exercises (inferential questions)

Speaking: Small group discussions (the discussions could be based on the listening and reading passages- open ended questions

Reading: Two subject-based reading texts followed by comprehension activities/exercises

Writing: Summary writing based on the reading passages.

Grammar and vocabulary exercises/tasks to be designed based on the discourse patterns of the listening and reading texts in the book. This is applicable for all the units.

Unit 2 - Persuasive Communication

Listening: listening to a product launch- sensitizing learners to the nuances of persuasive communication

Speaking: debates – Just-A Minute Activities

Reading: reading texts on advertisements (on products relevant to the subject areas) and answering inferential questions

Writing: dialogue writing- writing an argumentative /persuasive essay.

Unit 3- Digital Competence

Listening to interviews (subject related)

Speaking: Interviews with subject specialists (using video conferencing skills)

Creating Vlogs (How to become a vlogger and use vlogging to nurture interests – subject related)

Reading: Selected sample of Web Page (subject area)

Writing: Creating Web Pages

Reading Comprehension: Essay on Digital Competence for Academic and Professional Life.

The essay will address all aspects of digital competence in relation to MS Office and how they can be utilized in relation to work in the subject area

Unit 4 - Creativity and Imagination

Listening to short (2 to 5 minutes) academic videos (prepared by EMRC/ other MOOC videos on Indian academic sites – E.g. https://www.youtube.com/watch?v=tpvicScuDy0)

Speaking: Making oral presentations through short films – subject based

Reading: Essay on Creativity and Imagination (subject based)

Writing – Basic Script Writing for short films (subject based)

- Creating blogs, flyers and brochures (subject based)
- Poster making – writing slogans/captions(subject based)

Unit 5- Workplace Communication & Basics of Academic Writing

Speaking: Short academic presentation using PowerPoint

Reading & Writing: Product Profiles, Circulars, Minutes of Meeting.

Writing an introduction, paraphrasing

Punctuation (period, question mark, exclamation point, comma, semicolon, colon, dash, hyphen, parentheses, brackets, braces, apostrophe, quotation marks, and ellipsis)

Capitalization (use of upper case)

Outcomes of the Course.

- At the end of the course, learners will be able to,
- Attend interviews with boldness and confidence.
- Adapt easily into the workplace context, having become communicatively competent.
- Apply to the Research &Development organisations/ sections in companies and offices with winning proposals.

Instruction to Course Writers:

Acquisition of subject-related vocabulary should not be overlooked.

1. Textboxes with relevant vocabulary may be strategically placed as a Pre Task or in SummingUp
2. Grammar may be included if the text lends itself to the teaching of a Grammaticalitem.However, testing and evaluation does not include Grammar.

COURSE CODE: 7BMA2C1

CORE COURSE-III–ANALYTICAL GEOMETRY OF 3D AND VECTOR CALCULUS

Unit – I

Preliminaries – Direction cosines – Direction – ratios – angle between the lines – Various forms of equation of a plane – angle between two planes – Angle bisectors of two planes – Equation of a plane through the line of intersection of two planes – Straight lines – Equation of a straight line in various forms – problems.

Unit – II

A Plane and a line – Coplanar lines, Skew lines – S.D. between two Skew lines, Spheres Equation of a Sphere – Tangent line and Tangent plane – Section of a Sphere.

Unit – III

Cone – Definition – Equation of the Cone in various forms – Equation of a right circular Cone – Cylinder – Definition – Equation of a right circular cylinder – simple problems.

Unit – IV

Vector Calculus – Vector Differentiation– Vector Algebra – Differentiation of vectors - Gradient – Divergence and Curl – Solenoidal – irrotational – Harmonic Vector.

Unit – V

Line and Surface Integrals – Line Integrals – Surface Integrals - Theorems of GREEN, GAUSS and STOKE'S(Statements only) problems.

Text Books:

- Analytical Geometry of 3D and Vector Calculus by Dr. S.Arumugam and A.ThangaPandi Isaac, New Gamma Publishing House, Palayamkottai,2014
- Analytical Geometry 3D and Vector Calculus by Dr. M.K.Venkataraman and Mrs. Manorama Sridhar, National Publishing Company, Chennai, 2001.

Unit I	Chapter 1,Chapter 2, Chapter 3, Section 3.1 of (1)
Unit II	Chapter 3 section 3.2,Chapter 4 sections 4.1 to 4.3 of (1)
Unit III	Chapter 4 sections 4.13 to 4.16, 4.18 to 4.21 of (2)
Unit IV	Chapter 5 of (1)
Unit V	Chapter 7 of (1)

Books for Reference:

a. A text book of Analytical Geometry Part II – Three Dimensions by T.K.ManicavachagomPillay and T.Natarajan, S.Viswanathan (Printers & Publishers) Pvt. Ltd. 2001
b. Vector Calculus by S.Narayanan and T.K.ManicavachagomPillay, S.Viswanathan (Printers & Publishers) Pvt. Ltd. 1997

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COURSE CODE: 7BMA2C2

CORE COURSE - IV – SEQUENCES AND SERIES

Unit – I

Sequences – bounded sequences – Monotonic sequences – Convergent sequences – Divergent and Oscillating sequences – The algebra of limits.

Unit – II

Behaviour of monotonic sequences – Some Theorems on limits – Subsequences – limit points –Cauchy sequences – The upper and lower limits of a sequence.

Unit – III

Series of positive terms –infinite series – Comparison test –Kummer's test – Root test and Condensation test – Integral test

Unit – IV

Series of arbitrary terms – Alternating series – Absolute convergence – Tests for convergence of series of arbitrary terms

Unit – V

Rearrangement (Derangement) of Series – Multiplication of series.

Text Book:

1. Sequences and Series by Dr. S.Arumugam and Prof. A.ThangapandiIssac,

New Gamma Publishing House, Palayamkottai, December 2015.

Unit I	Chapter 3sections 3.1 to 3.6
Unit II	Chapter 3 sections 3.7 to 3.12
Unit III	Chapter 4 sections 4.1 to 4.5
Unit IV	Chapter 5 sections 5.1 to 5.3
Unit V	Chapter 5 sections 5.4 & 5.5

Books for Reference:

1. Algebra Volume-I by T.K.Manicavachagom Pillay, T.Natarajan and K.S.Ganapathy.

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COURSE CODE: 7BPHA2

ALLIED COURSE II – ELECTRICITY, ELECTRONICS, ATOMIC AND NUCLEAR PHYSICS (THEORY)

Unit I CURRENT ELECTRICITY

Ohm's law – Law of resistance in series and parallel – Specific resistance – capacitors – capacitors in serial and parallel – Kirchoff's laws – Wheatstone's network – condition for balance.

Carey-Foster's bridge – measurement of resistance – measurement of specific resistance – determination of temperature coefficient of resistance – Potentiometer – calibration of Voltmeter.

Unit II ELECTROMAGNETISM

Electromagnetic Induction – Faraday's laws – Lenz law – Self Inductance – Mutual Inductance – Coefficient of Coupling.

A.C. Circuits – Mean value – RMS value – Peak value – LCR in series circuit – impedance – resonant frequency – sharpness of resonance.

Unit III ATOMIC AND NUCLEAR PHYSICS

Bohr's atom model – radius energy – Atomic excitation – Ionization potential – Frank and Hertz Method – Nucleus – Nuclear properties – Mass defect – Binding energy.

Radio isotopes – Uses of radio isotopes – Nuclear fusion and Nuclear fission – X-rays – Production – properties –Derivation of Bragg's law – uses in industrial and medical fields.

Unit IVANALOG ELECTRONICS

Semiconductor – PN junction diode – Bridge rectifier – Zener diode – Regulated power supply.

Transistor – Working of a transistor – CE Configuration – current gain relationship between α and β – Transistor Characteristics – CE Configuration only – CE amplifier – feedback – Hartley oscillator – Colpitt's oscillator.

Unit V DIGITAL ELECTRONICS

Number system – Decimal – Binary – Octal and Hexadecimal system – Double Dabble method – Binary addition, subtraction and multiplication – conversion of one number system to another number system.

Logic gates – OR, AND, NOT, XOR, NAND and NOR gates – truth tables – Half adder and Full adder – Laws and theorems of Boolean's algebra – De Morgan's theorems.

Books for Study and Reference:

1. Electricity and Magnetism – R. Murugesan, S. chand & co, 2001.
2. Modern Physics – R. Murugesan, S. chand & co, 1998.
3. Basic Electronics – B.L. Theraja, S. chand & co, 2003.

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PART-IV (3)

COURSE CODE: 7BES2

I YEAR – II SEMESTER

COURSE – ENVIRONMENTAL STUDIES

Unit I The Multidisciplinary Nature of Environmental Studies

Definition, Scope and importance

Need for public awareness

Unit II Natural Resources

Renewable and non-renewable resources

M) FOREST RESOURCES: USE AND OVER-EXPLOITATION, DEFORESTATION, CASE STUDIES, TIMBER EXTRACTION, MINING, DAMS AND THEIR EFFECT ON FORESTS AND TRIBAL PEOPLE

N) WATER RESOURCES: USE AND OVER-UTILIZATION OF SURFACE AND GROUND WATER, FLOODS, DROUGHT, CONFLICTS OVER WATER, DAMS- BENEFITS AND PROBLEMS.

O) MINERAL RESOURCES: USE AND EXPLOITATION, EXPERIMENTAL EFFECTS OF EXTRACTING AND USING MINERAL RESOURCES, CASE STUDIES.

P) FOOD RESOURCES: WORLD FOOD PROBLEMS, CHANGES CAUSED BY AGRICULTURE AND OVERGRAZING, EFFECTS OF MODERN AGRICULTURE, FERTILIZER-PESTICIDE PROBLEMS, WATER LOGGING, SALINITY, CASE STUDIES.

Q) ENERGY RESOURCES: GROWING ENERGY NEEDS, RENEWABLE AND NON-RENEWABLE ENERGY SOURCES, USE OF ALTERNATE ENERGY RESOURCES, CASE STUDIES.

R) LAND RESOURCES: LAND AS A RESOURCE, LAND DEGRADATION, MAIN INDUCED LANDSIDES, SOIL-EROSION AND DESERTIFICATION

- ROLE OF INDIVIDUAL IN CONSERVATION OF NATURAL RESOURCES
- EQUITABLE USE OF RESOURCES FOR SUSTAINABLE LIFESTYLE

UNIT III ECOSYSTEMS, BIO-DIVERSITY AND ITS CONSERVATION

ECOSYSTEMS

- ✓ CONCEPT OF AN ECOSYSTEM
- ✓ STRUCTURE AND FUNCTION OF AN ECOSYSTEM
- ✓ ENERGY FLOW IN THE ECOSYSTEM
- ✓ FOOD CHAINS, FOOD WEBS AND ECOLOGICAL PYRAMIDS

Biodiversity and its conservation

- ✓ INTRODUCTION- DEFINITION: GENETIC, SPECIES AND ECOSYSTEM DIVERSITY
- ✓ BIO-GEOGRAPHICAL CLASSIFICATION OF INDIA
- ✓ VALUE OF BIODIVERSITY: CONSUMPTIVE USE, PRODUCTIVE USE, SOCIAL ETHICAL, AESTHETIC AND OPTION VALUES.
- ✓ BIODIVERSITY AT GLOBAL, NATIONAL AND LOCAL LEVELS
- ✓ INDIA AS A MEGA-DIVERSITY NATION
- ✓ HOT SPOTS OF BIODIVERSITY
- ✓ THREATS TO BIODIVERSITY: HABITAT LOSS, POACHING OF WILDLIFE, MAN-WILDLIFE CONFLICTS
- ✓ ENDANGERED AND ENDEMIC SPECIES OF INDIA
- ✓ CONSERVATION OF BIODIVERSITY IN-SITU AND EX-SITU CONSERVATION OF BIODIVERSITY

Unit IV Environmental Pollution

- CAUSES, EFFECTS AND CONTROL MEASURES OF:-
    - O. AIR POLLUTION
    - P. WATER POLLUTION
    - Q. SOIL POLLUTION
    - R. MARINE POLLUTION
    - S. NOISE POLLUTION
    - T. THERMAL POLLUTION
    - U. NUCLEAR HAZARDS

Unit V Field Work

- ➢ VISIT TO A LOCAL AREA TO DOCUMENT ENVIRONMENTAL ASSETS–RIVER/ FOREST/ GRASSLAND/ HILL/ MOUNTAIN
- ➢ VISIT TO A LOCAL POLLUTED SITE-URBAN/RURAL/INDUSTRIAL/AGRICULTURAL
- ➢ STUDY OF COMMON PLANTS, INSECTS, BIRDS
- ➢ STUDY OF SIMPLE ECOSYSTEM-POND, RIVER, HILL SLOPES, ETC

Books for Reference:

- AGARWAL, K.C.2001 ENVIRONMENTAL BIOLOGY, NIDI PUBL.LTD., BIKANER
- BHARUCHA ERACH THE BIODIVERSITY OF INDIA, MAPIN PUBLISHING PVT. LTD, AHAMEDABAD-380013,INDIA, EMAIL: MAPIN@CENT.NET®
- BURNER R.C. 1989, HAZARDOUS WASTE INCLINERATION MCGRAW HILL INC.480P
- CLARK R.S. MARINE POLLUTION, CLANDERSON PRESS OXFORD(TB)
- CUNNIGHAM, W.P.COOPER, T.H.GORHANI, E& HEPWORTH, M.T 2001 ENVIRONMENTAL ENCYLOPEDIA, JAICO PUBL. HOUSE, MUMBAI, 1196P.
- DE.A.K.ENVIRONMENTAL CHEMISTRY, WILEY EASTERN LTD.
- DOWN TO EARTH, CENTRE FOR SCIENCE AND ENVIRONMENT®
- GLEICK H.P. 1993, WATER IN CRISIS, PACIFIC INSTUTUE FOR STUDIES IN DEV, ENVIRONMENT & SECURITY, STOCKHOLM ENV. INSTITUTE,OXFORD UNIV.PRESS,473P

- HAWLINKS R.E., ENCYCLOPEDIA OF INDIAN NATURAL HISTORY, BOMBAY NATURAL HISTORY SOCIETY, BOMBAY (R)
- HEYWOOD, V.H & WATSON, R.T.1995, GLOBAL BIODIVERSITY ASSESMENT, CAMBRIDGE UNIV.PRESS, 114OP
- JADHAV, H&BHOSALE V.M.1995, ENVIRONMENTAL PROTECTION AND LAWS, HIMALAYA PUB; HOUSE, DELHI 284P
- MCKINNEY, M.L & SCHOCH, RM.1996 ENVIRONMENTAL SCIENCE SYSTEMS& SOLUTIONS, WEB ENHANCED EDITION 639P
- MHASKAR A.K.MATTER HAZARDOUS, TECHNO-SCIENCE PUBLICATIONS(TB)
- MILLER T.G. JR.ENVIRONMENTAL SCIENCE WADSWORTH PUBLICING CO(TB)
- ODURM, E.P.1971 FUDAMENTALOF ECOLOGY, W.B.SAUNDERS CO. USA 584P
- RAO M.N & DATTA, A.K., 1987, TEHCHNO-SCIENCE, WASTE WATER TREATMENT. OXFORD& IBH PUBL, CO.PVT. LTD.,345P
- SHARMA B.K. 2001, ENVIRONEMTAL CHEMISTRY GOEL PUBL,HOUSE,MEERUT
- SURVEY OF THE ENVIRONMENTAL THE HINDU(M)
- TOWNSEND C, HARPER J, AND MICHAEL DEGON,ESSENTIAL OF ECOLOGY,BLAKEWELL SCIENCE (TB)
- TRIVEDI R.K., HAND BOOK OF ENVIRONMENTAL LAWS, RULES, GUIDELINES, COMPLIANCES AND STANDARDS, VOL I AND II, ENVIRO MEIDA ®
- TRIVEDI R.K. & P.K.GOEL INTRODUCTION TO AIR POLLUTION,TECHNO-SCIENCE PUBLICATIONS (TB)
- WANGER K.D, 1998 ENVIRONMENTAL MANAGEMENT W.B. ENVIRONMENTAL MANAGEMENT. W.B.SAUNDERS CO. PHILADELPHIA, USA.499P

SEMESTER-III

S.No.	Class	Semester	Title of the Course	Course Code
1.	II B.Sc Maths	III	Tamil-III Kappiyamum Puthinamu	731T
			English – III English Of Enrichment-III	732E
			Core–V-Abstract Algebra	7BMA3C1
			Core–VI-Differential Equations and its Applications	7BMA3C2
			Allied – III- Programming in C	7BCEA3
			Non-major Elective – II- Effective Employability skills	7NME3C
			Skill Based Subjects– I- Competitive Examination skills	7SBS3A1
			Extension Activities	7BEA3

இரண்டாம் ஆண்டு - மூன்றாம் பருவம் -

பாடக்குறியீட்டு எண்: 731வு

பொதுத் தமிழ் தாள் - 3 - காப்பியமும் புதினமும்

அலகு 1

13. சிலப்பதிகாரம் - மங்கல வாழ்த்துப்பாடல்.
14. மணிமேகலை - பாத்திர மரபு கூறிய காதை.
15. கம்பராமாயணம் - சேது பந்தனப்படலம்.
16. பெரியபுராணம் - கோச்செங்கட்சோழ நாயனார் புராணம்.
17. தேம்பாவணி - கோலியாத் படலம்.
18. சீறாப்புராணம் - மானுக்குப் பிணை நின்ற படலம்

அலகு 2 - புதினம்

வேரில் பழுத்தபலா - சு.சமுத்திரம்.

அலகு 3 - இலக்கணம்

யாப்பும் அணியும்

செய்யுள் உறுப்புகள், எழுத்து, அசை, சீர், தளை, அடி, தொடை ஆகியன பற்றிய விளக்கம். பாவகை, வெண்பா, ஆசிரியப்பா ஆகியவற்றின் பொது இலக்கணங்கள்.

அணி, வகைகள், உவமை, உருவகம், வேற்றுமை, பின்வருநிலை, சிலேடை அணிகள்.

அலகு 4 - இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு.

அலகு 5 - படைப்பாற்றல்

மரபுக் கவிதை - புதுக்கவிதை படைத்தல்.

II YEAR – III SEMESTER
COURSE CODE: 732E

COURSE – III - ENGLISH FOR ENRICHMENT – III

Texts Prescribed

1. *Six Short Stories*, Ed. by the Board of Editors, Harrows Publications, Chennai.
2. *One Act Plays*, Ed. by the Board of Editors, Harrows Publications, Chennai.
3. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.
4. *English for Communication*, Ed. by the Board of Editors, Harrows Publications, Chennai.

Unit I Short Stories

1. Two Old Men – Leo Tolstoy
2. The Diamond Necklace – Guy de Maupassant
3. The Verger – Somerset Maugham
4. The Postmaster – Rabindranath Tagore.

Unit II One Act Plays

1. Riders to the Sea – J.M.Synge
2. The Rising of the Moon – Lady Gregory

Unit III One Act Plays

1. A Kind of Justice – Margaret Wood
2. The Refugee – Asif Currimbhoy

Unit IV Grammar

Tenses, Voices, Degrees of Comparison

Unit V Composition

Agenda, Minutes, Notice, Descriptive Writing

Allocation of Working Hours per week

Short Stories - 2 hours
One Act Plays - 2 hours
Grammar & - 2 hours
Composition ----------
Total - 6 hours

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II YEAR - III SEMESTER

COURSE CODE: 7BMA3C1

CORE COURSE - V – ABSTRACT ALGEBRA

Unit – I

Groups : Definition and Examples – Elementary Properties of a Group – Equivalent Definitions of a Group – Permutation Groups.

Unit – II

Subgroups – Cyclic Groups – Order of an Element – Cosets and Lagrange's Theorem.

Unit – III

Normal Subgroups and Quotient Groups – Isomorphism – Homomorphism.

Unit – IV

Rings : Definitions and Examples – Elementary properties of rings – Isomorphism – Types of rings – Characteristic of a ring – Subrings – Ideals – Quotient rings.

Unit – V

Maximal and Prime Ideals – Homomorphism of rings – Field of quotients of an Integral domain – Unique factorization domain – Euclidean domain.

Text Book:

1. S.Arumugam and A.ThangapandiIssac, Modern Algebra, SciTech Publications Pvt. Ltd., Chennai, 2003.

Unit I	Chapter 3sections 3.1 to 3.4
Unit II	Chapter 3 sections 3.5 to 3.8
Unit III	Chapter 3 sections 3.9 to 3.11
Unit IV	Chapter 4 sections 4.1 to 4.8
Unit V	Chapter 4 sections 4.9 to 4.11, 4.13 & 4.14

Books for Reference:

- N.Herstein, Topics in Algebra, John Wiley & Sons, Student 2nd edition, 1975.
- Vijay, K.Khanna and S.K.Bhambri, A course in Abstract Algebra, Vikas Publishing House Pvt. Ltd.
- Dr. R.Balakrishnan and N.Ramabadran, A text book of Modern Algebra, Vikas Publishing House Pvt. Ltd, New Delhi, 1994.

II YEAR - III SEMESTER
COURSE CODE: 7BMA3C2

CORE COURSE - VI – DIFFERENTIAL EQUATIONS AND ITS APPLICATIONS

Unit – I

Exact Differential Equations – Conditions for equation to be exact –Working rule for solving it – problems – Equations of the first order but of higher degree – Equations solvable for p, x, y, clairaut's form – Equations that do not contain (i) x explicitly (ii) y explicitly – Equations homogenous in x and y–Linear Equation with constant coefficients.

Unit – II

Linear equations with variable coefficients – Equations reducible to the linear equations – Simultaneous Differential Equations – First order and first degree – Simultaneous linear Differential Equations.

Unit – III

Linear equations of the second order – Complete Solution given a known integral – Reduction to Normal form – Change of the independent variable – Variation of parameters – Total Differential Equations – Necessary and Sufficient condition of integrability of Pdx + Qdy + Rdz = 0, Rule for solving it.

Unit – IV

Partial Differential Equations of the First oder – classifications of integrals – Derivations of Partial Differential Equations – Special methods – Standard forms – Charpit's method.

Unit – V

Flow of water from an Orifice – Falling bodies and other rate problems – Brachistochrone Problem – Tautochronous property of the Cycloid – Trajectories.

Text Book:

1. Differential Equations and its Applications by S.Narayanan&T.K.ManickavachagomPillay, S.Viswanathan (Printers& Publishers) Pvt. Ltd., 2015.

Unit I	Chapter 2 –sections 6.1 to 6.3; Chapter 4; Chapter5 –sections 1, 2, 3, 4
Unit II	Chapter 5–sections 5, 6; Chapter 6 – sections 1to 6
Unit III	Chapter 8–sections 1 to 4; Chapter 11
Unit IV	Chapter 12 – sections 1, 2, 3, 4, 5.1 to 5.4 & Section 6
Unit V	Chapter 3 – sections 2, 3, 4, 5; Chapter 10 – sections 1.1 – 1.3

Book for Reference:

1. Differential Equations and its Applications by Dr. S.Arumugam and Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, Edition, 2014.

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YEAR – III SEMESTER
COURSE CODE: 7BCEA3
ALLIED COURSE - III – PROGRAMMING IN C (THEORY & LAB)

Unit I

Overview of C: History of C – Importance of C – Basic Structure of C Programs – Programming Style – Character Set – C Tokens – Keywords and Identifiers – Constants, Variables and Data Types – Declaration of Variables – Defining Symbolic Constants – Declaring a variable as a constant – overflow and underflow of data – **Operators and Expressions:** Arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators – Arithmetic Expressions- Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical functions.

Unit II

Managing I/O Operations: Reading and Writing a Character – Formatted Input, Output – **Decision Making & Branching:** if statement - if else statement - nesting of if else statements - else if ladder – switch statement – the ?: operator – goto statement – the while statement – do statement – the for statement – jumps in loops.

Unit III

Arrays: One-Dimensional Arrays – Declaration, Initialization – Two-Dimensional Arrays – Multi-dimensional Arrays – Dynamic Arrays – Initialization. **Strings:** Declaration, Initialization of string variables – reading and writing strings – string handling functions.

Unit IV

User-defined functions: need – multi-function programs – elements of user defined functions – definition – return values and their types – function calls, declaration, category – all types of arguments and return values – nesting of functions – recursion – passing arrays, strings to functions – scope visibility and life time of variables. **Structures and Unions:** Defining a structure – declaring a structure variable – accessing structure members – initialization – copying and comparing – operation on individual members – array of structures – arrays within structures – structures within structures – structures and functions – unions – size of structures – bit fields.

Unit V

Pointers: the address of a variable – declaring, initialization of pointer variables – accessing a variable through its pointer – chain of pointers – pointer increments and scale factors – pointers and character strings – pointers as function arguments – pointers and structures. **Files**: Defining, opening, closing a file – IO Operations on files – Error handling during IO operations – command line arguments.

Text Book:

1. Programming in ANSI C, E.Balagurusamy, 6th Edition, Tata McGraw Hill Publishing Company, 2012.
   UNIT I: Chapters 1 (Except 1.3-1.7, 1.10-1.12), 2 (Except 2.9, 2.13), 3 (Except 3.13)
   UNIT II: Chapters 4 – 6
   UNIT III: Chapters 7, 8 (Except 8.5, 8.6, 8.7, 8.9, 8.10)
   UNIT IV: Chapters 9 (Except 9.20), 10
   UNIT V: Chapters 11 (Except 11.8, 11.10, 11.12, 11.14, 11.15, 11.17), 12 (Except 12.6)

Books for Reference:

1. Programming with C, Schaum's Outline Series, Gottfried, Tata McGraw Hill, 2006
2. Programming with ANSI and Turbo C , Ashok N.Kamthane , Pearson Education, 2006
3. H. Schildt, C: The Complete Reference, 4th Edition, TMH Edition, 2000.
4. Kanetkar Y., Let us C, BPB Pub., New Delhi, 1999.

PART IV (I) – (C)

NON – MAJOR ELECTIVE – COURSE II

II YEAR – III SEMESTER

COURSE CODE: 7NME3C

COURSE II – EFFECTIVE EMPLOYABILITY SKILLS

Unit I Curriculum Vitae & Facing the Interview

Applying for jobs, Preparing the curriculum Different formats vita, Facing the interviews, Frequently Asked Questions (FAQs).

Unit II Interpersonal Communication

One to one Communication

One to group Communication

Unit III Group Discussion

Listening, Ice-breaking, Leader – Member Moderates his role responsibility, Conflict, Management, Consensus, Steps involved

Unit IV Team Work

Qualities Selection constant & comfort, Orientation Review Tea, Review of the team work

Unit V Motivation

Leadership & Motivation, Behaviour, Motives Managerial Skills

Books for Reference:

- E.H.McGrath, S.J., "Basic Managerial Skills For All", Prentice-Hall of India Private Limited, New Delhi 110 001. ISBN-0-87692-498-4.
- D.K.Sarma, "You & Your Career", Wheeler Publishing, 755, Anna Salai, Chennai 600002. ISBN 81-7544-170-4. -1999
- Indian Jaycees, "Skills" Series, published by Indian Jaycees.
- S.P.Sachdeva, "Interview In A Nutshell", Sudha Publications (P) Ltd., B-5, Prabhat Kiran, Rajendra Place, New Delhi 110 008.

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PART IV (2) – SKILL BASED SUBJECTS (SBS)
GROUP I – SET I
II YEAR – III SEMESTER
COURSE CODE: 7SBS3A1
COURSE I – COMPETITIVE EXAMINATION SKILLS

Objectives:

- To build a sense of awareness among students through proper guidance about various competitive examinations in order to motivate students for prospective career in government and corporate sector.
- To intensively guide students for competitive examinations like TNPSC, UPSC, SSC, RRB, IBPS etc.

Unit I

Public Service Commission: Tamil Nadu Public Service Commission (TNPSC) and its role -History of TNPSC - Constitutional Provisions on the Formation, Functions, and Powers of Public Service Commissions for the Union and for the States - TNPSC and its rules of Procedure.
Eligibility and examination pattern: TNPSC - Union Public Service Commission (UPSC) - Staff Selection Commission (SSC) - Railway Recruitment Board (RRB) – Institute of Banking Personnel Selection (IBPS).

Unit II

Intelligence, creativity & application, testing & assessment - Types, verbal abilities & fluency

Unit III

Numerical ability:
Numbers, simplification, time and work, percentage, fraction, speed and distance, simple and compound interest, ratio and proportion

Unit IV

Spatial and perceptual abilities, situation reaction test

Unit V

Memory and inductive reasoning, Logical reasoning, Coding and Decoding, Direction Test, Syllogism

Books for Reference:

1. Ajay rai, “intelligence tests”, sterling paperbacks, published by sterling publishers pvt. Ltd., l-10, green park extension, new delhi 110 016., 2001
2. Competition success review magazines.

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PART V

II YEAR – III SEMESTER

COURSE CODE: 7BEA3

PART – V – EXTENSION ACTIVITIES

Extension Activities will be organized for 2 days in the Third Semester. The programme may be organized in any Saturday and Sunday.

A meeting of all the staff of the College (Teaching, Administrative and Technical Staff) be conducted before departing to the camp in which each and every aspect like Programmes to carried out, accommodation, food, medical aid, transport facilities, etc., should be thoroughly discussed.

One credit will be allotted for this Extension Activities. The marks allotted for each camp will be 100. Each student participating in the camp will be evaluated internally for 100 marks. The criteria for evaluation of Extension Activities will be as follows:

S. No.	Criteria	Maximum Marks
1.	Interaction with villagers	10
2.	Participation / Attitude towards work	10
3.	Participation in interaction and discussion	10
4.	Knowledge of problems / issues	10
5.	Organising & decision making ability	20
6.	Expression: a) Cultural programmes	10
	b) Report Writing	20
7.	Ability to adjust and work in a team	10
	Total	**100**

SEMESTER-IV

S.No.	Class	Semester	Title of the Course	Course Code
1.	II B.Sc Maths	IV	Tamil – IV Pandaya lakiyamum Nadahamum	741T
			English – IV English Of Enrichment-IV	742E
			Core–VII-Transform Techniques	7BMA4C1
			Core–VIII-Linear Algebra	7BMA4C2
			Allied – IV- Programming in C++	7BCEA4
			Allied Practical – II- Programming in c and C++ Lab	7BCEAP1
			Skill Based Subjects – II- Emergency and Medical Lab Skills	7SBS4B2
			Value Education-Manavalakalai Yoga	7BMY

இரண்டாம் ஆண்டு - நான்காம் பருவம்

பாடக்குறியீட்டு எண்: 741T

பொதுத்தமிழ் தாள் - 4 - பண்டைய இலக்கியமும் நாடகமும்

அலகு 1

அ. பத்துப்பாட்டு - சிறுபாணாற்றுப்படை

ஆ. நற்றிணை - வெள்ளிவீதியார் பாடல் எண்கள்: 70,335,348.

இ. குறுந்தொகை -

பாடல் எண்.40 (குறிஞ்சி) - யாயும் ஞாயும் எனத் தொடங்கும் பாடல் செம்புலப்பெயல் நீரார்

பாடல் எண்.43 (பாலை) - செல்வார் அல்லர் எனத் தொடங்கும் பாடல் ஔவையார்

பாடல் எண்.49 (நெய்தல்) - அணிற் பல்லன்ன எனத் தொடங்கும் பாடல் அம்மூவனார்

பாடல் எண்.61 (மருதம்) - தச்சன் செய்த எனத் தொடங்கும் பாடல் தும்பிசேர்கீரன்

பாடல் எண்.110 - வாரார் ஆயினும் எனத் தொடங்கும் பாடல் (முல்லை) கிள்ளிமங்கலக்கிழார்

ஈ. கலித்தொகை - பாடல் எண்.105. அரைசுபட எனத் தொடங்கும் பாடல் (முல்லை) சோழன் நல்லுருத்திரன்.

உ. அகநானூறு - திருமணச் சடங்குப் பாடல்கள் 2 (86,128)

ஊ. புறநானூறு - பிசிராந்தையார் பாடல்கள் (பாடல் எண்கள். 67,184)

எ. திருக்குறள் - பெரியாரைத் துணைக்கோடல், சிற்றினம் சேராமை ஆகிய இரு அதிகாரங்கள்

ஏ. நாலடியார் -

பாடல் எண்.135 - கல்வி கரையில எனத் தொடங்கும் பாடல்.

பாடல் எண்.215 - கோட்டுப் பூப்போல எனத் தொடங்கும் பாடல்.

பாடல் எண்.248 - நல் நிலைக்கண் தன்னை நிறுப்பானும் எனத் தொடங்கும்

பாடல்.

ஐ. பழமொழி நானூறு

பாடல் எண்.46 - நெடியாது எனத் தொடங்கும் பாடல்.

பாடல் எண்.47 - தோற்றத்தாலர் எனத் தொடங்கும் பாடல்.

பாடல் எண்.48 - மிக்குடையார் ஆகி எனத் தொடங்கும் பாடல்.

அலகு 2 - நாடகம்- நீதிதேவன் மயக்கம் - அறிஞர் அண்ணா.

அலகு 3 - இலக்கணம்

அகப்பொருள், (7 திணைகள்), புறப்பொருள் (12 திணைகள்), களவும், கற்பும், உள்ளுறை, இறைச்சி (ஆ.சிவலிங்கனார், தமிழ் இலக்கண உணர்வுகள், கபிலன் பதிப்பகம், புதுச்சேரி.

அலகு 4 - இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு

அலகு 5 - படைப்பாற்றல்

ஓரங்க நாடகம் படைத்தல்.

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II YEAR – IV SEMESTER
COURSE CODE: 742E

COURSE – IV- ENGLISH FOR ENRICHMENT – IV

Texts Prescribed

1. *Pygmalion* – G.B. Shaw
2. *Swami and Friends* – R.K. Narayan
3. *Tales from Shakespeare* Ed. by the Board of Editors, Harrows Publications, Chennai.
4. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.

Unit I Drama

Pygmalion – G.B. Shaw

Unit II – Fiction

Swami and Friends – R.K.Narayan

Unit III – Tales from Shakespeare

1.The Merchant of Venice
2. Romeo and Juliet
3. The Winter's Tale

Unit IV - Grammar

1. Concord
2. Question Tag
3. Kinds of Sentences
4. Direct and Indirect speeches

Unit V - Composition

1. Expansion of Proverbs
2. Group Discussion
3. Conversation (Apologizing, Requesting, Thanking)

Allocation of Working Hours per week

Drama - 2 hours
Fiction - 2 hours
Grammar & Composition - 2 hours

Total - 6 hours

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II YEAR - IV SEMESTER
COURSE CODE: 7BMA4C1
CORE COURSE - VII – TRANSFORM TECHNIQUES

Unit – I

Laplace Transform – Definition – Laplace Transform of Standard functions – Elementary Theorems – Laplace Transform of periodic functions – problems.

Unit – II

Inverse Laplace Transforms – Standard formulae – Basic Theorems – Solving Ordinary Differential Equations with constant coefficients, variable coefficients and simultaneous linear equations using Laplace Transform.

Unit – III

Fourier Series – Definition – To find the Fourier coefficients of Periodic functions of period 2π - even and odd functions – Half range series – problems.

Unit – IV

Fourier Transforms – Complex form of Fourier Integral Formula – Fourier Integral theorem – properties of Fourier Transform – Fourier sine and cosine Transforms – properties – Parsivals Identity - Problems

Unit – V

Z Transforms – Definition – Proprieties – Z Transforms of some basic functions – Problems – Inverse Z Transforms – Methods to find the inverse Z Transform – Use of Z – Transforms to solve finite Difference Equations – problems.

Text Books:

3. Calculus Volume III by S.Narayanan and T.K.ManicavachagomPillay, S.Viswanathan (Printers & Publishers) Pvt. Ltd., 2014.
4. Engineering Mathematics 3rd Edition by T.Veerarajan, Tata McGraw Hill Publishing Company Limited, New Delhi.

Unit I	Chapter 5sections 1 to 5 of (1)
Unit II	Chapter 5 sections 6 to 10 of (1)
Unit III	Chapter 6 sections 1 to 4, 5.1,5.2 of (1)
Unit IV	Chapter 6 sections 9.1 to 9.3, 10, 11.1, 11.2, 12, 13, 14, 14.1, 15 of (1)
Unit V	Chapter 7 sections 7.1 to 7.5 of (2)

Book for Reference:

1. Transforms and Partial Differential Equations by Dr.A.Singaravelu, Meenakshi Agency, Chennai

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II YEAR - IV SEMESTER

COURSE CODE: 7BMA4C2

CORE COURSE - VIII – LINEAR ALGEBRA

Unit – I

Vector Spaces – Definition and examples – Subspaces – Linear Transformation – Span of a set.

Unit – II

Linear Independence – Basis and Dimension – Rank and Nullity.

Unit – III

Matrix of a Linear Transformation – Inner Product Space – Definition and examples – Orthogonality – Orthogonal complement.

Unit – IV

Algebra of Matrices – Types of Matrices – The inverse of a matrix – Elementary Transformations – Rank of a Matrix– Simultaneous linear equations.

Unit – V

Characteristic Equation and Cayley – Hamilton theorem Eigen values and Eigen Vectors, Bilinear forms – Quadratic forms.

Text Book:

Dr. S.Arumugam and Mr. A.ThangapandiIssac, Modern Algebra, SciTech Publications (India) Pvt. Ltd., Chennai, 2003.

Unit I	Chapter 5sections 5.1 to 5.4
Unit II	Chapter 5 sections 5.5 to 5.7
Unit III	Chapter 5 sections 5.8, Chapter VI sections 6.1 to 6.3
Unit IV	Chapter 7 sections 7.1 to 7.6
Unit V	Chapter 7 sections 7.7, 7.8 Chapter VIII sections 8.1, 8.2

Books for Reference:

- S.Lang, Introduction to Linear Algebra 2nd Edition, Springer 2005.
- AR.Vasistha, Modern Algebra, Krishna Prakashan Publication.

II YEAR – III SEMESTER

COURSE CODE: 7BCEA4

ALLIED COURSE IV – PROGRAMMING IN C++ (THEORY & LAB)

Unit I

Software Crisis – Software Evolution – Basic Concepts of Object-Oriented Programming – Benefits of OOP – Object-Oriented Languages - Applications of OOP – Application of C++ - Structure of a C++ Program – Tokens – Keywords – Identifiers – Basic Data Types – Userdefined Data types – Derived data types – Symbolic constants – Type compatibility – Declaration of variables – Dynamic initialization of variables –Reference variables – Operators in C++ - Manipulators – Type cast operator – Expressions and their types-Implicit conversions – Control structures – The main function – Function prototyping – inline functions – Function overloading.

Unit II

Specifying a class – Defining member functions – Making an outside function inline – Nesting of member functions – Private member functions – Array within a class – Memory allocation for objects – Static data members – Static member functions – Array of objects - Objects as function arguments – Friendly functions – Returning objects – Constant member functions – Constructors – Parameterized constructor – Multiple constructors in a class – Constructors with default arguments – Dynamic initialization of objects – Copy constructor – Destructors.

Unit III

Defining operator overloading – Overloading unary operators – Overloading binary operators – Overloading binary operators using friend function – Rules for overloading operators - Defining derived classes – Single inheritance – Making a private member inheritable – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance - Virtual base classes – Constructors in derived class – Member classes: Nesting of classes.

Unit IV

Pointer to objects – this pointer – Pointers to derived classes – Virtual functions – Pure virtual functions – C++ Stream classes – Unformatted I/O operations – Managing output

With manipulators.

Unit V

Classes of file stream operations – Opening and Closing files – Detecting end of file – More about open() function – File modes, File pointers and their manipulation – Sequential input and output operations – Command-line arguments- Templates: class templates and function templates.

Text Book:

1. Object Oriented Programming with C**++,** E. Balagurusamy, Sixth Edition-2013, McGraw Hill Education (India) Private Limited, New Delhi.

UNIT I – Chapter 1 (Except 1.3, 1.4),

Chapter 2 (Only 2.6),

Chapter 3 (Except 3.20, 3.21, 3.22), Chapter 4

UNIT II – Chapter 5 (Except 5.18, 5.19), Chapter 6 (Except 6.8, 6.9, 6.10)

UNIT III – Chapter 7, Chapter 8

UNIT IV – Chapter 9, Chapter 10

UNIT V – Chapter 11 (Except 11.8), Chapter 12 (Only 12.2, 12.3 and 12.4)

Books for Reference:

1. C++ - The Complete Reference, Herbert Schildt, TMH, 1998.
2. C++ How to Program, Paul Deitel, Harvey Deitel, PHI, Ninth edition (2014).
3. Ashok N.Kamthane, Object Oriented Programming with ANSI & Turbo C ++,Pearson Education, 2006.
4. Object-Oriented Programming With C++, Poornachandra Sarang, 2nd Edition, PHI Learning Private Limited, New Delhi, 2009.
5. Object-Oriented Programming Using C++, Alok Kumar Jagadev, Amiya Kumar Rath and Satchidananda Dehuri, Prentice-Hall of India Private Limited, New Delhi, 2007.

COURSE CODE: 7BCEAP2

ALLIED PRACTICAL – II - PROGRAMMING IN C AND C++ LAB

1. Write a C Program to find the sum of digits.
2. Write a C Program to check whether a given number is Armstrong or not.
3. Write a C Program to check whether a given number is Prime or not.
4. Write a C Program to generate the Fibonacci series.
5. Write a C Program to display the given number is Adam number or not.
6. Write a C Program to print reverse of the given number and string.
7. Write a C Program to find minimum and maximum of 'n' numbers using array.
8. Write a C Program to arrange the given number in ascending order.
9. Write a C Program to add and multiply two matrices.
10. Write a C Program to calculate NCR and NPR
11. Write a program in C++ to add complex numbers using operator overloading
12. Write a program in C++ to multiply complex numbers using operator overloading
13. Write a program in C++ to convert temperature from Fahrenheit to Celsius
14. Write a program in C++ to calculate variance and standard deviation of N numbers
15. Write a program in C++ to find largest value of two numbers using nesting of member functions.
16. Write a program in C++ to find the sum of digits using constructor
17. Write a program in C to prepare the pay bill of employees
18. Write a program in C++ to calculate the volume of sphere, cone and cylinder using inline function
19. Write a program in C++ to prepare the student mark list
20. Write a program in C++ to perform the matrix addition, subtraction, and multiplication using single level inheritance
21. Write a program in C++ to find out the standard deviation using hybrid inheritance

II YEAR – IV SEMESTER

COURSE CODE: 7SBS4B2

COURSE II – EMERGENCY AND MEDICAL LAB SKILLS

Objectives:

- To recognize the nature and seriousness of the patient's condition or extent of Injuries to assess requirements for emergency medical care
- Administer appropriate emergency medical care based on assessment findings of the patient's condition
- To Perform safely and effectively the expectations of the job

Unit I

First Aid – Fracture and Fire

First Aid – Drowning and Snake animal, rodent bites.

First Aid – Diarrhoea, Dysentery and Heat Stroke

Unit II

Traffic Rules

Road accidents: precautions, preventions & emergency steps to be taken on the spot advantages of 108 ambulance.

Unit III

Basic Clinical lab Tests

Blood, Urine, saliva, stool Tests

Unit IV

Awareness Programmes on the importance of locally available herbal plants and Vegetables. Skin lashes poor eye-sight anemia

Unit V

Project on Locally available native treatments for various Health Problems (Project Report 15 to 25 Pages)

Books for Reference:

- Era.Su.Muthu and Meera Ravishankar, "First Aid", aug-2013 published by Sura Books (PVT) Ltd., 1620, 'J' Block, 16th Main Road, Anna Nagar, Chennai – 600 040.
- Dr.Rama Rao, "Handbook of First Aid", Chennai.

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PART – IV (4)

II YEAR – IV SEMESTER

COURSE CODE: 7BVE4

COURSE – VALUE EDUCATION

DEFINITION

THE LEARNING AND PRACTICE OF FACTS WHICH HAVE ETERNAL VALUE IS WHAT IS CONTEMPLATED BY VALUE EDUCATION. IT CAN ALSO BE THE PROCESS BY WHICH A GOOD CITIZEN IS MOULDED OUT OF A HUMAN BEING. THE EVOLUTION OF A GOOD HUMAN BEING IS WHEN HE REALISES THAT HIS CONSCIENCE SHOWS TO HIM THE RIGHTNESS OF HIS ACTION.

OBJECTIVE

TO CREATE AN AWARENESS TO VALUES AMONG LEARNERS AND HELP THEM ADOPT THEM IN THEIR LIVES.

UNIT I

DEFINITION – NEED FOR VALUE EDUCATION – HOW IMPORTANT HUMAN VALUES ARE – HUMANISM AND HUMANISTIC MOVEMENT IN THE WORLD AND IN INDIA – LITERATURE ON THE TEACHING OF VALUES UNDER VARIOUS RELIGIONS LIKE HINDUISM, BUDDHISM, CHRISTIANITY, JAINISM, ISLAM, ETC. AGENCIES FOR TEACHING VALUE EDUCATION IN INDIA – NATIONAL RESOURCE CENTRE FOR VALUE EDUCATION – NCERT– IITS AND IGNOU.

UNIT II

VEDIC PERIOD – INFLUENCE OF BUDDHISM AND JAINISM – HINDU DYNASTIES – ISLAM INVASION – MOGHUL INVASION – BRITISH RULE – CULTURE CLASH – BHAKTI CULT – SOCIAL REFORMERS – GANDHI – SWAMI VIVEKANANDA – TAGORE – THEIR ROLE IN VALUE EDUCATION.

UNIT III

VALUE CRISIS – AFTER INDEPENDENCE

INDEPENDENCE – DEMOCRACY – EQUALITY – FUNDAMENTAL DUTIES – FALL OF STANDARDS IN ALL FIELDS – SOCIAL, ECONOMIC, POLITICAL, RELIGIOUS AND ENVIRONMENTAL – CORRUPTION IN SOCIETY.

POLITICS WITHOUT PRINCIPLE – COMMERCE WITHOUT ETHICS – EDUCATION WITHOUT CHARACTER – SCIENCE WITHOUT HUMANISM – WEALTH WITHOUT WORK – PLEASURE WITHOUT CONSCIENCE – PRAYER WITHOUT SACRIFICE – STEPS

TAKEN BY THE GOVERNMENTS – CENTRAL AND STATE – TO REMOVE DISPARITIES ON THE BASIS OF CLASS, CREED, GENDER.

UNIT IV

VALUE EDUCATION ON COLLEGE CAMPUS

TRANSITION FROM SCHOOL TO COLLEGE – PROBLEMS – CONTROL – FREE ATMOSPHERE – FREEDOM MISTAKEN FOR LICENSE – NEED FOR VALUE EDUCATION – WAYS OF INCULCATING IT – TEACHING OF ETIQUETTES – EXTRA-CURRICULAR ACTIVITIES – N.S.S., N.C.C., CLUB ACTIVITIES – RELEVANCE OF DR.A.P.J. ABDUAL KALAM'S EFFORTS TO TEACH VALUES – MOTHER TERESA.

UNIT V

PROJECT WORK

- COLLECTING DETAILS ABOUT VALUE EDUCATION FROM NEWSPAPERS, JOURNALS AND MAGAZINES.
- WRITING POEMS, SKITS, STORIES CENTERING AROUND VALUE-EROSION IN SOCIETY.
- PRESENTING PERSONAL EXPERIENCE IN TEACHING VALUES.
- SUGGESTING SOLUTIONS TO VALUE – BASED PROBLEMS ON THE CAMPUS.

RECOMMENDED BOOKS:

- SATCHIDANANDA. M.K. (1991), "ETHICS, EDUCATION, INDIAN UNITY AND CULTURE" – DELHI, AJANTHA PUBLICATIONS.
- SARASWATHI. T.S. (ED) 1999. CULTURE", SOCIALISATION AND HUMAN DEVELOPMENT: THEORY, RESEARCH AND APPLICATION IN INDIA" – NEW DELHI SAGE PUBLICATIONS.
- VENKATAIAH. N (ED) 1998, "VALUE EDUCATION" NEW DELHI PH. PUBLISHING CORPORATION.
- CHAKRABORTI, MOHIT (1997) "VALUE EDUCATION: CHANGING PERSPECTIVES" NEW DELHI: KANISHKA PUBLICATIONS.
- "VALUE EDUCATION – NEED OF THE HOUR" TALK DELIVERED IN THE HTED SEMINAR – GOVT. OF MAHARASHTRA, MUMBAI ON 1-11-2001 BY N.VITTAL, CENTRAL VIGILANCE COMMISSIONER.
- "SWAMI VIVEKANANDA'S ROUSING CALL TO HINDU NATION": EKNATH RANADE (1991) CENTENARY PUBLICATION
- RADHAKRISHNAN, S. "RELIGION AND CULTURE" (1968), ORIENT PAPERBACKS, NEW DELHI.

SEMESTER-V

S.No.	Class	Semester	Title of the Course	Course Code
1.	III B.Sc Maths	V	Core–IX-Real Analysis	7BMA5C1
			Core–X-Statistics I	7BMA5C2
			Core–XI-Operations Research I	7BMA5C3
			Elective (I) - Graph Theory	7BMAE1A
			Elective (II)- Numerical Analysis	7BMAE2A
			Skill Based Subjects – I Heritage and Tourism	7SBS5A5
			Skill Based Subjects – I Marketing and sales Management	7SBS5A6

III YEAR - V SEMESTER
COURSE CODE: 7BMA5C1

CORE COURSE - IX – REAL ANALYSIS

Unit – I

Introduction – Sets and functions – Countable and Uncountable sets – Inequalities of Holder and Minkowski – Metric spaces – Definition and examples – Bounded sets in a metric space – Open Ball in a metric space – Opensets.

Unit – II

Subspace – Interior of a set – Closed sets – Closure – limit point – Dense sets – Completeness – Baire's Category Theorem

Unit – III

Continuity – Homeomorphism – Uniform continuity.

Unit – IV

Connectedness – Definition and examples – Connected subsets of R – Connectedness & Continuity.

Unit – V

Compact Metric spaces – Compact subsets of R – Equivalent Characterization for Compactness – Compactness and Continuity.

Text Book:

1. Modern Analysis, Dr. S.Arumugam& Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, Edition 2015.

Unit I	Chapter 1sections 1.1 to 1.4 Chapter 2 sections 2.1 to 2.4
Unit II	Chapter 2 sections 2.5 to 2.10 & Chapter 3
Unit III	Chapter 4 sections 4.1 to 4.3
Unit IV	Chapter 5
Unit V	Chapter 6

Book for Reference:

1. Richard R.Goldberg, Methods of Real analysis, IBM Publishing, New Delhi.

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III YEAR - V SEMESTER
COURSE CODE: 7BMA5C2

CORE COURSE - X – STATISTICS - I

Unit – I

Central Tendencies – Introduction – Arithmetic Mean – Partition Values – Mode – Geometric Mean and Harmonic Mean – Measures of Dispersion.

Unit – II

Moments – Skewness and Kurtosis – Curve fitting – Principle of least squares.

Unit – III

Correlation – Rank correlation Regression – Correlation Coefficient for a Bivariate Frequency Distribution.

Unit – IV

Interpolation – Finite Differences – Newton's Formula – Lagrange's Formula – Attributes – Consistency of Data – Independence and Association of Data.

Unit – V

Index Numbers – Consumer Price Index Numbers – Analysis of Time series – Time series – Components of a Time series – Measurement of Trends.

Text Book:

1. Statistics by Dr. S. Arumugam and Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, June 2015.

Unit I	Chapter 2sections 2.1 to 2.4 Chapter 3 section 3.1
Unit II	Chapter 4 sections 4.1 & 4.2 Chapter 5 section 5.1
Unit III	Chapter 6 sections 6.1 to 6.4
Unit IV	Chapter 7 sections 7.1 to 7.3 Chapter 8 sections 8.1 to 8.3
Unit V	Chapter 9 sections 9.1 & 9.2 Chapter 10 sections 10.1 to 10.3

Book for Reference:

1. Statistics Theory and Practice by R.S.N.Pillai and Bagavathi, S.Chand and Company Pvt. Ltd. New Delhi, 2007.

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III YEAR - V SEMESTER
COURSE CODE: 7BMA5C3

CORE COURSE - XI – OPERATIONS RESEARCH - I

Unit – I

Introduction – Origin and Development of O.R – Nature and features of O.R. – Scientific Method in O.R. – Modelling in O.R. – Advantages and Limitations of Models – General solution methods of O.R. models – Applications of Operations Research – Linear Programming problem – Mathematical formulation of the problem – Illustration on Mathematical formulation of linear programming problems – Graphical solution method – Some exceptional cases – General linear programming problem – Canonical and Standard forms of L.P.P – Simplex method.

Unit – II

Use of Artificial variables (Big M method – Two Phase method) Duality in linear programming – General primal and dual pair – Formulating a Dual problem – Primal – Dual pair in matrix form – Duality Theorems – Complementary Slackness Theorem – Duality and Simplex method – Dual simplex method.

Unit – III

Introduction – L.P. formulation of T.P. – Existence of solution in T.P. – The Transportation table – Loops in T.P. – Solution of a Transportation problem – Finding an initial basic – feasible solution (NWCM – LCM – VAM) – Degeneracy in TP – Transportation Algorithm (MODI Method) – Unbalanced T.P – Maximization T.P.

Unit – IV

Assignment problem – Introduction – Mathematical formulation of the problem – Test for optimality by using Hungarian method – Maximization case in Assignment problem.

Unit – V

Sequencing problem – Introduction – problem of sequencing – Basic terms used in Sequencing– n jobs to be operated on two machines – problems – n jobs to be operated on K machines–problems–Two jobs to be operated on K machines (Graphical method)–problems.

Text Book:

1. Operations Research (14th edition) by KantiSwarup, P.K.Gupta and Man Mohan, Sultan Chand & Sons, New Delhi, 2008.

Unit I	Chapter 1sections 1.1 to 1.7, 1.10 Chapter 2 sections 2.1 to 2.4 Chapter 3 sections 3.1 to 3.5 Chapter 4 sections 4.1 to 4.3
Unit II	Chapter 4 sections 4.4 Chapter 5 sections 5.1 to 5.7, 5.9
Unit III	Chapter 10 sections 10.1 to 10.3, 10.5, 10.6, 10.8, 10.9, 10.12, 10.13, 10.15
Unit IV	Chapter 11 sections 11.1 to 11.4
Unit V	Chapter 12 sections 12.1 to 12.6

Books for Reference:

1. P.K.Gupta and D.S.Hira, Operations Research, 2nd Edition, S.Chand& Co., New Delhi, 2004.
2. Taha H.A.,Operations Research–An Introduction,8th edition,Pearson Prentice Hall.

III YEAR - V SEMESTER
COURSE CODE: 7BMAE1A

ELECTIVE COURSE - I (A) – GRAPH THEORY

Unit – I

Graphs – Definition and examples – Degrees – Sub graphs – Isomorphism – Ramsey Numbers – Independent Sets and Coverings – Intersection graphs and Line graphs – Matrices – Operations on Graphs.

Unit – II

Dergee Sequences – Graphic sequences – Walks, Trials and Paths – Connectedness and Components – Blocks – Connectivey – Eulerian Graphs – Hamiltonian Graphs.

Unit – III

Trees – Characterisation of Trees – Centre of a Tree – Matchings–Matchings in Bipartite Graphs.

Unit – IV

Planer graphs and properties – Characterization of Planer graphs – Thickness, crossing and outer planarity – Chromatic number and ChromaticIndex – The Five colour theorem and four colour problem.

Unit – V

Chromatic polynomials – Definitions and Basic properties of Directed Graph – Paths and Connections – Digraphs and Matrices – Tournaments.

Text Book:

1.Invitation to Graph Theory by Dr. S.Arumugam & S.Ramachandran, Scitech Publications (India) Pvt. Ltd,2001 .

Unit I	Chapter 2
Unit II	Chapters 3, 4 & 5
Unit III	Chapters 6 & 7
Unit IV	Chapter 8, Chapter 9, sections 9.1 to 9.3
Unit V	Chapter 9 section 9.4; Chapter 10

Book for Reference:

1.Graph Theory with Applications to Engineering and Computer Science byNarasinghDeo, Prentice Hall of India, New Delhi.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMAE2A

ELECTIVE COURSE - II (A) – NUMERICAL ANALYSIS

Unit – I

Solution of Algebraic and Transcendental equations – Introduction, Bisection Method, Iteration Method, Method of False position, Newton Raphson Method.

Unit – II

Interpolation : Finite differences – Forward differences, Backward differences, Central differences, Symbolic relations, Newton's formula for Interpolation – Interpolation with unevenly spaced points – Lagrange's Interpolation formula.

Unit – III

Numerical Differentiation and Integration – Introduction, Numerical Differentiation – Errors in Numerical Differentiation – Cubic Spline method – maximum and minimum values of a tabulated function, Numerical Integration – Trapezoidal Rule and Simpson's 1/3 and 3/8 rules.

Unit – IV

Matrices and Linear system of Equations – Gaussian Elimination method, Gauss – Jordan method, Modification of the Gauss method to compute the inverse – Method of Factorization – Iterative method – Jacobi and Gauss Seidal methods.

Unit – V

Numerical Solutions of Ordinary Differential Equations – Solution by Taylor Series, Picard's method of Successive approximations, Euler method, Modified Euler method Runge – Kutta Methods.

Text Book:

- Introductory Methods of Numerical Analysis, (4^{th} Edition) by S.S.Sastry, PHI Learning Pvt. Ltd., New Delhi, 2009.

Unit I	Chapter 2sections 2.1 to 2.5
Unit II	Chapter 3 sections 3.3, 3.6, 3.9, 3.9.1.
Unit III	Chapter 5 sections 5.1, 5.2 - 5.2.2, 5.3, 5.4 – 5.4.1, 5.4.2, 5.4.3.
Unit IV	Chapter 6 sections 6.3.2, 6.3.3, 6.3.4, 6.4.
Unit V	Chapter 7 sections 7.2 to 7.4, 7.4.2, 7.5

Books for Reference:

- Numerical Methods by P.Kandasamy and Others S.Chand Publications.
- Numerical Analysis with Programming in C by Dr. S.Arumugam, A.Thangapandi Issac, Dr. A.Somasundaram, New Gamma Publishing House, Palayamkottai, 2013.

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GROUP I – SET II
III YEAR – V SEMESTER
COURSE CODE: 7SBS5A5
COURSE II – HERITAGE AND TOURISM

Objectives:

- To understand the definitions, terminology and concepts of cultural heritage and its relationships with tourism.
- To Understand heritage tourism supply by examining different categories of heritage attractions and the contexts within which heritage exists and additional perspectives on scale from the supply perspective
- To understand the role of interpretation in cultural heritage sites and the relevance of such interpretation approaches to visitors.
- Provide a framework to plan, design, and assess interpretation programs for tourists

Unit I

Tourism – Introduction – Concepts – Significance – Forms of Tourism – Effects of Tourism – Social, Economic and Environmental aspects – Human Rights

Unit II

Importance of preserving heritage – Heritage Spots in India – In Tamil Nadu – Brief history of the heritage spots – The role of heritage spots in promoting tourism – UNESCO guidelines on Heritage

Unit III

Role of Government in promoting tourism – ITDC- TTDC-Palace on wheels – Travel industry service network – Land (rail and road) Air – Water – Travel Agency – Hospitality and Accommodation

Unit IV

Travel Guide – Features – requirements – One's role as a guide – Income and Employability – Qualities and skills of a professional travel or tourist guide

Unit V

Project work – Field visit to heritage and tourism spots in Sivagangai and Ramanathapuram Districts and submission of a report (15 to 25 pages)

Books for Reference:

Bhatia, A. K – Tourism Development Principles and Practices, (Sterling Publishers (P) Ltd., New Delhi)

Ananand M. M – Tourism and Hotel Industry in India (Sterling Publishers (P) Ltd., New Delhi)

Acharya Ram – Tourism and Cultural Heritage (Rosa Publications: Jaipur, 1986)

Jha, S.M – Tourism Marketing (Himalaya Publishing House)

GROUP I – SET II
III YEAR – V SEMESTER
COURSE CODE: 7SBS5A6
COURSE III – MARKETING AND SALES MANAGEMENT

Objectives:

- To acquire analytical skills for solving marketing related problems and challenges and to familiar with the strategic marketing management process
- To learn the elements of sales force to be an effective component of an organization's overall marketing strategy.

Unit I

Introduction: Evolution of Marketing – Types of Marketing: Consumer Products Marketing, Industrial Marketing and Services Marketing – Demographic and Behavioural Dimensions of Marketing – Marketing Planning

Unit II

Basics of Market Segmentation, Targeting and Positioning – Components of The Marketing Mix: Product – Price – Place – Promotion – Distribution Channels: Types – Merits and Demerits

Unit III

Marketing Vs Selling – Nature and Scope of Sales Management – Personal Selling and Salesmanship – Selling Function – Understanding Consumer's Decision Making Process – Sales Organization and Types Of Selling

Unit IV

Prospecting – Approaching The Customer – Sales Presentation – Sales Demonstration – Negotiating Buyer Concerns – Closing The Sale – Post Sales Service and Complaint Handling

Unit V

Modern Trends in Marketing and Sales: Internet Marketing – Direct Marketing – Multi Level Marketing – Relationship Marketing – Selling through Kiosks

Books for Reference:

- Chunawalla, S. A., Sales Management, 5th Edition (2007), Himalaya Publishing House
- Havaldar, Krishna; Sales And Distribution Management, 1st Edition (2006), Tata Mcgraw Hill
- Perreault, Jr., William; Mccarthy, E. Jerome, Basic Marketing, 15th Edition, 2006, Tata Mcgraw Hill

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SEMESTER-VI

S.No.	Class	Semester	Title of the Course	Course Code
1.	III B.Sc Maths	VI	Core – XII Mechanics	7BMA6C1
			Core – XIII Complex Analysis	7BMA6C2
			Core – XIV Statistics II	7BMA6C3
			Core – XV Operations Research II	7BMA6C4
			Elective – III- Fuzzy Algebra	7BMAE3B
			Skill Based Subjects – II Fruit and Vegetable Preservative Skills	7SBS6B4
			Skill Based Subjects – II National cadet corps	7SBS6B7

COURSE CODE: 7BMA6C1

CORE COURSE - XII – MECHANICS

Unit – I

Forces acting at a point – Resultant and Components – Definition – Simple cases of finding the resultant – Parallelogram law of forces – Analytical Expression for the resultant of two forces acting at a point – Triangle of forces – Perpendicular Triangle of forces – Converse of Triangle of forces – The polygon of forces – Lami's Theorem – An Extended form of the parallelogram law of forces – Parallel forces – Resultant of like parallel forces – unequal unlike parallel forces – Resultant of a number of parallel forces acting on a rigid body –Conditions of equilibrium of three coplanar parallel forces – Centre of two Parallel forces – moments – Physical significance – Geometrical representation – sign and unit of the moment – Varigon's theorem.

Unit – II

Equilibrium of three forces acting on a Rigid body - Rigid body subjected to any three forces – Three coplanar forces theorem – conditions of Equilibrium – Two Trigonometrical Theorem – Friction – Laws of friction – Theorems – Equilibrium of a particle on a rough inclined plane – (i) under a force parallel to the plane – (ii) under any forces – problems on friction – Uniform string under the action of gravity – Equation of the common catenary – axis, vertex, directrix, span and sag – Tenson at any point – Important formulae – Geometrical properties of the Common Catenary

Unit – III

Projectile – Definition – fundamental principles – path of the projectile – Characteristics of the motion of a projectile – Range on an inclined plane – greatest distance maximum range

Unit – IV

Impulsive force – Impulse – Impact of two bodies – Loss of Kinetic energy in Impact – Collision of elastic bodies – Fundamental laws of Impact – Newton's experimental law – Impact of a smooth sphere on a fixed smooth plane – Direct Impact of two smooth spheres – Loss of kinetic energy due to direct impact – Oblique impact of two smooth spheres – Loss of kinetic energy due to oblique impact.

Unit – V

Motion under the action of Central forces – Velocity and acceleration – Equation of motion in Polar Coordinates – Note on equiangular spiral – Motion under a central force – Differential Equation of Central Orbits – Perpendicular from the pole on the tangent – Formulae in Polar Coordinates – Pedal Equation of the central orbit – Pedal equation of some of the well known curves – Velocities in a central orbit – Two folded problems.

Text Books:

- Statics (17th edition) by Dr. M.K.Venkataraman, Agasthiyar Publications, Tiruchirapalli, 17th Edition, July 2014.
- Dynamics (18th edition) byDr. M.K.Venkataraman, Agasthiyar Publications, Tiruchirapalli, 2017

Unit I	Chapter 2sections 1 – 10 of (1) Chapter 3 sections 1 – 12of (1)
Unit II	Chapter 5 sections 1 – 5 & Chapter 7of (1) Chapter 11 sections 1 – 6 of (1)
Unit III	Chapter 6 sections 1 – 5, 12, 13, 14, of (2)
Unit IV	Chapter 7 sections 1 – 4 of (2) Chapter 8 sections 1 – 8 of (2)
Unit V	Chapter 11 sections 1 – 11 of (2)

Books for Reference:

a. Mechanics by P.Duraipandian, Emerald Publishers, Chennai, 1984.
b. Statics by S.Narayanan S.Chand & Co., Chennai, 1986.
c. Dynamics by S.Narayanan S.Chand & Co., Chennai, 1986.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMA6C2

CORE COURSE – XIII – COMPLEX ANALYSIS

Unit – I

Functions of a Complex variable – Limits – Theorems on Limits – Continuous functions – Differentiability – The Cauchy – Riemann equations – Analytic functions – Harmonic functions.

Unit – II

Elementary Transformations – Bilinear Transformations – Cross ratio – Fixed points of Bilinear Transformation – Some special Bilinear transformations.

Unit – III

Complex integration – Definite integral – Cauchy's Theorem – Cauchy's Integral formula – Higher derivatives.

Unit – IV

Series expansions – Taylor's Series – Laurent's Series – Zeros of an analytic function Singularities.

Unit – V

Residues – Cauchy's Residue Theorem – Evaluation of definite integrals.

Text Book:

1. Complex Analysis by Dr.S.Arumugam,A.Thangapandi Isaac &Dr. A.Somasundaram, Scitech Publications (India) Pvt. Ltd, Chennai, 2017.

Unit I	Chapter 1sections 2.1 to 2.8
Unit II	Chapter 3 sections 3.1 to 3.5
Unit III	Chapter 6 sections 6.1 to 6.4
Unit IV	Chapter 7 sections 7.1 to 7.4
Unit V	Chapter 8 sections 8.1 to 8.3

Books for Reference:

- P.P.Gupta – Kedarnath&Ramnath , Complex Variables, Meerut – Delhi.
- J.N.Sharma, Functions of a Complex Variable, Krishna Prakasan Media (P) Ltd,
    a. 13th Edition, 1996-97.
- T.K.ManickavachagomPillay, Complex Analysis, S.Viswanathan Publishers Pvt. Ltd, 1994.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMA6C3

CORE COURSE - XIV – STATISTICS - II

Unit – I

Probability – Conditional Probability – Random variables – Discrete Random Variable – Continuous Random Variable – Mathematical Expectations – Moment Generating Function – Characteristic function.

Unit – II

Some Special Distributions – Binomial Distribution – Poisson Distribution – Normal Distribution – Gamma Distribution – Chi-Square Distribution – Student's t-Distribution – Snedecor's F Distribution – Fischer's Z – Distribution.

Unit – III

Tests ofSignificance of large samples – Sampling – Sampling Distribution – Testing of Hypothesis – Procedure for Testing of Hypothesis for large samples – Tests of Significance for large samples.

Unit – IV

Tests of Significance based on 't' Distribution – Test of Significance based on F-Test – Test for Significance of an Observed sample correlation.

Unit – V

Test based on Chi - Square Distribution – Chi - Square Test forPopulation variance – Chi - Square Test – To test the Goodness of fit – Test for Independence of Attributes – Analysis of Variance – One Criterion of Classification – Two Criteria of Classification – Three criteria of Classification – Latin Square.

Text Book:

1. Statistics by Dr. S.Arumugam and Mr. A.Thangapandi Isaac, New Gamma Publishing House, Palayamkottai, June 2015.

Unit I	Chapter 11sections 11.1 & 11.2 Chapter 12sections 12.1 to 12.6
Unit II	Chapter 13 sections 13.1 to 13.4
Unit III	Chapter 14 sections 14.1 to 14.5
Unit IV	Chapter 15 sections 15.1 to 15.3
Unit V	Chapter 16 sections 16.1 to 16.3 Chapter 17sections 17.1 to 17.3

Book for Reference:

1. Statistics Theory and Practice by R.S.N.Pillai and Bagavathi, S.Chand and Company Pvt. Ltd., New Delhi, 2007.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMA6C4

CORE COURSE- XV– OPERATIONS RESEARCH - II

Unit – I

Replacement problem and System Reliability – Introduction – Replacement of Equipment / Assert that Deteriorates Gradually – Replacement of Equipment that fails suddenly.

Unit – II

Inventory Control – Introduction – Types of Inventories – Reason for carrying Inventories – Costs Associated with Inventories – Factors affecting Inventory Control – The Concept of EOQ – Deterministic Inventory problems with no shortages, with shortages Problems of EOQ with Price Breaks.

Unit – III

Queuing Theory – Introduction – Queuing System – Elements of Queuing System – Operating Characteristics of a Queuing System – Deterministic Queuing System – Probability Distributions of Queuing Systems – Classification of Queuing models – Definition of Transient and Steady states – Poisson Queuing systesm – (M/M/1) : (∞/FIFO), (M/M/1) : (∞/SIRO), (M/M/1) : (N/FIFO) Generalized model Birth – Death Process.

Unit – IV

Network Scheduling by PERT / CPM – Network Basic components – Drawing network – Critical path Analysis – PERT Analysis – Distinction between PERT and CPM

Unit – V

Game Theory – Two person Zero – Sum Games – Basic terms – Maximin – Minimax Principle – Games without saddle points – Mixed strategies – Graphical solution of 2× n and m × 2 games – Dominance Property – General solution of m×n rectangular games.

Text Book:

1. Operations Research (14th Edition) by KantiSwarup, P.K.Gupta & ManMohan, Sultan Chand & Sons, Educational Publishers, New Delhi, 2008.

Unit I	Chapter 18sections 18.1 to 18.3
Unit II	Chapter 19 sections 19.1 – 19.3, 19.6, 19.7, 19.9, 19.10 – 19.12
Unit III	Chapter 21 sections 21.1 –21.9 upto model IV
Unit IV	Chapter 25 sections 25.1 – 25.8
Unit V	Chapter 17 sections 17.1 to 17.7, 17.9

Books for Reference:

1. Operations Research (2nd edition) by P.K.Gupta and D.S.Hira, S.Chand& Co., New Delhi, 2004.
2. Operations Research (2nd edition) by S.Kalavathy, Vikas Publishing House, New Delhi, 2002.

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III YEAR - VI SEMESTER

COURSE CODE: 7BMAE3B

ELECTIVE COURSE - III (B) – FUZZY ALGEBRA

Unit – I

Fuzzy sets – Basic types – Basic concepts - α - cuts – Additional prosperities of α - cuts – Extension principle for Fuzzy sets.

Unit – II

Operations on Fuzzy sets – Types of operations – Fuzzy complements – Fuzzy intersections : t-norms – Fuzzy Unions : t-conorms.

Unit – III

Combinations of operations – Fuzzy Arithmetic – Fuzzy numbers

Unit – IV

Arithmetic operations on intervals – Arithmetic operations on Fuzzy numbers – Fuzzy relations – Binary fuzzy relations – Fuzzy equivalence relations – Fuzzy compatibility relations.

Unit – V

Fuzzy ordering relations – fuzzy morphisms.

Text Book:

1. George J.Klir and Bo Yuan, Fuzzy Sets and Fuzzy Logic, Theory and Applications, Prentice Hall Inc., New Jersey. 1995.

Unit I	Chapter 1 sections 1.3, 1.4 Chapter 2 sections 2.1, 2.3
Unit II	Chapter 3 sections 3.1 to 3.4
Unit III	Chapter 3 section 3.5 Chapter 4 section 4.1
Unit IV	Chapter 4 sections 4.3& 4.4 Chapter 5 sections 5.3, 5.5, 5.6
Unit V	Chapter 5 sections 5.7 & 5.8

Books for Reference:

1. H.J.Zimmermann, Fuzzy Set Theory and its Applications, Allied Publishers Limited, New Delhi, 1991.

GROUP II – SET II

III YEAR – VI SEMESTER

COURSE CODE: 7SBS6B4

COURSE II – FRUIT AND VEGETABLE PRESERVATION SKILLS

Objectives:

- To understand the science, principles and techniques involved in fruits and vegetables preservation techniques
- To impart thorough knowledge on the technical skills in various aspects of food processing and preservation

Unit I

Principles, Methods, types of Preservation.

Preservation media and mode of action of preservation. Traditional & Modern methods.

Unit II

Study of various types of equipments – care & precautions and usage.

Study of various types of containers.

Unit III

Vegetables & their product preservation Methods

Importance of personal hygiene and sanitary standards

Unit IV

Fruits & their preservation

Unit V

Project:

- Mapping of preservation practices & centre's

(or)

- Preservation practices specific to fruits & Vegetables in your area

(Project Report 15 to 25 Pages)

Books for Reference:

- Srivastava R.P. and Kumar.S "Fruit and Vegetable Preservation: Principles"
- Ranjit Singh "Fruits" National Book Trust.
- Girdhari Lal Tandon et al "Preservation of Fruit and Vegetable Products"

III YEAR – VI SEMESTER
COURSE CODE: 7SBS6B7
COURSE IV- NATIONAL CADET CORPS(NCC)

Objectives:

- After going through this unit, the students would be able to gain an insight into aims and objectives of NCC.
- Explore the importance of NCC in nation building.
- Understand the concept of National Integration and its importance.

Unit – I

National Cadet Corps(NCC)-Introduction to NCC- Genesis –Objectives of NCC- Concept of Training in NCC- Organization of the NCC – Associate NCC officers – Cert Exam.

Unit –II National Integration:

National interests, Objectives, Threats and Opportunities. Religions, culture, traditions and customs of India, Importance and necessity. Freedom struggle and nationalist movement in India **Drill:**Foot drill, Arms drill, Ceremonial drill, Qualities of immediate and implicit obedience of orders.

Unit-III Social Awareness and Community Development:

NGO's Role and Contribution, Drug abuse and trafficking, Basics of social service and its need, Civic responsibility, Contribution of youth towards social welfare, Rural development programmes.

Unit –IV Environmental Awareness and Conservation:

Natural resources conservation and management, Water conservation and rain water harvesting, Hygiene and sanitation, structure and function of the human body, infectious and contagious diseases and its prevention.

Unit –V Personality Development and Leadership:

Introduction to personality development, self awareness, communication skills, Leadership traits, Time management.

Books for Reference:

- Anonymous. 1995. Officers training manual. PRECIS, NCC, OTS, Kamptee
- Bose, R and Faust, L. 2011. Mother Teresa, CEO, Unexpected Principles for Practical Leaders, Tata McGraw Hill Publications, New Delhi.
- Ganapathi, R. 2003. Swami Vivekanandar, Ramakrishna Math Press, Chennai.
- Gandhi, M.K. 1983. An Autobiography or The story of My Experiments with Truth, Navajivan Publishing House, Ahamedabad
- Gupta, S.K. and Joshi, R. 2008. Human Resource Management, Kalyani Publishers, New Delhi.
- Kalam, A.P.J. 1999. Wings of Fire, University Press, Hyderabad
- Mishra, R.C. 2000. A Hand book of NCC, Kanti Prakashan, Etawah.Precis
- Rana, B.S 2004. Maharana Pratap, Diamond Books (P) Ltd., New Delhi. Rana, B.S. 2004. Chatrapati Shivaji, Diamond Books (P) Ltd., New Delhi

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ALAGAPPA UNIVERSITY, KARAIKUDI

NEW SYLLABUS UNDER CBCS PATTERN (w.e.f. 2022 – 2023 and w.e.f. 2017-2018)

B.Sc. MATHEMATICS – PROGRAMME STRUCTURE

B.Sc., MATHS – ODD & Even Semester - 2022-2023 Academic Year

Sem.	Part	Course Code	Title of the Course	Cr.	Hrs. / Week	Max. Marks		
						Int.	Ext.	Total
I	I	2211T	**Tamil / Other Languages – I**	3	6	25	75	100
	II	2212E	**Communicative English – I**	3	6	25	75	100
	III	22BMA1C1	**Core–I**- Differential Calculus and trigonometry.	5	5	25	75	100
		22BMA1C2	**Core–II**- Classical Algebra	4	4	25	75	100
		22BPHA1	**Allied - I –** statistics – I	3	3	25	75	100
		22BPHAP1	**Allied – I** Practical - Respective Allied Theory course	2	2	40	60	100
		71BEPP	**Professional English For Physical Science**	4		25	75	100
	IV	22BVE1	**SEC – I – Value Education Libray**	2	2 2	25	75	100
			Total	**26**	**30**	**--**	**--**	**800**
II	I	2221T	**Tamil / Other Languages – II**	3	6	25	75	100
	II	2222E	**Communicative English – II**	3	6	25	75	100
	III	22BMA2C1	**Core–III**-Analytical Geometry of 3D and Vector Calculus	5	5	25	75	100
		22BMA2C2	**Core–IV -** Integral Calculus	4	4	25	75	100
		22BPHA2	**Allied– II – statistics – II**	3	3	25	75	100

		22BPHAP2	**Allied – I** Practical - Respective Allied Theory course	2	2	40	60	100
		72BEPP	**Professional English For Physical Science**	4	2	25	75	100
	IV	22EES2	**SEC – I – Environmental Studies**	2	2	25	75	100
			Libray					
			Total	**26**	**30**	**--**	**--**	**800**
III	I	731T	**Tamil / Other Languages – III**	3	6	25	75	100
	II	732E	**English – III**	3	6	25	75	100
	III	7BMA3C1	**Core–V-**Abstract Algebra	4	5	25	75	100
	III	7BMA3C2	**Core–VI-**Differential Equations and its Applications	4	5	25	75	100
	III		**Allied – III** (Theory only) **(or) Allied–III** (Theory cum Practical)	5 4	5 3	25 15	75 60	100 75
			Allied Practical – II	-	2**	--	--	---
	IV	7NME3A/ 7NME3B/ 7NME3C	**(1) Non-major Elective – II**	2	1	25	75	100
		7SBS3A1/ 7SBS3A2/ 7SBS3A3	**(2) Skill Based Subjects– I**	2	2	25	75	100
	V	7BEA3	**Extension Activities**	1	-	100	-	100
			Total (Allied Theory only)	**24**	**30**	-	-	**800**
			Total (Allied Theory cum Practical)	**23**				**775**
IV	I	741T	**Tamil / Other Languages – IV**	3	6	25	75	100
	II	742E	**English – IV**	3	6	25	75	100
	III	7BMA4C1	**Core–VII-**Transform Techniques	4	5	25	75	100
	III	7BMA4C2	**Core–VIII-**Linear Algebra	4	4	25	75	100
	III		**Allied – IV(Theory only) (or) Allied –IV(Theory cum Practical)**	5 4	5 3	25 15	75 60	100 75
			Allied Practical - II	2	2	20	30	50
	IV	7SBS4B1/ 7SBS4B2/ 7SBS4B3	**(2) Skill Based Subjects – II**	2	2	25	75	100

		7BVE4/ 7BMY4/ 7BWS4	**(4) Value Education / Manavalakalai Yoga / Women's Studies**	2	2	25	75	100
			Total (Allied Theory only)	**23**	**30**	-	-	**700**
			Total (Allied Theory cum Practical)	**24**				**725**
V	III	7BMA5C1	**Core–IX-**Real Analysis	4	6	25	75	100
	III	7BMA5C2	**Core–X-**Statistics I	4	5	25	75	100
	III	7BMA5C3	**Core–XI-**Operations Research I	4	5	25	75	100
	III	7BMAE1A/ 7BMAE1B	**Elective (I) - A)** Graph Theory **(or) B)** Special Functions	5	5	25	75	100
	III	7BMAE2A/ 7BMAE2B	**Elective (II)** – **A)** Numerical Analysis **(or) B)** Combinatorics	5	5	25	75	100
	IV	7SBS5A4/ 7SBS5A5/ 7SBS5A6/ 7SBS5A7	**(2) Skill Based Subjects – I**	2	2	25	75	100
			(2) Skill Based Subjects – I	2	2	25	75	100
			Total	**26**	**30**	-	-	**700**
VI	III	7BMA6C1	**Core – XII** Mechanics	4	6	25	75	100
	III	7BMA6C2	**Core – XIII** Complex Analysis	4	5	25	75	100
	III	7BMA6C3	**Core – XIV** Statistics II	4	5	25	75	100
	III	7BMA6C4	**Core – XV** Operations Research II	4	5	25	75	100
	III	7BMAE3A/ 7BMAE3B	**Elective – III A)** Discrete Mathematics **(or) B)** Fuzzy Algebra	5	5	25	75	100
	IV	7SBS6B4/ 7SBS6B5/ 7SBS6B6/ 7SBS6B7	**(2) Skill Based Subjects – II** **(2) Skill Based Subjects – II**	2 2	2 2	25 25	75 75	100 100
			Total	**25**	**30**	-	-	**700**
			Grand Total	**140**	**180**	-	-	**4100**

SEMESTER-I

S.No.	Class	Semester	Title of the Course	Course Code
1.	I B.Sc Maths	I	Tamil-I- Tharkala kavithium Urainadaium	2211T
			English-I-Communicative English-I	712E
			Professional English for physical science-I	221BEPP
			Core-I Differential Calculus& Trigonometry	22BMA1C1
			Core-II Classical Algebra	22BMA1C2
			Allied-General Physics-I	22BPHA1
			Allied-General Physics-I Practical	22BPHAP1
			Value Education	22BVE1

பருவம் - 01				
பாடக்குறியீட்டுஎண்: 2211T	பொதுத் தமிழ்	T/P	C	H/W
	தற்காலக் கவிதையும் உரைநடையும்	T	3	6

நோக்கம் :	➢ கவிதை, உரைநடை வடிவங்களை வெளிப்படுத்தல். ➢ படைப்பாளர்கள்வெளிப்படுத்தும்சமூகவிழுமியப்பதிவுகளைஎடுத்தியம்புதல்.
அலகு - 1	அ. மரபுக் கவிதை 1. பாரதியார் -பாரததேசமென்றுபெயர்சொல்லுவார்(பாரததேசம்) 2. பாரதிதாசன் - கனியிடைஏறியசுளையும்முற்றல்கழையிடைஏறியசாறும், 3. நாமக்கல் கவிஞர் - காந்தியக் கவிஞர் (காந்தியஞ்சலி) 4. கண்ணதாசன் - மனிதரைப் பாட மாட்டேன் (கவிதைகள்) 5. முடியரசன் -தொழிலாளி 6. ஜீவானந்தம் -"காலுக்குசெருப்புமில்லை...கால்வயிற்றுகூழுமில்லை.," ஆ. புதுக்கவிதை 1. அப்துல் ரகுமான் - வீட்டுக்கொரு மரம் (கூடு துறக்கும் பறவை) 2. மு.மேத்தா - கண்ணீர் பூக்கள் 3.சக்திஜோதி - தேடித்தீராததெரு
அலகு - 2	**உரைநடை** 1. சவால் விடு - சாதனை செய் - இராமையா இ..ஆ.ப., தாமரைபதிப்பகம், சென்னை - 98.
அலகு - 3	**இலக்கணம்** எழுத்திலக்கணம் : எண் - பெயர் - முறை - பிறப்பு - வடிவம் - மாத்திரை – மொழி முதல்எழுத்துக்கள் - மொழிஇறுதிஎழுத்துக்கள் - மெய்மயக்கம் – உருபு இலக்கணம்.
அலகு - 4	**இலக்கிய வரலாறு** மரபுக்கவிதை, புதுக்கவிதை தொடர்பான இலக்கிய வரலாறு.
அலகு - 5	**படைப்பும் பயிற்சியும்** கட்டுரைஎழுதுதல்
பயன்கள் :	➢ கவிதை, உரைநடை படைப்பாக்கச் சிந்தனை. ➢ சமூகச் சிந்தனை வாயிலாக மாணவர் மேம்படுதல்.

PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCES

Subject Code: 221BEPP

OBJECTIVES:

- To develop the language skills of students by offering adequate practice in professionalcontexts.
- To enhance the lexical, grammatical and socio-linguistic and communicative competence of first year physical sciencesstudents
- To focus on developing students' knowledge of domain specificregisters and the required language skills.
- To develop strategic competence that will help in efficient communication
- To sharpen students' critical thinking skills and make students culturally aware of the targetsituation.

LEARNINGOUTCOMES:

- Recognise their own ability to improve their own competence in using the language
- Use language for speaking with confidence in an intelligible and acceptablemanner
- Understand the importance of reading forlife
- Read independently unfamiliar texts withcomprehension
- Understand the importance of writing in academiclife
- Write simple sentences without committing error of spelling orgrammar (Outcomes based on guidelines in UGC LOCF – GenericElective)

NB: All four skills are taught based on texts/passages. UNIT 1: COMMUNICATION
Listening: Listening to audio text and answering questions
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 2: DESCRIPTION
Listening: Listening to process description.-Drawing a flow chart.
Speaking: Role play (formal context)
Reading: Skimming/Scanning-

eading 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 3: 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 4: 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 LSRWtasks

UNIT 5: 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

Semester - I				
Course code: 22BMA1C1	**Core Course - I**	**T/P**	**C**	**H/W**
	DIFFERENTIAL CALCULUS AND TRIGONOMETRY	**T**	**5**	**5**

Objectives	To find the rate of change of a quality with respect to other. To understand the concepts of differential calculus in depth. To analyze the behavior of various curves.
Unit -I	Successive differentiation – Expansion of functions - Leibnitz formula – Max an Min of function of two variables.
Unit-II	Sub tangent and Subnormal – Polar coordinates - Angle between the tangents Slope of the tangent –Angle of intersection of two curves.
Unit- III	Envelopes – Curvature – Circle, Radius and Centre of Curvature – Evolutes.
Unit- IV	Application of DeMovire's Theorem – Expansions of sin nθ, cos nθ, tan nθ - Expansions of sinθ and cosθ in ascending powers of θ – Expansions of an interms of multiple angles
Unit -V	Hyperbolic functions – Inverse hyperbolic functions.

Textbooks

Narayanan, S., & Manicavachagom Pillay, T.K. (2015). *Calculus (Vol. I)*. S.Viswanatha (Printers and Publishers) Pvt. Ltd.

Narayanan, S., & Manicavachagom Pillay, T.K. (2009). *Trigonometry*. S.Viswanathan (Printer and Publishers) Pvt. Ltd.

Reference Books

Arumugam, S., & Thangapandi Isaac, A. (2014). *Calculus* (Vol. I). Palayamkottai: New Gamm Publishing House.

Venkataraman, M. K., & Manorama, S. (2001). *Calculus & Fourier Series*. Chennai: Th National Publishing Company.

Outcomes	Students will be able to Find maxima and minima of function of two variables. Expand and in terms of θ.

Semester - I				
Course code: 22BMA1C2	**Core Course - II**	**T/P**	**C**	**H/W**
	CLASSICAL ALGEBRA	**T**	**4**	**4**

Objectives	To study the Relations between the roots and coefficients of equations. To understand the concepts of Various Inequalities and Series.
Unit -I	Theory of Equations: – Relation between roots and coefficients – Symmetric functions of roots – Formation of equation – Transformation of equation.
Unit-II	Reciprocal equation – Descartes' rule of signs – Diminishing and Increasing the roots – Newton's method of divisors – Horner's method.
Unit- III	Inequalities: – A.M., G.M., H.M. and Applications – Cauchy Schwartz Inequality – Weierstrass Inequality.
Unit -IV	Binomial, Exponential and Logarithmic series
Unit -V	Summation of Series – Approximations

Textbooks

Manicavachagom Pillay, T.K., Natarajan, T., & Ganapathy, K.S. (2013). *Algebra* (Vol I) S.Viswanathan Printers and Publishers Pvt. Ltd.

Manicavachagom Pillay, T.K., Natarajan, T., & Ganapathy, K.S. (2013). *Algebra* (Vol II) S.Viswanathan Printers and Publishers Pvt. Ltd.

Reference Books

Arumugam, S., & ThangapandiIssac. A. (2011). *Theory of Equations, Theory of Numbers and Trigonometry*. Palayamkottai: New Gamma Publishing House.

Venkataraman, M. K., & Manoramma, S. (2002). *Theory of Equations, Theory of Numbers and Inequalities*. Chennai: The National Publishing Company.

Outcomes	Students will be able to Describe the relation between roots and coefficients. Transform the equation through roots multiplied by a given number. Solve the reciprocal equations.

Course Code 22BPHA1	Allied-IA	T/P	C	H/W
	GENERAL PHYSICS - I	**T**	**3**	**3**
Objectives	To introduce the concepts of bending of beams, viscosity of liquids Process of heat flow from one point to other, Laws of thermodynamics an basic properties of light to the allied students			
Unit - I	Properties Of Matter:- Young's modulus – Rigidity modulus – Bulk modulus – Poisson's rati (definition alone) – Bending of beams – Expression for bending moment determination of young's modulus – uniform and non-uniform bending. Expression for Couple per unit twist – work done in twisting a wire – Torsiona oscillations of a body– Rigidity modulus of a wire and M.I. of a disc by torsio pendulum.			
Unit - II	Viscosity:- Viscosity – Viscous force – Co-efficient of viscosity – units and dimensions Poiseuilles formula for co-efficient of viscosity of a liquid – determination o co-efficient of viscosity using burette and comparison of Viscosities Bernoulli's theorem – Statement and proof – Venturimeter.			
Unit - III	Conduction, Convection And Radiation:- Specific heat capacity – Specific heat capacity of a liquid by cooling Newton's law of cooling – Thermal conduction –coefficient of therma conductivity - Lee's disc method. Convention process – Lapse rate – gree house effect –Radiation - Black body radiation – Planck's radiation law Rayleigh Jean's law, Wien's displacement law – Stefan's law of radiation. (N derivations)			
Unit - IV	Thermodynamics:- Zeroth and I Law of thermodynamics – II law of thermodynamics – Carnot' engine and Carnot's cycle – Efficiency of a Carnot's Cycle – Entropy – Chang in entropy in reversible and irreversible process – change in entropy of perfect gas – change in entropy when ice is converted into steam.			

Unit - V	Optics:- Interference – Newton's rings – determination of wavelength using Newton' rings. Diffraction – Difference between diffraction and interference – Theor of transmission grating – optical activity – Biot's laws – Specific rotator power – determination of specific rotatory power using Laurent's half shad polarimeter.

Reference and Text Books :-

Brijlal and Subramaniam S. (2006). Properties of matter. New Delhi: S. Chand & Company.

Brijlal and Subramanyam S. (2005). Heat and Thermodynamics. New Delhi: 16th Edition S.Chan & Co, Mathur D.S. (2004). Elements of properties of matter. New Delhi: S. Chand & Company.

Mathur D.S. (2014). Heat and Thermodynamics. New Delhi: 5th Edition S. Chand & Company.

Murugesan R. (2004). Properties of matter. New Delhi: S. Chand & Company.

Murugesan R. (2008). Optics and Spectroscopy. New Delhi: S. Chand & Company.

Subramanyam and Brijlal. (2004). A text book of Optics. New Delhi: S. Chand & Company.

Outcomes	□ The students will be able to understand the concepts of bending of beams, the viscosity of liquids, Process of heat flow from one point to another, Laws of thermodynamics and basic properties of light

Course Code 22BPHAP1	Allied-IA	T/P	C	H/W
	GENERAL PHYSICS PRACTICAL - I	P	2	2
Objectives	To determine the modulus of elasticity and rigidity modulus by various methods To find the resonance frequency of series resonance circuit To determine the wavelength of most prominent colours of mercury spectrum To find the thickness of a thin wire			
	Any Seven Experiments:- Young's modulus – Uniform bending (Pin and Microscope) Young's modulus – Non Uniform bending (Optic lever) Torsion Pendulum – Rigidity modulus of a wire and M.I. of the disc Comparison of viscosities of liquids using a burette. Calibration of Voltmeter – Potentiometer LCR – series resonance circuit Newton's law of cooling - verification of law Coefficient of thermal conductivity – Lee's disc method Thickness of a thin wire by air wedge Grating – Normal incidence method Calibration of Ammeter – Potentiometer Logic gates using IC			
Outcomes	The students will be able to determine the modulus of elasticity and rigidity modulus by various methods and find the resonance frequency of the series resonance circuit. He will also be able to determine the wavelength of the most prominent colours of the mercury spectrum and the thickness of a thin wire			

emester - I				
Course code: 22BVE1	**SEC –I**	**T/P**	**C**	**H/ W**
	VALUE EDUCATION	**T**	**2**	**2**

Objectives	To impart humanism values among the student under various religious thoughts To make them awareness of ethics and civil rights To familiarities the students with basic features of extracurricular activities such NSS and NCC and relevance of Abdul Kalam and Mother Teresa efforts to teach values To impart skills by preparing project works such as writing poems and stories
Unit -I	Definition – Need for Value Education – How Important Human Values are – Humanism an Humanistic Movement in the World and in India – Literature on the Teaching of Values Unde Various Religions Like Hinduism, Buddhism, Christianity, Jainism, Islam, Etc. Agencies fo Teaching Value Education in India – National Resource Centre for Value Education – NCERT IITS and IGNOU.
Unit-II	Vedic Period – Influence of Buddhism and Jainism – Hindu Dynasties – Islam Invasion – Moghu Invasion – British Rule – Culture Clash – Bhakti Cult – Social Reformers – Gandhi – Swam Vivekananda – Tagore – Their Role in Value Education.
Unit- III	Value Crisis – After Independence: Independence – Democracy – Equality – Fundamental Duties Fall of Standards in All Fields – Social, Economic, Political, Religious and Environmental Corruption in Society.Politics Without Principle – Commerce Without Ethics – Education Withou Character – Science Without Humanism – Wealth Without Work – Pleasure Without Conscience Prayer Without Sacrifice – Steps Taken by The Governments – Central and State – To Remov Disparities on the Basis of Class, Creed, Gender.
Unit -IV	Value Education on College Campus: Transition from School to College – Problems – Control Free Atmosphere – Freedom Mistaken for License – Need for Value Education – Ways o Inculcating It – Teaching of Etiquettes – Extra-Curricular Activities – N.S.S., N.C.C., Clu Activities – Relevance of Dr.A.P.J. Abdual Kalam's Efforts to Teach Values – Mother Teresa.
Unit -V	Project Work 1. Collecting Details about Value Education from Newspapers, Journals and Magazines. 2. Writing Poems, Skits, Stories Centering on Value-Erosion in Society. 3. Presenting Personal Experience in Teaching Values. 4. Suggesting Solutions to Value – Based Problems on the Campus.

Reference and Textbooks: -

Chakrabarti, M. (1997). Value education: changing perspectives. Kanishka Publishers.

Eknath Ranade (1991). Swami Vivekananda's Rousing Call to Hindu Nation.Centenary PublicationKarabi Kakoti, Value Education – Need of the Hour.

Radhakrishnan, S. (1968). Religion and culture.Orient Paperbacks, New Delhi

Saraswathi, T. S. (Ed.). (1999). Culture, socialization and human development: Theory, research and applications i India. SAGE Publications Pvt. Limited.

Satchidananda, M. K. (1991). Ethics, education, Indian unity and culture. Ajanta Publications, Delhi.

Venkataiah, N. (Ed.). (1998). Value education. APH Publishing, New Delhi.

Outcomes	After studied, the student will be able to Knowledge about Humanism and Humanistic Movement in the World and in India Understand the Social Reformers and Their Role in Value Education Explore the theories of Fundamental Duties, Ethics, Extra-Curricular Activities – N.S.S., N.C.C Know the concept of Value Education on College Campus, Project Work regarding Writing Poems, Skits, Stories Centering on Value-Erosion in Society

SEMESTER -II

S.No.	Class	Semester	Title of the Course	Course Code
1.	I B.Sc Maths	II	Tamil –II Idaikala Ilakiyamum Sirukathaium	2221T
			English–II Communicative English- II	722CE
			Professional English for physical science-II	222BEPP
			Core–III-Analytical Geometry of 3D and Vector Calculus	22BMA2C1
			Core–IV-Integral calculus	22BMA2C2
			Allied-II- General Physics	22BPHA2
			Allied-II- General Physics- Practical	22BPHAP2
			Environmental Studies	22BES2

பருவம் - 02				
பாடக்குறியீட்டுஎண்: 2221T	பொதுத் தமிழ்	T/P	C	H/W
	இடைக்கால இலக்கியமும் சிறுகதையும்	T	3	6
நோக்கம் :	➢ இடைக்கால இலக்கியத்தின் வடிவங்களும் சிந்தனையும் வெளிப்படுத்தல். ➢ சிறுகதைப் படைப்பாளர்கள் வெளிப்படுத்தும் சமூக விழுமியப் பதிவுகளை எடுத்தியம்புதல்.			
அலகு - 1	அ. திருஞானசம்பந்தர் - திருமறைக்காடு (முதல் இரண்டு பாடல்கள்) ஆ. திருநாவுக்கரசர் - திருவதிகை வீரட்டானம் (முதல் இரண்டு பாடல்கள்) இ. சுந்தரர் - திருவெண்ணைநல்லூர் பதிகம் (முதல் இரண்டு பாடல்கள்) ஈ. மாணிக்கவாசகர் - திருவெம்பாவை (முதல் பாடல்) உ. குலசேகர ஆழ்வார் - பெருமாள் திருமொழி (முதல் இரண்டு பாடல்கள்) ஊ. ஆண்டாள் - திருப்பாவை (முதல் பாடல்) எ. சிற்றிலக்கியம் 1. நந்திக்கலம்பகம் - முதல் ஐந்து பாடல்கள் 2. கலிங்கத்துப்பரணி - முதல் ஐந்து பாடல்கள்			
அலகு - 2	**சிறுகதை** நவரத்தினக் கதைகள் - அறிவுப் பதிப்பகம், தொகுப்பு - முனைவர் சூ.நயினார் அறிவுப் பதிப்பகம், சென்னை - 14.			
அலகு - 3	**இலக்கணம்.** சொல்வகை - பெயர்ச்சொல் - வினைச்சொல் - இடைச்சொல் - உரிச்சொல் வேற்றுமை மயக்கம் - ஆகுபெயர்.			
அலகு - 4	**இலக்கிய வரலாறு** பக்தி இலக்கியம் மற்றும் சிற்றிலக்கியம் தொடர்பான இலக்கிய வரலாறு			
அலகு - 5	**படைப்பாற்றல்** சிறுகதை படைத்தல்.			
பயன்கள் :	➢ சமயச் சிந்தனையின் பங்கு மற்றும்சிறுகதைப் படைப்பாக்கச் சிந்தனை. ➢ சமூகச் சிந்தனை வாயிலாக மாணவர் மேம்படுதல்.			

Semester -II				
Course code: 722CE	**General English**	**T/P**	**C**	**H/W**
	COMMUNICATIVE ENGLISH-II	**T**		**6**

Unit - 1	1. Listening and Speaking a. Listening and responding to complaints (formal situation) b. Listening to problems and offering solutions (informal) 2. Reading and writing a. Reading aloud (brief motivational anecdotes) b. Writing a paragraph on a proverbial expression/motivational idea. 3. Word Power/Vocabulary a. Synonyms & Antonyms 4. Grammar in Context Adverbs, Prepositions
Unit - 2	1. Listening and Speaking a. Listening to Famous Speeches and Poems b. Making Short Speeches- Formal: welcome speech and vote of thanks. Informal Occasions- Farewell party, Graduation Speech 2. Reading and Writing a. Writing Opinion Pieces (could be on travel, food, film / book reviews or on any contemporary topic) b. Reading poetry i) Reading aloud: (Intonation and Voice Modulation) ii) Identifying and using figures of speech - Simile, Metaphor, Personification etc. 3. Word Power a. Idioms & Phrases 4. Grammar in Context Conjunctions and Interjections
Unit - 3	1. Listening and Speaking a. Listening to Ted talks b.Making Short Presentations – Formal Presentation with PPT, Analytical Presentation of Graphs and Reports of Multiple kinds c. Interactions during and after the Presentations 2. Reading and writing a. Writing e-mails of Complaint b. Reading aloud Famous Speeches 3. Word Power a. One Word Substitution 4. Grammar in Context: Sentence Patterns

Unit - 4	1. Listening and Speaking a. Participating in a meeting: face to face and online b. Listening with courtesy and adding ideas and giving opinions during the meeting and making concluding remarks. 2. Reading and Writing a. Reading visual texts – advertisements b. Preparing first drafts of short assignments 3. Word Power a. Denotation and Connotation 4. Grammar in Context: Sentence Types
Unit - 5	1. Listening and Speaking a. Informal interview for feature writing b. Listening and responding to questions at a formal interview 2. Reading and Writing a. Writing letters of application b. Readers' Theatre (Script Reading) c. Dramatizing everyday situations/social issues through skits. (writing scripts and performing) 3. Word Power a. Collocation 4. Grammar in Context: Working With Clauses

Professional English -Semester-II -222BEPP

Objectives:

The Professional Communication Skills Course is intended to help Learners in Arts and Science colleges

- Develop their competence in the use of English with particular reference to the workplace situation.
- Enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the workplace.
- Develop their competence and competitiveness and thereby improve their employability skills.
- Help students with a research bent of mind develop their skills in writing reports and research proposals.

Unit 1- Communicative Competence (18 hrs)

Listening – Listening to two talks/lectures by specialists on selected subject specific topics - (TED Talks) and answering comprehension exercises (inferential questions)

Speaking: Small group discussions (the discussions could be based on the listening and reading passages- open ended questions

Reading: Two subject-based reading texts followed by comprehension activities/exercises

Writing: Summary writing based on the reading passages.

Grammar and vocabulary exercises/tasks to be designed based on the discourse patterns of the listening and reading texts in the book. This is applicable for all the units.

Unit 2 - Persuasive Communication (18 hrs)

Listening: listening to a product launch- sensitizing learners to the nuances of persuasive communication

Speaking: debates – Just-A Minute Activities

Reading: reading texts on advertisements (on products relevant to the subject areas) and answering inferential questions

Writing: dialogue writing- writing an argumentative /persuasive essay.

Unit 3- Digital Competence (18 hrs)

Listening to interviews (subject related)

Speaking: Interviews with subject specialists (using video conferencing skills)

Creating Vlogs (How to become a vlogger and use vlogging to nurture interests – subject related)

Reading: Selected sample of Web Page (subject area)

Writing: Creating Web Pages

Reading Comprehension: Essay on Digital Competence for Academic and Professional Life.

The essay will address all aspects of digital competence in relation to MS Office and how they can be utilized in relation to work in the subject area

Unit 4 - Creativity and Imagination (18 hrs)

Listening to short (2 to 5 minutes) academic videos (prepared by EMRC/ other MOOC videos on Indian academic sites – E.g. https://www.youtube.com/watch?v=tpvicScuDy0)

Speaking: Making oral presentations through short films – subject based
Reading: Essay on Creativity and Imagination (subject based)

Writing – Basic Script Writing for short films (subject based)

- Creating blogs, flyers and brochures (subject based)
- Poster making – writing slogans/captions(subject based)

Unit 5- Workplace Communication & Basics of Academic Writing (18 hrs)

Speaking: Short academic presentation using PowerPoint
Reading & Writing: Product Profiles, Circulars, Minutes of Meeting.
Writing an introduction, paraphrasing
Punctuation (period, question mark, exclamation point, comma, semicolon, colon, dash, hyphen, parentheses, brackets, braces, apostrophe, quotation marks, and ellipsis)
Capitalization (use of upper case)

Outcomes of the Course.

- At the end of the course, learners will be able to,
- Attend interviews with boldness and confidence.
- Adapt easily into the workplace context, having become communicatively competent.
- Apply to the Research &Development organisations/ sections in companies and offices with winning proposals.

Instruction to Course Writers:

1. **<u>Acquisition of subject-related vocabulary should not be overlooked</u>**.
2. Textboxes with relevant vocabulary may be strategically placed as a Pre Task or in Summing Up
3. Grammar may be included if the text lends itself to the teaching of a Grammatical item. However, testing and evaluation does not include Grammar.

Semester - II				
Course code: 22BMA2C1	**Core Course - III**	**T/P**	**C**	**H/W**
	ANALYTICAL GEOMETRY AND VECTOR CALCULUS	**T**	**5**	**5**

Objectives	To introduce the concept of three dimensional coordinate geometry in depth. To understand the concept of vector integration, gradient and volume integral.
Unit -I	Intersection of two lines - Coplanar lines – Angle between a line and a plane - Length of perpendicular from a point to a line – Shortest distance - Distance between two skew lines
Unit-II	Sphere: Equation of a sphere in various forms – Tangent line and tangent plane - Section of a sphere and problems.
Unit- III	Cone: Equation of a cone in various forms, simple problems - Cylinder: Equation of right circular cylinder, simple problems
Unit -IV	Vector differentiation – Gradient, Curl, Divergence, Vector identities and problems
Unit- V	Vector integration – Line integral – Surface integral - Volume integral - Green's Theorem Stokes theorem, Gauss's Theorem (Statements and verification only).

Textbook

Arumugam, S., & ThangaPandi Isaac, A. (2014). *Analytical Geometry of 3D and Vector Calculus* Palayamkottai: New Gamma Publishing House

Reference Books

Manicavachagom Pillay, T.K., & Natarajan, T. (2001). *A text book of Analytical Geometry Part II – Three Dimensions*. S.Viswanathan (Printers and Publishers) Pvt. Ltd.

Venkataraman, M.K., &Manorama, S. (2001). *Analytical Geometry 3D and Vector Calculus*. Chennai National Publishing Company.

Narayanan, S., & Manicavachagom Pillay, T.K. (1997). *Vector Calculus*. S.Viswanathan (Printers and Publishers) Pvt. Ltd.

Outcomes	Students will be able to Describe the various forms of equation of a Plane, Straight line, Sphere, Cone and Cylinder. Find the angle between planes, Bisector planes, Perpendicular distance from a point to a plane, Image of a line on a plane and Intersection of two lines Compute the angle between a line and a plane and length of perpendicular from a point to a line.

Semester - II				
Course code: 22BMA2C2	**Core Course - IV**	**T/P**	**C**	**H/W**
	INTEGRAL CALCULUS	**T**	**4**	**4**

Objectives	To evaluate integration of irrational functions and improper integrals. To understand the concepts of double and triple integration.
Unit -I	Definite Integrals and their properties.
Unit-II	Reduction formula for $\sin^n x$, $\cos^n x$, $\tan^n x$, $\sin^m x \cos^n x$ – Bernoulli's formula.
Unit -III	Double integrals – Change of variables – Jacobian.
Unit- IV	Triple integrals.
Unit -V	Beta and Gamma Integrals – Properties and Problems.

Textbooks

Narayanan, S., & Manicavachagom Pillay, T.K. (2016). *Calculus* (Vol.II). S.Viswanathan Printers and Publishers Pvt. Ltd.

Narayanan, S., & Manicavachagom Pillay, T.K. (2004). *Calculus* (Vol.III). S.Viswanathan Printers and Publishers Pvt. Ltd.

Reference Books

Narayanan, S. *(2012). Integral Calculus.* S.Chand & Co.

Venkataraman, M.K., & Manorama, S. (2001). *Calculus and Fourier series*. Chennai: The National Publishing Company.

Outcomes	Students will be able to Explain properties of Beta functions. Solve Basic Integral Calculus problems. Explain properties of definite integrals. Prove reduction formulae and solve some problems by using this formula. Evaluate double and triple integrals.

Course Code 22BPHA2	Allied – I B	T/P	C	H/W
	GENERAL PHYSICS – II	T	3	3

Objectives	□ To introduce the concepts of electricity, measurement of resistances, series and parallel resonance circuits, the structure of the atom, nuclear fission and fusion processes □ To introduce the working principle of transistors, number systems and uses of logic gates for arithmetic operations to the allied students
Unit - I	Current Electricity:- Kirchoff's laws – Wheatstone's network – condition for balance - Carey-Foster's bridge - Measurement of specific resistance – temperature coefficient of resistance – Potentiometer - Calibration of Voltmeter.
Unit - II	Electromagnetism :- Electromagnetic Induction – Faraday's laws – Lenz law – Self Inductance – Mutua Inductance – Coefficient of Coupling. A.C. Circuits – Mean value – RMS value – Pea value – LCR in series resonance circuit - LCR Parallel resonance circuit – Sharpness o resonance.
Unit - III	Atomic And Nuclear Physics:- Bohr's atom model – radius energy – Atomic excitation – Ionization potential – Frank an Hertz Method – Nucleus – Nuclear properties – Mass defect – Binding energy. Nuclea fusion and Nuclear fission – Atomic bomb– X-rays – Bragg's law – properties and uses o industrial and medical fields.
Unit - IV	Analog Electronics :- Semiconductor – PN junction diode – Bridge rectifier – Zener diode – Regulated powe supply. Transistor – Working of a transistor – CE Configuration – Current gain relationshi between □ and □ – Transistor Characteristics (CE Configuration only) – CE amplifier - feedback – Hartley oscillator .
Unit - V	Digital Electronics :- Number system – Decimal – Binary – Octal and Hexadecimal system – Double Dabbl method – Binary addition, subtraction, multiplication and division – conversion of on number system to another number system. Logic gates – OR, AND, NOT, XOR, NAND and NOR gates – truth tables – Half adder, an Full adder – Laws and theorems of Boolean's algebra – De Morgan's theorems.

Books for Study and Reference :-

Murugeshan R. (2008).Electricity and Magnetism. New Delhi: S Chand & Company.

Murugeshan R. KiruthigaSivaprasath. (2008). Modern Physics . New Delhi: S. Chand & Company.

Theraja B.L. (2003). Basic Electronics. New Delhi: S Chand & Company.

Outcomes	□ The students will be able to understand the concepts of electricity, measurement of resistances, series and parallel resonance circuits, the structure of the atom and nuclear fission and fusion processes □ The students will also be able to understand the working principle of transistors, number systems and uses of logic gates for arithmetic operations

Course Code 22BPHAP2	Allied-I B	T/P	C	H/W
	GENERAL PHYSICS PRACTICAL-II	P	2	2
Objectives	To determine the modulus of elasticity by various methods and instruments. To determine the radius of curvature of a thin lens To find the resonance frequency of series and parallel circuits To know the working principle of logic gates			
	Any Seven Experiments:- 1. Young's modulus – Uniform bending (Optic lever) 2. Young's modulus – Non uniform bending (Pin and Microscope) 3. Carey – Foster Bridge – temperature co-efficient of resistance 4. LCR – parallel resonance circuit 5. Zener diode as a voltage regulator 6. Transistor Characteristics – CE 7. Newton's rings – Radius of curvature of a lens 8. Bridge rectifier 9. Comparison of resistances - Potentiometer 10. Logic circuits using discrete components 11. NAND & NOR as universal gates			
Outcomes	The students will be able to determine the modulus of elasticity by various methods, determine the radius of curvature of a thin lens, find the resonance frequency of series and parallel circuits and know the working principle of logic gates			

Semester - II				
Course code: 22BES2	**SEC-II**	**T/P**	**C**	**H/ W**
	ENVIRONMENTAL STUDIES	**T**	**2**	**2**

Objectives	To understand the multidisciplinary nature of environmental studies such as forest, water, mineral and energy and land resources. To portray the eco system bio diversity and its conservation. To impart the knowledge of environmental pollution To know the importance of field work to study common plants, insects and birds and visit local areas to document environmental assets.
Unit -I	The Multidisciplinary Nature of Environmental Studies: Definition, Scope and importance - Need for public awareness
Unit-II	Natural Resources: Renewable and non-renewable resources A). Forest Resources: Use and Over-Exploitation, Deforestation, Case Studies, Timber Extraction, Mining Dams and Their Effect on Forests and Tribal People. B). Water Resources: Use and Over-Utilization of Surface and Ground Water, Floods, Drought, Conflicts ove Water, Dams- Benefits and Problems. C). Mineral Resources: Use and Exploitation, Experimental Effects of Extracting and Using Mineral Resources Case Studies. D). Food Resources: World Food Problems, Changes Caused by Agriculture and Overgrazing, Effects o Modern Agriculture, Fertilizer-Pesticide Problems, Water Logging, Salinity, Case Studies. E). Energy Resources: Growing Energy Needs, Renewable and Non-Renewable Energy Sources, Use o Alternate Energy Resources, Case Studies. F). Land Resources: Land as a Resource, Land Degradation, Main Induced Landsides, SoilErosion an Desertification. Role of Individual in Conservation of Natural Resources Equitable Use of Resources for Sustainable Lifestyle
Unit- III	ECOSYSTEMS, BIO-DIVERSITY AND ITS CONSERVATION Ecosystems: Concept of an Ecosystem, Structure and Function of an Ecosystem, Energy Flow in Th Ecosystem, Food Chains, Food Webs and Ecological Pyramids. Biodiversity and Its Conservation: Introduction- Definition: Genetic, Species and Ecosystem Diversity, Bio Geographical Classification of India, Value of Biodiversity: Consumptive Use, Productive Use, Social Ethica Aesthetic and Option Values. Biodiversity at Global, National and Local Levels, India as a Mega-Diversit Nation, Hot Spots of Biodiversity, Threats to Biodiversity: Habitat Loss, Poaching of Wildlife, Man-Wildlif Conflicts, Endangered and Endemic Species of India, Conservation of Biodiversity: In-Situ And Ex-Sit Conservation of Biodiversity.
Unit -IV	Environmental Pollution: Causes, Effects And Control Measures of: A).Air Pollution, B). Water Pollution, C). Soil Pollution, D). Marine Pollution, E). Noise Pollution, F). Thermal Pollution, G Nuclear Hazards.
Unit -V	Field Work Visit to a Local Area to Document Environmental Assets–River/ Forest/ Grassland/ Hill/ Mountain Visit to a Local Polluted Site- Urban/Rural/Industrial/Agricultural Study of Common Plants, Insects, Birds Study of Simple Ecosystem-Pond, River, Hill Slopes, etc.,

Reference and Textbooks: - Agarwal, K. C. (2001). Environmental Biology. Nidi Publication Ltd.

Bharucha, E. (2002). The Biodiversity of India (Vol. 1). Mapin Publishing Pvt Ltd, Ahamedabad, India.

Brunner, C. R. (1993). Hazardous waste incineration. Mcgraw Hill Inc.

Clark, R. B., Frid, C., & Attrill, M. (2001). Marine pollution (Vol. 5). Oxford: Oxford university press.

Cunningham, W. P., Cooper, T. H., Gorham, E., & Hepworth, M. T. (1998). Environmental encyclopedia.

De, A.K. (1990). Environmental Chemistry. Wiley Eastern Ltd.

Gleick, H.P.(1993). Water In Crisis, Pacific Institute For Studies In Dev, Environment & Security. Stockholm Env. Institute Oxford University Press.

Goel, P. K., & Trivedi, R. K. (1998). An introduction to air pollution. Technoscience Publication, India.

Hawkins, R. E. Encyclopedia of Indian Natural History. Bombay Natural History Society, Bombay.

Heywood, V. H., & Watson, R. T. (1995). Global biodiversity assessment (Vol. 1140). Cambridge: Cambridge university press.

Jadhav, H. V., & Bhosale, V. M. (2006). Environmental Protection and laws. Himalaya Publishing House.

McKinney, M. L., & Schoch, R. M. (1996). Environmental Science: Systems and Solutions (St. Paul, MN).

Mhaskar, A. K. Matter Hazardous. Techno-Science Publications.

Miller, T. G. (1989). Environmental Science: Working with the earth (2 nd). Wadsworth Publicing Co.

Narain, S., Mahapatra, R., Das, S., Misra, A., Parrey, A. A., Pandey, K., & Banerjee, S. (2014). Down to Earth. Centre for Scienc and Environment.

Odum, E. P., & Barrett, G. W. (1971). Fundamentals of ecology (Vol. 3, p. 5). Philadelphia: Saunders.

Rao, M.N., & Datta, A.K. (1987). Waste Water Treatment. Oxford & Ibh Publ, Co.Pvt. Ltd.

Sharma, B. K. (2001). Environmental Chemistry–6th Revised Edition.

Townsend, C.R., Begon, M., & Harper, J.L. (2008). Essentials of Ecology (3rd edition). Oxford: Blackwell Publishing.

Trivedi, R. K. (2010). Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards. Vol. I and II, Enviro Media.

Wanger, K.D. (1998). Environmental Management. Saunders Co. Philadelphia, USA.

Outcomes	On successful completion of the subject, the students acquired knowledge about: - Renewable and non-renewable resources. - Species and Ecosystem Diversity, Bio-Geographical Classification of India, Value of Biodiversity: - Causes, Effects and Control Measures of environmental pollution - Field work knowledge of studying eco system pond, river, hill and common plants, insects and birds - Documentation of environmental assets

SEMESTER-III

S.No.	Class	Semester	Title of the Course	Course Code
1.	II B.Sc Maths	III	Tamil-III Kappiyamum Puthinamu	731T
			English – III English Of Enrichment-III	732E
			Core–V-Abstract Algebra	7BMA3C1
			Core–VI-Differential Equations and its Applications	7BMA3C2
			Allied – III- Programming in C	7BCEA3
			Non-major Elective – II- Effective Employability skills	7NME3C
			Skill Based Subjects– I- Competitive Examination skills	7SBS3A1
			Extension Activities	7BEA3

இரண்டாம் ஆண்டு - மூன்றாம் பருவம் -

பாடக்குறியீட்டு எண்: 731T

பொதுத் தமிழ் தாள் - 3 - காப்பியமும் புதினமும்

அலகு 1

19. சிலப்பதிகாரம் - மங்கல வாழ்த்துப்பாடல்.
20. மணிமேகலை - பாத்திர மரபு கூறிய காதை.
21. கம்பராமாயணம் - சேது பந்தனப்படலம்.
22. பெரியபுராணம் - கோச்செங்கட்சோழ நாயனார் புராணம்.
23. தேம்பாவணி - கோலியாத் படலம்.
24. சீறாப்புராணம் - மானுக்குப் பிணை நின்ற படலம்

அலகு 2 - புதினம்

வேரில் பழுத்தபலா - சு.சமுத்திரம்.

அலகு 3 - இலக்கணம்

யாப்பும் அணியும்

செய்யுள் உறுப்புகள், எழுத்து, அசை, சீர், தளை, அடி, தொடை ஆகியன பற்றிய விளக்கம். பாவகை, வெண்பா, ஆசிரியப்பா ஆகியவற்றின் பொது இலக்கணங்கள்.

அணி, வகைகள், உவமை, உருவகம், வேற்றுமை, பின்வருநிலை, சிலேடை அணிகள்.

அலகு 4 - இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு.

அலகு 5 - படைப்பாற்றல்

மரபுக் கவிதை - புதுக்கவிதை படைத்தல்.

II YEAR – III SEMESTER
COURSE CODE: 732E

COURSE – III - ENGLISH FOR ENRICHMENT – III

Texts Prescribed

1. *Six Short Stories*, Ed. by the Board of Editors, Harrows Publications, Chennai.
2. *One Act Plays*, Ed. by the Board of Editors, Harrows Publications, Chennai.
3. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.
4. *English for Communication*, Ed. by the Board of Editors, Harrows Publications, Chennai.

Unit I Short Stories

1. Two Old Men – Leo Tolstoy
2. The Diamond Necklace – Guy de Maupassant
3. The Verger – Somerset Maugham
4. The Postmaster – Rabindranath Tagore.

Unit II One Act Plays

1. Riders to the Sea – J.M.Synge
2. The Rising of the Moon – Lady Gregory

Unit III One Act Plays

1. A Kind of Justice – Margaret Wood
2. The Refugee – Asif Currimbhoy

Unit IV Grammar

Tenses, Voices, Degrees of Comparison

Unit V Composition

Agenda, Minutes, Notice, Descriptive Writing

Allocation of Working Hours per week

Short Stories - 2 hours
One Act Plays - 2 hours
Grammar & - 2 hours
Composition ----------
Total - 6 hours

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II YEAR - III SEMESTER

COURSE CODE: 7BMA3C1

CORE COURSE - V – ABSTRACT ALGEBRA

Unit – I

Groups : Definition and Examples – Elementary Properties of a Group – Equivalent Definitions of a Group – Permutation Groups.

Unit – II

Subgroups – Cyclic Groups – Order of an Element – Cosets and Lagrange's Theorem.

Unit – III

Normal Subgroups and Quotient Groups – Isomorphism – Homomorphism.

Unit – IV

Rings : Definitions and Examples – Elementary properties of rings – Isomorphism – Types of rings – Characteristic of a ring – Subrings – Ideals – Quotient rings.

Unit – V

Maximal and Prime Ideals – Homomorphism of rings – Field of quotients of an Integral domain – Unique factorization domain – Euclidean domain.

Text Book:

1. S.Arumugam and A.ThangapandiIssac, Modern Algebra, SciTech Publications Pvt. Ltd., Chennai, 2003.

Unit I	Chapter 3sections 3.1 to 3.4
Unit II	Chapter 3 sections 3.5 to 3.8
Unit III	Chapter 3 sections 3.9 to 3.11
Unit IV	Chapter 4 sections 4.1 to 4.8
Unit V	Chapter 4 sections 4.9 to 4.11, 4.13 & 4.14

Books for Reference:

- N.Herstein, Topics in Algebra, John Wiley & Sons, Student 2nd edition, 1975.
- Vijay, K.Khanna and S.K.Bhambri, A course in Abstract Algebra, Vikas Publishing House Pvt. Ltd.
- Dr. R.Balakrishnan and N.Ramabadran, A text book of Modern Algebra, Vikas Publishing House Pvt. Ltd, New Delhi, 1994.

II YEAR - III SEMESTER
COURSE CODE: 7BMA3C2

CORE COURSE - VI – DIFFERENTIAL EQUATIONS AND ITS APPLICATIONS

Unit – I

Exact Differential Equations – Conditions for equation to be exact –Working rule for solving it – problems – Equations of the first order but of higher degree – Equations solvable for p, x, y, clairaut's form – Equations that do not contain (i) x explicitly (ii) y explicitly – Equations homogenous in x and y–Linear Equation with constant coefficients.

Unit – II

Linear equations with variable coefficients – Equations reducible to the linear equations – Simultaneous Differential Equations – First order and first degree – Simultaneous linear Differential Equations.

Unit – III

Linear equations of the second order – Complete Solution given a known integral – Reduction to Normal form – Change of the independent variable – Variation of parameters – Total Differential Equations – Necessary and Sufficient condition of integrability of Pdx + Qdy + Rdz = 0, Rule for solving it.

Unit – IV

Partial Differential Equations of the First oder – classifications of integrals – Derivations of Partial Differential Equations – Special methods – Standard forms – Charpit's method.

Unit – V

Flow of water from an Orifice – Falling bodies and other rate problems – Brachistochrone Problem – Tautochronous property of the Cycloid – Trajectories.

Text Book:

1. Differential Equations and its Applications by S.Narayanan&T.K.ManickavachagomPillay, S.Viswanathan (Printers& Publishers) Pvt. Ltd., 2015.

Unit I	Chapter 2 –sections 6.1 to 6.3; Chapter 4; Chapter5 –sections 1, 2, 3, 4
Unit II	Chapter 5–sections 5, 6; Chapter 6 – sections 1to 6
Unit III	Chapter 8–sections 1 to 4; Chapter 11
Unit IV	Chapter 12 – sections 1, 2, 3, 4, 5.1 to 5.4 & Section 6
Unit V	Chapter 3 – sections 2, 3, 4, 5; Chapter 10 – sections 1.1 – 1.3

Book for Reference:

1. Differential Equations and its Applications by Dr. S.Arumugam and Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, Edition, 2014.

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II YEAR – III SEMESTER
COURSE CODE: 7BCEA3
ALLIED COURSE - III – PROGRAMMING IN C (THEORY & LAB)

Unit I

Overview of C: History of C – Importance of C – Basic Structure of C Programs – Programming Style – Character Set – C Tokens – Keywords and Identifiers – Constants, Variables and Data Types – Declaration of Variables – Defining Symbolic Constants – Declaring a variable as a constant – overflow and underflow of data – **Operators and Expressions:** Arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators – Arithmetic Expressions- Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical functions.

Unit II

Managing I/O Operations: Reading and Writing a Character – Formatted Input, Output – **Decision Making & Branching:** if statement - if else statement - nesting of if else statements - else if ladder – switch statement – the ?: operator – goto statement – the while statement – do statement – the for statement – jumps in loops.

Unit III

Arrays: One-Dimensional Arrays – Declaration, Initialization – Two-Dimensional Arrays – Multi-dimensional Arrays – Dynamic Arrays – Initialization. **Strings:** Declaration, Initialization of string variables – reading and writing strings – string handling functions.

Unit IV

User-defined functions: need – multi-function programs – elements of user defined functions – definition – return values and their types – function calls, declaration, category – all types of arguments and return values – nesting of functions – recursion – passing arrays, strings to functions – scope visibility and life time of variables. **Structures and Unions:** Defining a structure – declaring a structure variable – accessing structure members – initialization – copying and comparing – operation on individual members – array of structures – arrays within structures – structures within structures – structures and functions – unions – size of structures – bit fields.

Unit V

Pointers: the address of a variable – declaring, initialization of pointer variables – accessing a variable through its pointer – chain of pointers – pointer increments and scale factors – pointers and character strings – pointers as function arguments – pointers and structures. **Files**: Defining, opening, closing a file – IO Operations on files – Error handling during IO operations – command line arguments.

Text Book:

1. Programming in ANSI C, E.Balagurusamy, 6th Edition, Tata McGraw Hill Publishing Company, 2012.

UNIT I: Chapters 1 (Except 1.3-1.7, 1.10-1.12), 2 (Except 2.9, 2.13), 3 (Except 3.13)
UNIT II: Chapters 4 – 6
UNIT III: Chapters 7, 8 (Except 8.5, 8.6, 8.7, 8.9, 8.10)
UNIT IV: Chapters 9 (Except 9.20), 10
UNIT V: Chapters 11 (Except 11.8, 11.10, 11.12, 11.14, 11.15, 11.17), 12 (Except 12.6)

Books for Reference:

1. Programming with C, Schaum's Outline Series, Gottfried, Tata McGraw Hill, 2006
2. Programming with ANSI and Turbo C , Ashok N.Kamthane , Pearson Education, 2006
3. H. Schildt, C: The Complete Reference, 4th Edition, TMH Edition, 2000.
4. Kanetkar Y., Let us C, BPB Pub., New Delhi, 1999.

PART IV (I) – (C)

NON – MAJOR ELECTIVE – COURSE II

II YEAR – III SEMESTER

COURSE CODE: 7NME3C

COURSE II – EFFECTIVE EMPLOYABILITY SKILLS

Unit I Curriculum Vitae & Facing the Interview

Applying for jobs, Preparing the curriculum Different formats vita, Facing the interviews, Frequently Asked Questions (FAQs).

Unit II Interpersonal Communication

One to one Communication

One to group Communication

Unit III Group Discussion

Listening, Ice-breaking, Leader – Member Moderates his role responsibility, Conflict, Management, Consensus, Steps involved

Unit IV Team Work

Qualities Selection constant & comfort, Orientation Review Tea, Review of the team work

Unit V Motivation

Leadership & Motivation, Behaviour, Motives Managerial Skills

Books for Reference:

- E.H.McGrath, S.J., "Basic Managerial Skills For All", Prentice-Hall of India Private Limited, New Delhi 110 001. ISBN-0-87692-498-4.
- D.K.Sarma, "You & Your Career", Wheeler Publishing, 755, Anna Salai, Chennai 600002. ISBN 81-7544-170-4. -1999
- Indian Jaycees, "Skills" Series, published by Indian Jaycees.
- S.P.Sachdeva, "Interview In A Nutshell", Sudha Publications (P) Ltd., B-5, Prabhat Kiran, Rajendra Place, New Delhi 110 008.

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PART IV (2) – SKILL BASED SUBJECTS (SBS)

GROUP I – SET I
II YEAR – III SEMESTER
COURSE CODE: 7SBS3A1
COURSE I – COMPETITIVE EXAMINATION SKILLS

Objectives:

- To build a sense of awareness among students through proper guidance about various competitive examinations in order to motivate students for prospective career in government and corporate sector.
- To intensively guide students for competitive examinations like TNPSC, UPSC, SSC, RRB, IBPS etc.

Unit I

Public Service Commission: Tamil Nadu Public Service Commission (TNPSC) and its role -History of TNPSC - Constitutional Provisions on the Formation, Functions, and Powers of Public Service Commissions for the Union and for the States - TNPSC and its rules of Procedure.

Eligibility and examination pattern: TNPSC - Union Public Service Commission (UPSC) - Staff Selection Commission (SSC) - Railway Recruitment Board (RRB) – Institute of Banking Personnel Selection (IBPS).

Unit II

Intelligence, creativity & application, testing & assessment - Types, verbal abilities & fluency

Unit III

Numerical ability:

Numbers, simplification, time and work, percentage, fraction, speed and distance, simple and compound interest, ratio and proportion

Unit IV

Spatial and perceptual abilities, situation reaction test

Unit V

Memory and inductive reasoning, Logical reasoning, Coding and Decoding, Direction Test, Syllogism

Books for Reference:

1. Ajay rai, "intelligence tests", sterling paperbacks, published by sterling publishers pvt. Ltd., l-10, green park extension, new delhi 110 016., 2001
2. Competition success review magazines.

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PART V

II YEAR – III SEMESTER

COURSE CODE: 7BEA3

PART – V – EXTENSION ACTIVITIES

Extension Activities will be organized for 2 days in the Third Semester. The programme may be organized in any Saturday and Sunday.

A meeting of all the staff of the College (Teaching, Administrative and Technical Staff) be conducted before departing to the camp in which each and every aspect like Programmes to carried out, accommodation, food, medical aid, transport facilities, etc., should be thoroughly discussed.

One credit will be allotted for this Extension Activities. The marks allotted for each camp will be 100. Each student participating in the camp will be evaluated internally for 100 marks. The criteria for evaluation of Extension Activities will be as follows:

S. No.	Criteria	Maximum Marks
1.	Interaction with villagers	10
2.	Participation / Attitude towards work	10
3.	Participation in interaction and discussion	10
4.	Knowledge of problems / issues	10
5.	Organising & decision making ability	20
6.	Expression: a) Cultural programmes	10
	b) Report Writing	20
7.	Ability to adjust and work in a team	10
	Total	**100**

SEMESTER-IV

S.No.	Class	Semester	Title of the Course	Course Code
1.	II B.Sc Maths	IV	Tamil – IV Pandaya lakiyamum Nadahamum	741T
			English – IV English Of Enrichment-IV	742E
			Core–VII-Transform Techniques	7BMA4C1
			Core–VIII-Linear Algebra	7BMA4C2
			Allied – IV- Programming in C++	7BCEA4
			Allied Practical – II- Programming in c and C++ Lab	7BCEAP1
			Skill Based Subjects – II- Emergency and Medical Lab Skills	7SBS4B2
			Value Education-Manavalakalai Yoga	7BMY

இரண்டாம் ஆண்டு - நான்காம் பருவம்

பாடக்குறியீட்டு எண்: 741வு

பொதுத்தமிழ் தாள் - 4 - பண்டைய இலக்கியமும் நாடகமும்

அலகு 1

அ. பத்துப்பாட்டு - சிறுபாணாற்றுப்படை

ஆ. நற்றிணை - வெள்ளிவீதியார் பாடல் எண்கள்: 70,335,348.

இ. குறுந்தொகை -

பாடல் எண்.40 - யாயும் ஞாயும் எனத் தொடங்கும் பாடல் (குறிஞ்சி) செம்புலப்பெயல் நீரார்

பாடல் எண்.43 - செல்வார் அல்லர் எனத் தொடங்கும் பாடல் (பாலை) ஔவையார்

பாடல் எண்.49 - அணிற் பல்லன்ன எனத் தொடங்கும் பாடல் (நெய்தல்) அம்மூவனார்

பாடல் எண்.61 - தச்சன் செய்த எனத் தொடங்கும் பாடல் (மருதம்) தும்பிசேர்கீரன்

பாடல் எண்.110 - வாரார் ஆயினும் எனத் தொடங்கும் பாடல் (முல்லை) கிள்ளிமங்கலக்கிழார்

ஈ. கலித்தொகை - பாடல் எண்.105. அரைசுபட எனத் தொடங்கும் பாடல் (முல்லை) சோழன் நல்லுருத்திரன்.

உ. அகநானூறு - திருமணச் சடங்குப் பாடல்கள் 2 (86,128)

ஊ. புறநானூறு - பிசிராந்தையார் பாடல்கள் (பாடல் எண்கள். 67,184)

எ. திருக்குறள் - பெரியாரைத் துணைக்கோடல், சிற்றினம் சேராமை ஆகிய இரு அதிகாரங்கள்

ஏ. நாலடியார் -

பாடல் எண்.135 - கல்வி கரையில எனத் தொடங்கும் பாடல்.

பாடல் எண்.215 - கோட்டுப் பூப்போல எனத் தொடங்கும் பாடல்.

பாடல் எண்.248 - நல் நிலைக்கண் தன்னை நிறுப்பானும் எனத் தொடங்கும் பாடல்.

ஐ. பழமொழி நானூறு

பாடல் எண்.46 - நெடியாது எனத் தொடங்கும் பாடல்.

பாடல் எண்.47 - தோற்றத்தாலர் எனத் தொடங்கும் பாடல்.

பாடல் எண்.48 - மிக்குடையார் ஆகி எனத் தொடங்கும் பாடல்.

அலகு 2 - நாடகம் - நீதிதேவன் மயக்கம் - அறிஞர் அண்ணா.

அலகு 3 - இலக்கணம்

அகப்பொருள், (7 திணைகள்), புறப்பொருள் (12 திணைகள்), களவும், கற்பும், உள்ளுறை, இறைச்சி (ஆ.சிவலிங்கனார், தமிழ் இலக்கண உணர்வுகள், கபிலன் பதிப்பகம், புதுச்சேரி.

அலகு 4 - இலக்கிய வரலாறு

அலகு 1, அலகு 2ல் உள்ள பாடம் தொடர்பான இலக்கிய வகைகள் தொடர்பான இலக்கிய வரலாறு.

அலகு 5 - படைப்பாற்றல்

ஓரங்க நாடகம் படைத்தல்.

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II YEAR – IV SEMESTER
COURSE CODE: 742E
COURSE – IV- ENGLISH FOR ENRICHMENT – IV

Texts Prescribed

1. *Pygmalion* – G.B. Shaw
2. *Swami and Friends* – R.K. Narayan
3. *Tales from Shakespeare* Ed. by the Board of Editors, Harrows Publications, Chennai.
4. Modern English – *A Book of Grammar Usage and Composition* by N.Krishnaswamy, Macmillan Publishers.

Unit I Drama

Pygmalion – G.B. Shaw

Unit II – Fiction

Swami and Friends – R.K.Narayan

Unit III – Tales from Shakespeare

1.The Merchant of Venice
2. Romeo and Juliet
3. The Winter's Tale

Unit IV - Grammar

1. Concord
2. Question Tag
3. Kinds of Sentences
4. Direct and Indirect speeches

Unit V - Composition

1. Expansion of Proverbs
2. Group Discussion
3. Conversation (Apologizing, Requesting, Thanking)

Allocation of Working Hours per week

Drama - 2 hours
Fiction - 2 hours
Grammar & Composition - 2 hours

Total - 6 hours

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II YEAR - IV SEMESTER
COURSE CODE: 7BMA4C1
CORE COURSE - VII – TRANSFORM TECHNIQUES

Unit – I

Laplace Transform – Definition – Laplace Transform of Standard functions – Elementary Theorems – Laplace Transform of periodic functions – problems.

Unit – II

Inverse Laplace Transforms – Standard formulae – Basic Theorems – Solving Ordinary Differential Equations with constant coefficients, variable coefficients and simultaneous linear equations using Laplace Transform.

Unit – III

Fourier Series – Definition – To find the Fourier coefficients of Periodic functions of period 2π - even and odd functions – Half range series – problems.

Unit – IV

Fourier Transforms – Complex form of Fourier Integral Formula – Fourier Integral theorem – properties of Fourier Transform – Fourier sine and cosine Transforms – properties – Parsivals Identity - Problems

Unit – V

Z Transforms – Definition – Proprieties – Z Transforms of some basic functions – Problems – Inverse Z Transforms – Methods to find the inverse Z Transform – Use of Z – Transforms to solve finite Difference Equations – problems.

Text Books:

- Calculus Volume III by S.Narayanan and T.K.ManicavachagomPillay, S.Viswanathan (Printers & Publishers) Pvt. Ltd., 2014.
- Engineering Mathematics 3rd Edition by T.Veerarajan, Tata McGraw Hill Publishing Company Limited, New Delhi.

Unit I	Chapter 5sections 1 to 5 of (1)
Unit II	Chapter 5 sections 6 to 10 of (1)
Unit III	Chapter 6 sections 1 to 4, 5.1,5.2 of (1)
Unit IV	Chapter 6 sections 9.1 to 9.3, 10, 11.1, 11.2, 12, 13, 14, 14.1, 15 of (1)
Unit V	Chapter 7 sections 7.1 to 7.5 of (2)

Book for Reference:

1. Transforms and Partial Differential Equations by Dr.A.Singaravelu, Meenakshi Agency, Chennai

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II YEAR - IV SEMESTER

COURSE CODE: 7BMA4C2

CORE COURSE - VIII – LINEAR ALGEBRA

Unit – I

Vector Spaces – Definition and examples – Subspaces – Linear Transformation – Span of a set.

Unit – II

Linear Independence – Basis and Dimension – Rank and Nullity.

Unit – III

Matrix of a Linear Transformation – Inner Product Space – Definition and examples – Orthogonality – Orthogonal complement.

Unit – IV

Algebra of Matrices – Types of Matrices – The inverse of a matrix – Elementary Transformations – Rank of a Matrix– Simultaneous linear equations.

Unit – V

Characteristic Equation and Cayley – Hamilton theorem Eigen values and Eigen Vectors, Bilinear forms – Quadratic forms.

Text Book:

Dr. S.Arumugam and Mr. A.ThangapandiIssac, Modern Algebra, SciTech Publications (India) Pvt. Ltd., Chennai, 2003.

Unit I	Chapter 5sections 5.1 to 5.4
Unit II	Chapter 5 sections 5.5 to 5.7
Unit III	Chapter 5 sections 5.8, Chapter VI sections 6.1 to 6.3
Unit IV	Chapter 7 sections 7.1 to 7.6
Unit V	Chapter 7 sections 7.7, 7.8 Chapter VIII sections 8.1, 8.2

Books for Reference:

- S.Lang, Introduction to Linear Algebra 2nd Edition, Springer 2005.
- AR.Vasistha, Modern Algebra, Krishna Prakashan Publication.

II YEAR – III SEMESTER
COURSE CODE: 7BCEA4
ALLIED COURSE IV – PROGRAMMING IN C++ (THEORY & LAB)

Unit I

Software Crisis – Software Evolution – Basic Concepts of Object-Oriented Programming – Benefits of OOP – Object-Oriented Languages - Applications of OOP – Application of C++ - Structure of a C++ Program – Tokens – Keywords – Identifiers – Basic Data Types – Userdefined Data types – Derived data types – Symbolic constants – Type compatibility – Declaration of variables – Dynamic initialization of variables –Reference variables – Operators in C++ - Manipulators – Type cast operator – Expressions and their types-Implicit conversions – Control structures – The main function – Function prototyping – inline functions – Function overloading.

Unit II

Specifying a class – Defining member functions – Making an outside function inline – Nesting of member functions – Private member functions – Array within a class – Memory allocation for objects – Static data members – Static member functions – Array of objects - Objects as function arguments – Friendly functions – Returning objects – Constant member functions – Constructors – Parameterized constructor – Multiple constructors in a class – Constructors with default arguments – Dynamic initialization of objects – Copy constructor – Destructors.

Unit III

Defining operator overloading – Overloading unary operators – Overloading binary operators – Overloading binary operators using friend function – Rules for overloading operators - Defining derived classes – Single inheritance – Making a private member inheritable – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance - Virtual base classes – Constructors in derived class – Member classes: Nesting of classes.

Unit IV

Pointer to objects – this pointer – Pointers to derived classes – Virtual functions – Pure virtual functions – C++ Stream classes – Unformatted I/O operations – Managing output
With manipulators.

Unit V

Classes of file stream operations – Opening and Closing files – Detecting end of file – More about open() function – File modes, File pointers and their manipulation – Sequential input and output operations – Command-line arguments- Templates: class templates and
function templates.

Text Book:

1. Object Oriented Programming with C**++,** E. Balagurusamy, Sixth Edition-2013, McGraw Hill Education (India) Private Limited, New Delhi.

UNIT I – Chapter 1 (Except 1.3, 1.4),
Chapter 2 (Only 2.6),
Chapter 3 (Except 3.20, 3.21, 3.22), Chapter 4
UNIT II – Chapter 5 (Except 5.18, 5.19), Chapter 6 (Except 6.8, 6.9, 6.10)
UNIT III – Chapter 7, Chapter 8
UNIT IV – Chapter 9, Chapter 10
UNIT V – Chapter 11 (Except 11.8), Chapter 12 (Only 12.2, 12.3 and 12.4)

Books for Reference:

1. C++ - The Complete Reference, Herbert Schildt, TMH, 1998.
2. C++ How to Program, Paul Deitel, Harvey Deitel, PHI, Ninth edition (2014).
3. Ashok N.Kamthane, Object Oriented Programming with ANSI & Turbo C ++,Pearson Education, 2006.
4. Object-Oriented Programming With C++, Poornachandra Sarang, 2nd Edition, PHI Learning Private Limited, New Delhi, 2009.
5. Object-Oriented Programming Using C++, Alok Kumar Jagadev, Amiya Kumar Rath and Satchidananda Dehuri, Prentice-Hall of India Private Limited, New Delhi, 2007.

COURSE CODE: 7BCEAP2
ALLIED PRACTICAL – II - PROGRAMMING IN C AND C++ LAB

1. Write a C Program to find the sum of digits.
2. Write a C Program to check whether a given number is Armstrong or not.
3. Write a C Program to check whether a given number is Prime or not.
4. Write a C Program to generate the Fibonacci series.
5. Write a C Program to display the given number is Adam number or not.
6. Write a C Program to print reverse of the given number and string.
7. Write a C Program to find minimum and maximum of 'n' numbers using array.
8. Write a C Program to arrange the given number in ascending order.
9. Write a C Program to add and multiply two matrices.
10. Write a C Program to calculate NCR and NPR
11. Write a program in C++ to add complex numbers using operator overloading
12. Write a program in C++ to multiply complex numbers using operator overloading
13. Write a program in C++ to convert temperature from Fahrenheit to Celsius
14. Write a program in C++ to calculate variance and standard deviation of N numbers
15. Write a program in C++ to find largest value of two numbers using nesting of member functions.
16. Write a program in C++ to find the sum of digits using constructor
17. Write a program in C to prepare the pay bill of employees
18. Write a program in C++ to calculate the volume of sphere, cone and cylinder using inline function
19. Write a program in C++ to prepare the student mark list
20. Write a program in C++ to perform the matrix addition, subtraction, and multiplication using single level inheritance
21. Write a program in C++ to find out the standard deviation using hybrid inheritance

II YEAR – IV SEMESTER

COURSE CODE: 7SBS4B2

COURSE II – EMERGENCY AND MEDICAL LAB SKILLS

Objectives:

- To recognize the nature and seriousness of the patient's condition or extent of Injuries to assess requirements for emergency medical care
- Administer appropriate emergency medical care based on assessment findings of the patient's condition
- To Perform safely and effectively the expectations of the job

Unit I

First Aid – Fracture and Fire

First Aid – Drowning and Snake animal, rodent bites.

First Aid – Diarrhoea, Dysentery and Heat Stroke

Unit II

Traffic Rules

Road accidents: precautions, preventions & emergency steps to be taken on the spot advantages of 108 ambulance.

Unit III

Basic Clinical lab Tests

Blood, Urine, saliva, stool Tests

Unit IV

Awareness Programmes on the importance of locally available herbal plants and Vegetables. Skin lashes poor eye-sight anemia

Unit V

Project on Locally available native treatments for various Health Problems (Project Report 15 to 25 Pages)

Books for Reference:

2. Era.Su.Muthu and Meera Ravishankar, "First Aid", aug-2013 published by Sura Books (PVT) Ltd., 1620, 'J' Block, 16th Main Road, Anna Nagar, Chennai – 600 040.
3. Dr.Rama Rao, "Handbook of First Aid", Chennai.

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PART – IV (4)

II YEAR – IV SEMESTER

COURSE CODE: 7BVE4

COURSE – VALUE EDUCATION

DEFINITION

THE LEARNING AND PRACTICE OF FACTS WHICH HAVE ETERNAL VALUE IS WHAT IS CONTEMPLATED BY VALUE EDUCATION. IT CAN ALSO BE THE PROCESS BY WHICH A GOOD CITIZEN IS MOULDED OUT OF A HUMAN BEING. THE EVOLUTION OF A GOOD HUMAN BEING IS WHEN HE REALISES THAT HIS CONSCIENCE SHOWS TO HIM THE RIGHTNESS OF HIS ACTION.

OBJECTIVE

TO CREATE AN AWARENESS TO VALUES AMONG LEARNERS AND HELP THEM ADOPT THEM IN THEIR LIVES.

UNIT I

DEFINITION – NEED FOR VALUE EDUCATION – HOW IMPORTANT HUMAN VALUES ARE – HUMANISM AND HUMANISTIC MOVEMENT IN THE WORLD AND IN INDIA – LITERATURE ON THE TEACHING OF VALUES UNDER VARIOUS RELIGIONS LIKE HINDUISM, BUDDHISM, CHRISTIANITY, JAINISM, ISLAM, ETC. AGENCIES FOR TEACHING VALUE EDUCATION IN INDIA – NATIONAL RESOURCE CENTRE FOR VALUE EDUCATION – NCERT– IITS AND IGNOU.

UNIT II

VEDIC PERIOD – INFLUENCE OF BUDDHISM AND JAINISM – HINDU DYNASTIES – ISLAM INVASION – MOGHUL INVASION – BRITISH RULE – CULTURE CLASH – BHAKTI CULT – SOCIAL REFORMERS – GANDHI – SWAMI VIVEKANANDA – TAGORE – THEIR ROLE IN VALUE EDUCATION.

UNIT III

VALUE CRISIS – AFTER INDEPENDENCE

INDEPENDENCE – DEMOCRACY – EQUALITY – FUNDAMENTAL DUTIES – FALL OF STANDARDS IN ALL FIELDS – SOCIAL, ECONOMIC, POLITICAL, RELIGIOUS AND ENVIRONMENTAL – CORRUPTION IN SOCIETY.

POLITICS WITHOUT PRINCIPLE – COMMERCE WITHOUT ETHICS – EDUCATION WITHOUT CHARACTER – SCIENCE WITHOUT HUMANISM – WEALTH WITHOUT WORK – PLEASURE WITHOUT CONSCIENCE – PRAYER WITHOUT SACRIFICE – STEPS

TAKEN BY THE GOVERNMENTS – CENTRAL AND STATE – TO REMOVE DISPARITIES ON THE BASIS OF CLASS, CREED, GENDER.

UNIT IV

VALUE EDUCATION ON COLLEGE CAMPUS

TRANSITION FROM SCHOOL TO COLLEGE – PROBLEMS – CONTROL – FREE ATMOSPHERE – FREEDOM MISTAKEN FOR LICENSE – NEED FOR VALUE EDUCATION – WAYS OF INCULCATING IT – TEACHING OF ETIQUETTES – EXTRA-CURRICULAR ACTIVITIES – N.S.S., N.C.C., CLUB ACTIVITIES – RELEVANCE OF DR.A.P.J. ABDUAL KALAM'S EFFORTS TO TEACH VALUES – MOTHER TERESA.

UNIT V

PROJECT WORK

- COLLECTING DETAILS ABOUT VALUE EDUCATION FROM NEWSPAPERS, JOURNALS AND MAGAZINES.
- WRITING POEMS, SKITS, STORIES CENTERING AROUND VALUE-EROSION IN SOCIETY.
- PRESENTING PERSONAL EXPERIENCE IN TEACHING VALUES.
- SUGGESTING SOLUTIONS TO VALUE – BASED PROBLEMS ON THE CAMPUS.

RECOMMENDED BOOKS:

- SATCHIDANANDA. M.K. (1991), "ETHICS, EDUCATION, INDIAN UNITY AND CULTURE" – DELHI, AJANTHA PUBLICATIONS.
- SARASWATHI. T.S. (ED) 1999. CULTURE", SOCIALISATION AND HUMAN DEVELOPMENT: THEORY, RESEARCH AND APPLICATION IN INDIA" – NEW DELHI SAGE PUBLICATIONS.
- VENKATAIAH. N (ED) 1998, "VALUE EDUCATION" NEW DELHI PH. PUBLISHING CORPORATION.
- CHAKRABORTI, MOHIT (1997) "VALUE EDUCATION: CHANGING PERSPECTIVES" NEW DELHI: KANISHKA PUBLICATIONS.
- "VALUE EDUCATION – NEED OF THE HOUR" TALK DELIVERED IN THE HTED SEMINAR – GOVT. OF MAHARASHTRA, MUMBAI ON 1-11-2001 BY N.VITTAL, CENTRAL VIGILANCE COMMISSIONER.
- "SWAMI VIVEKANANDA'S ROUSING CALL TO HINDU NATION": EKNATH RANADE (1991) CENTENARY PUBLICATION
- RADHAKRISHNAN, S. "RELIGION AND CULTURE" (1968), ORIENT PAPERBACKS, NEW DELHI.

SEMESTER-V

S.No.	Class	Semester	Title of the Course	Course Code
1.	III B.Sc Maths	V	Core–IX-Real Analysis	7BMA5C1
			Core–X-Statistics I	7BMA5C2
			Core–XI-Operations Research I	7BMA5C3
			Elective (I) - Graph Theory	7BMAE1A
			Elective (II)- Numerical Analysis	7BMAE2A
			Skill Based Subjects – I Heritage and Tourism	7SBS5A5
			Skill Based Subjects – I Marketing and sales Management	7SBS5A6

III YEAR - V SEMESTER
COURSE CODE: 7BMA5C1

CORE COURSE - IX – REAL ANALYSIS

Unit – I

Introduction – Sets and functions – Countable and Uncountable sets – Inequalities of Holder and Minkowski – Metric spaces – Definition and examples – Bounded sets in a metric space – Open Ball in a metric space – Opensets.

Unit – II

Subspace – Interior of a set – Closed sets – Closure – limit point – Dense sets – Completeness – Baire's Category Theorem

Unit – III

Continuity – Homeomorphism – Uniform continuity.

Unit – IV

Connectedness – Definition and examples – Connected subsets of R – Connectedness & Continuity.

Unit – V

Compact Metric spaces – Compact subsets of R – Equivalent Characterization for Compactness – Compactness and Continuity.

Text Book:

1.Modern Analysis, Dr. S.Arumugam& Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, Edition 2015.

Unit I	Chapter 1sections 1.1 to 1.4 Chapter 2 sections 2.1 to 2.4
Unit II	Chapter 2 sections 2.5 to 2.10 & Chapter 3
Unit III	Chapter 4 sections 4.1 to 4.3
Unit IV	Chapter 5
Unit V	Chapter 6

Book for Reference:

1. Richard R.Goldberg, Methods of Real analysis, IBM Publishing, New Delhi.

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III YEAR - V SEMESTER
COURSE CODE: 7BMA5C2

CORE COURSE - X – STATISTICS - I

Unit – I

Central Tendencies – Introduction – Arithmetic Mean – Partition Values – Mode – Geometric Mean and Harmonic Mean – Measures of Dispersion.

Unit – II

Moments – Skewness and Kurtosis – Curve fitting – Principle of least squares.

Unit – III

Correlation – Rank correlation Regression – Correlation Coefficient for a Bivariate Frequency Distribution.

Unit – IV

Interpolation – Finite Differences – Newton's Formula – Lagrange's Formula – Attributes – Consistency of Data – Independence and Association of Data.

Unit – V

Index Numbers – Consumer Price Index Numbers – Analysis of Time series – Time series – Components of a Time series – Measurement of Trends.

Text Book:

1. Statistics by Dr. S. Arumugam and Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, June 2015.

Unit I	Chapter 2sections 2.1 to 2.4 Chapter 3 section 3.1
Unit II	Chapter 4 sections 4.1 & 4.2 Chapter 5 section 5.1
Unit III	Chapter 6 sections 6.1 to 6.4
Unit IV	Chapter 7 sections 7.1 to 7.3 Chapter 8 sections 8.1 to 8.3
Unit V	Chapter 9 sections 9.1 & 9.2 Chapter 10 sections 10.1 to 10.3

Book for Reference:

1. Statistics Theory and Practice by R.S.N.Pillai and Bagavathi, S.Chand and Company Pvt. Ltd. New Delhi, 2007.

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III YEAR - V SEMESTER
COURSE CODE: 7BMA5C3
CORE COURSE - XI – OPERATIONS RESEARCH - I

Unit – I

Introduction – Origin and Development of O.R – Nature and features of O.R. – Scientific Method in O.R. – Modelling in O.R. – Advantages and Limitations of Models – General solution methods of O.R. models – Applications of Operations Research – Linear Programming problem – Mathematical formulation of the problem – Illustration on Mathematical formulation of linear programming problems – Graphical solution method – Some exceptional cases – General linear programming problem – Canonical and Standard forms of L.P.P – Simplex method.

Unit – II

Use of Artificial variables (Big M method – Two Phase method) Duality in linear programming – General primal and dual pair – Formulating a Dual problem – Primal – Dual pair in matrix form – Duality Theorems – Complementary Slackness Theorem – Duality and Simplex method – Dual simplex method.

Unit – III

Introduction – L.P. formulation of T.P. – Existence of solution in T.P. – The Transportation table – Loops in T.P. – Solution of a Transportation problem – Finding an initial basic – feasible solution (NWCM – LCM – VAM) – Degeneracy in TP – Transportation Algorithm (MODI Method) – Unbalanced T.P – Maximization T.P.

Unit – IV

Assignment problem – Introduction – Mathematical formulation of the problem – Test for optimality by using Hungarian method – Maximization case in Assignment problem.

Unit – V

Sequencing problem – Introduction – problem of sequencing – Basic terms used in Sequencing– n jobs to be operated on two machines – problems – n jobs to be operated on K machines–problems–Two jobs to be operated on K machines (Graphical method)–problems.

Text Book:

1. Operations Research (14th edition) by KantiSwarup, P.K.Gupta and Man Mohan, Sultan Chand & Sons, New Delhi, 2008.

Unit I	Chapter 1sections 1.1 to 1.7, 1.10 Chapter 2 sections 2.1 to 2.4 Chapter 3 sections 3.1 to 3.5 Chapter 4 sections 4.1 to 4.3
Unit II	Chapter 4 sections 4.4 Chapter 5 sections 5.1 to 5.7, 5.9
Unit III	Chapter 10 sections 10.1 to 10.3, 10.5, 10.6, 10.8, 10.9, 10.12, 10.13, 10.15
Unit IV	Chapter 11 sections 11.1 to 11.4
Unit V	Chapter 12 sections 12.1 to 12.6

Books for Reference:

- P.K.Gupta and D.S.Hira, Operations Research, 2nd Edition, S.Chand& Co., New Delhi, 2004.
- Taha H.A.,Operations Research–An Introduction,8th edition,Pearson Prentice Hall.

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III YEAR - V SEMESTER
COURSE CODE: 7BMAE1A

ELECTIVE COURSE - I (A) – GRAPH THEORY

Unit – I

Graphs – Definition and examples – Degrees – Sub graphs – Isomorphism – Ramsey Numbers – Independent Sets and Coverings – Intersection graphs and Line graphs – Matrices – Operations on Graphs.

Unit – II

Dergee Sequences – Graphic sequences – Walks, Trials and Paths – Connectedness and Components – Blocks – Connectivey – Eulerian Graphs – Hamiltonian Graphs.

Unit – III

Trees – Characterisation of Trees – Centre of a Tree – Matchings–Matchings in Bipartite Graphs.

Unit – IV

Planer graphs and properties – Characterization of Planer graphs – Thickness, crossing and outer planarity – Chromatic number and ChromaticIndex – The Five colour theorem and four colour problem.

Unit – V

Chromatic polynomials – Definitions and Basic properties of Directed Graph – Paths and Connections – Digraphs and Matrices – Tournaments.

Text Book:

1. Invitation to Graph Theory by Dr. S.Arumugam & S.Ramachandran, Scitech Publications (India) Pvt. Ltd,2001 .

Unit I	Chapter 2
Unit II	Chapters 3, 4 & 5
Unit III	Chapters 6 & 7
Unit IV	Chapter 8, Chapter 9, sections 9.1 to 9.3
Unit V	Chapter 9 section 9.4; Chapter 10

Book for Reference:

1. Graph Theory with Applications to Engineering and Computer Science byNarasinghDeo, Prentice Hall of India, New Delhi.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMAE2A

ELECTIVE COURSE - II (A) – NUMERICAL ANALYSIS

Unit – I

Solution of Algebraic and Transcendental equations – Introduction, Bisection Method, Iteration Method, Method of False position, Newton Raphson Method.

Unit – II

Interpolation : Finite differences – Forward differences, Backward differences, Central differences, Symbolic relations, Newton's formula for Interpolation – Interpolation with unevenly spaced points – Lagrange's Interpolation formula.

Unit – III

Numerical Differentiation and Integration – Introduction, Numerical Differentiation – Errors in Numerical Differentiation – Cubic Spline method – maximum and minimum values of a tabulated function, Numerical Integration – Trapezoidal Rule and Simpson's 1/3 and 3/8 rules.

Unit – IV

Matrices and Linear system of Equations – Gaussian Elimination method, Gauss – Jordan method, Modification of the Gauss method to compute the inverse – Method of Factorization – Iterative method – Jacobi and Gauss Seidal methods.

Unit – V

Numerical Solutions of Ordinary Differential Equations – Solution by Taylor Series, Picard's method of Successive approximations, Euler method, Modified Euler method Runge – Kutta Methods.

Text Book:

1. Introductory Methods of Numerical Analysis, (4^{th} Edition) by S.S.Sastry, PHI Learning Pvt. Ltd., New Delhi, 2009.

Unit I	Chapter 2sections 2.1 to 2.5
Unit II	Chapter 3 sections 3.3, 3.6, 3.9, 3.9.1.
Unit III	Chapter 5 sections 5.1, 5.2 - 5.2.2, 5.3, 5.4 – 5.4.1, 5.4.2, 5.4.3.
Unit IV	Chapter 6 sections 6.3.2, 6.3.3, 6.3.4, 6.4.
Unit V	Chapter 7 sections 7.2 to 7.4, 7.4.2, 7.5

Books for Reference:

- Numerical Methods by P.Kandasamy and Others S.Chand Publications.
- Numerical Analysis with Programming in C by Dr. S.Arumugam, A.Thangapandi Issac, Dr. A.Somasundaram, New Gamma Publishing House, Palayamkottai, 2013.

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GROUP I – SET II
III YEAR – V SEMESTER
COURSE CODE: 7SBS5A5
COURSE II – HERITAGE AND TOURISM

Objectives:

- To understand the definitions, terminology and concepts of cultural heritage and its relationships with tourism.
- To Understand heritage tourism supply by examining different categories of heritage attractions and the contexts within which heritage exists and additional perspectives on scale from the supply perspective
- To understand the role of interpretation in cultural heritage sites and the relevance of such interpretation approaches to visitors.
- Provide a framework to plan, design, and assess interpretation programs for tourists

Unit I

Tourism – Introduction – Concepts – Significance – Forms of Tourism – Effects of Tourism – Social, Economic and Environmental aspects – Human Rights

Unit II

Importance of preserving heritage – Heritage Spots in India – In Tamil Nadu – Brief history of the heritage spots – The role of heritage spots in promoting tourism – UNESCO guidelines on Heritage

Unit III

Role of Government in promoting tourism – ITDC- TTDC-Palace on wheels – Travel industry service network – Land (rail and road) Air – Water – Travel Agency – Hospitality and Accommodation

Unit IV

Travel Guide – Features – requirements – One's role as a guide – Income and Employability – Qualities and skills of a professional travel or tourist guide

Unit V

Project work – Field visit to heritage and tourism spots in Sivagangai and Ramanathapuram Districts and submission of a report (15 to 25 pages)

Books for Reference:

Bhatia, A. K – Tourism Development Principles and Practices, (Sterling Publishers (P) Ltd., New Delhi)

Ananand M. M – Tourism and Hotel Industry in India (Sterling Publishers (P) Ltd., New Delhi)

Acharya Ram – Tourism and Cultural Heritage (Rosa Publications: Jaipur, 1986)

Jha, S.M – Tourism Marketing (Himalaya Publishing House)

GROUP I – SET II
III YEAR – V SEMESTER

COURSE CODE: 7SBS5A6

COURSE III – MARKETING AND SALES MANAGEMENT

Objectives:

- To acquire analytical skills for solving marketing related problems and challenges and to familiar with the strategic marketing management process
- To learn the elements of sales force to be an effective component of an organization's overall marketing strategy.

Unit I

Introduction: Evolution of Marketing – Types of Marketing: Consumer Products Marketing, Industrial Marketing and Services Marketing – Demographic and Behavioural Dimensions of Marketing – Marketing Planning

Unit II

Basics of Market Segmentation, Targeting and Positioning – Components of The Marketing Mix: Product – Price – Place – Promotion – Distribution Channels: Types – Merits and Demerits

Unit III

Marketing Vs Selling – Nature and Scope of Sales Management – Personal Selling and Salesmanship – Selling Function – Understanding Consumer's Decision Making Process – Sales Organization and Types Of Selling

Unit IV

Prospecting – Approaching The Customer – Sales Presentation – Sales Demonstration – Negotiating Buyer Concerns – Closing The Sale – Post Sales Service and Complaint Handling

Unit V

Modern Trends in Marketing and Sales: Internet Marketing – Direct Marketing – Multi Level Marketing – Relationship Marketing – Selling through Kiosks

Books for Reference:

- Chunawalla, S. A., Sales Management, 5th Edition (2007), Himalaya Publishing House
- Havaldar, Krishna; Sales And Distribution Management, 1st Edition (2006), Tata Mcgraw Hill
- Perreault, Jr., William; Mccarthy, E. Jerome, Basic Marketing, 15th Edition, 2006, Tata Mcgraw Hill

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SEMESTER-VI

S.No.	Class	Semester	Title of the Course	Course Code
1.	III B.Sc Maths	VI	Core – XII Mechanics	7BMA6C1
			Core – XIII Complex Analysis	7BMA6C2
			Core – XIV Statistics II	7BMA6C3
			Core – XV Operations Research II	7BMA6C4
			Elective – III- Fuzzy Algebra	7BMAE3B
			Skill Based Subjects – II Fruit and Vegetable Preservative Skills	7SBS6B4
			Skill Based Subjects – II National cadet corps	7SBS6B7

COURSE CODE: 7BMA6C1

CORE COURSE - XII – MECHANICS

Unit – I

Forces acting at a point – Resultant and Components – Definition – Simple cases of finding the resultant – Parallelogram law of forces – Analytical Expression for the resultant of two forces acting at a point – Triangle of forces – Perpendicular Triangle of forces – Converse of Triangle of forces – The polygon of forces – Lami's Theorem – An Extended form of the parallelogram law of forces – Parallel forces – Resultant of like parallel forces – unequal unlike parallel forces – Resultant of a number of parallel forces acting on a rigid body –Conditions of equilibrium of three coplanar parallel forces – Centre of two Parallel forces – moments – Physical significance – Geometrical representation – sign and unit of the moment – Varigon's theorem.

Unit – II

Equilibrium of three forces acting on a Rigid body - Rigid body subjected to any three forces – Three coplanar forces theorem – conditions of Equilibrium – Two Trigonometrical Theorem – Friction – Laws of friction – Theorems – Equilibrium of a particle on a rough inclined plane – (i) under a force parallel to the plane – (ii) under any forces – problems on friction – Uniform string under the action of gravity – Equation of the common catenary – axis, vertex, directrix, span and sag – Tenson at any point – Important formulae – Geometrical properties of the Common Catenary

Unit – III

Projectile – Definition – fundamental principles – path of the projectile – Characteristics of the motion of a projectile – Range on an inclined plane – greatest distance maximum range

Unit – IV

Impulsive force – Impulse – Impact of two bodies – Loss of Kinetic energy in Impact – Collision of elastic bodies – Fundamental laws of Impact – Newton's experimental law – Impact of a smooth sphere on a fixed smooth plane – Direct Impact of two smooth spheres – Loss of kinetic energy due to direct impact – Oblique impact of two smooth spheres – Loss of kinetic energy due to oblique impact.

Unit – V

Motion under the action of Central forces – Velocity and acceleration – Equation of motion in Polar Coordinates – Note on equiangular spiral – Motion under a central force – Differential Equation of Central Orbits – Perpendicular from the pole on the tangent – Formulae in Polar Coordinates – Pedal Equation of the central orbit – Pedal equation of some of the well known curves – Velocities in a central orbit – Two folded problems.

Text Books:

- Statics (17th edition) by Dr. M.K.Venkataraman, Agasthiyar Publications, Tiruchirapalli, 17th Edition, July 2014.
- Dynamics (18th edition) byDr. M.K.Venkataraman, Agasthiyar Publications, Tiruchirapalli, 2017

Unit I	Chapter 2sections 1 – 10 of (1) Chapter 3 sections 1 – 12of (1)
Unit II	Chapter 5 sections 1 – 5 & Chapter 7of (1) Chapter 11 sections 1 – 6 of (1)
Unit III	Chapter 6 sections 1 – 5, 12, 13, 14, of (2)
Unit IV	Chapter 7 sections 1 – 4 of (2) Chapter 8 sections 1 – 8 of (2)
Unit V	Chapter 11 sections 1 – 11 of (2)

Books for Reference:

- Mechanics by P.Duraipandian, Emerald Publishers, Chennai, 1984.
- Statics by S.Narayanan S.Chand & Co., Chennai, 1986.
- Dynamics by S.Narayanan S.Chand & Co., Chennai, 1986.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMA6C2

CORE COURSE – XIII – COMPLEX ANALYSIS

Unit – I

Functions of a Complex variable – Limits – Theorems on Limits – Continuous functions – Differentiability – The Cauchy – Riemann equations – Analytic functions – Harmonic functions.

Unit – II

Elementary Transformations – Bilinear Transformations – Cross ratio – Fixed points of Bilinear Transformation – Some special Bilinear transformations.

Unit – III

Complex integration – Definite integral – Cauchy's Theorem – Cauchy's Integral formula – Higher derivatives.

Unit – IV

Series expansions – Taylor's Series – Laurent's Series – Zeros of an analytic function Singularities.

Unit – V

Residues – Cauchy's Residue Theorem – Evaluation of definite integrals.

Text Book:

1. Complex Analysis by Dr.S.Arumugam,A.Thangapandi Isaac &Dr. A.Somasundaram, Scitech Publications (India) Pvt. Ltd, Chennai, 2017.

Unit I	Chapter 1sections 2.1 to 2.8
Unit II	Chapter 3 sections 3.1 to 3.5
Unit III	Chapter 6 sections 6.1 to 6.4
Unit IV	Chapter 7 sections 7.1 to 7.4
Unit V	Chapter 8 sections 8.1 to 8.3

Books for Reference:

- P.P.Gupta – Kedarnath&Ramnath , Complex Variables, Meerut – Delhi.
- J.N.Sharma, Functions of a Complex Variable, Krishna Prakasan Media (P) Ltd, 13th Edition, 1996-97.
- T.K.ManickavachagomPillay, Complex Analysis, S.Viswanathan Publishers Pvt. Ltd, 1994.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMA6C3

CORE COURSE - XIV – STATISTICS - II

Unit – I

Probability – Conditional Probability – Random variables – Discrete Random Variable – Continuous Random Variable – Mathematical Expectations – Moment Generating Function – Characteristic function.

Unit – II

Some Special Distributions – Binomial Distribution – Poisson Distribution – Normal Distribution – Gamma Distribution – Chi-Square Distribution – Student's t-Distribution – Snedecor's F Distribution – Fischer's Z – Distribution.

Unit – III

Tests ofSignificance of large samples – Sampling – Sampling Distribution – Testing of Hypothesis – Procedure for Testing of Hypothesis for large samples – Tests of Significance for large samples.

Unit – IV

Tests of Significance based on 't' Distribution – Test of Significance based on F-Test – Test for Significance of an Observed sample correlation.

Unit – V

Test based on Chi - Square Distribution – Chi - Square Test forPopulation variance – Chi - Square Test – To test the Goodness of fit – Test for Independence of Attributes – Analysis of Variance – One Criterion of Classification – Two Criteria of Classification – Three criteria of Classification – Latin Square.

Text Book:

1. Statistics by Dr. S.Arumugam and Mr. A.Thangapandi Isaac, New Gamma Publishing House, Palayamkottai, June 2015.

Unit I	Chapter 11sections 11.1 & 11.2 Chapter 12sections 12.1 to 12.6
Unit II	Chapter 13 sections 13.1 to 13.4
Unit III	Chapter 14 sections 14.1 to 14.5
Unit IV	Chapter 15 sections 15.1 to 15.3
Unit V	Chapter 16 sections 16.1 to 16.3 Chapter 17sections 17.1 to 17.3

Book for Reference:

1. Statistics Theory and Practice by R.S.N.Pillai and Bagavathi, S.Chand and Company Pvt. Ltd., New Delhi, 2007.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMA6C4

CORE COURSE- XV– OPERATIONS RESEARCH - II

Unit – I

Replacement problem and System Reliability – Introduction – Replacement of Equipment / Assert that Deteriorates Gradually – Replacement of Equipment that fails suddenly.

Unit – II

Inventory Control – Introduction – Types of Inventories – Reason for carrying Inventories – Costs Associated with Inventories – Factors affecting Inventory Control – The Concept of EOQ – Deterministic Inventory problems with no shortages, with shortages Problems of EOQ with Price Breaks.

Unit – III

Queuing Theory – Introduction – Queuing System – Elements of Queuing System – Operating Characteristics of a Queuing System – Deterministic Queuing System – Probability Distributions of Queuing Systems – Classification of Queuing models – Definition of Transient and Steady states – Poisson Queuing systesm – (M/M/1) : (∞/FIFO), (M/M/1) : (∞/SIRO), (M/M/1) : (N/FIFO) Generalized model Birth – Death Process.

Unit – IV

Network Scheduling by PERT / CPM – Network Basic components – Drawing network – Critical path Analysis – PERT Analysis – Distinction between PERT and CPM

Unit – V

Game Theory – Two person Zero – Sum Games – Basic terms – Maximin – Minimax Principle – Games without saddle points – Mixed strategies – Graphical solution of 2× n and m × 2 games – Dominance Property – General solution of m×n rectangular games.

Text Book:

1. Operations Research (14th Edition) by KantiSwarup, P.K.Gupta & ManMohan, Sultan Chand & Sons, Educational Publishers, New Delhi, 2008.

Unit I	Chapter 18sections 18.1 to 18.3
Unit II	Chapter 19 sections 19.1 – 19.3, 19.6, 19.7, 19.9, 19.10 – 19.12
Unit III	Chapter 21 sections 21.1 –21.9 upto model IV
Unit IV	Chapter 25 sections 25.1 – 25.8
Unit V	Chapter 17 sections 17.1 to 17.7, 17.9

Books for Reference:

- Operations Research (2nd edition) by P.K.Gupta and D.S.Hira, S.Chand& Co., New Delhi, 2004.
- Operations Research (2nd edition) by S.Kalavathy, Vikas Publishing House, New Delhi, 2002.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMAE3B
ELECTIVE COURSE - III (B) – FUZZY ALGEBRA

Unit – I

Fuzzy sets – Basic types – Basic concepts - α - cuts – Additional prosperities of α - cuts – Extension principle for Fuzzy sets.

Unit – II

Operations on Fuzzy sets – Types of operations – Fuzzy complements – Fuzzy intersections : t-norms – Fuzzy Unions : t-conorms.

Unit – III

Combinations of operations – Fuzzy Arithmetic – Fuzzy numbers

Unit – IV

Arithmetic operations on intervals – Arithmetic operations on Fuzzy numbers – Fuzzy relations – Binary fuzzy relations – Fuzzy equivalence relations – Fuzzy compatibility relations.

Unit – V

Fuzzy ordering relations – fuzzy morphisms.

Text Book:

1. George J.Klir and Bo Yuan, Fuzzy Sets and Fuzzy Logic, Theory and Applications, Prentice Hall Inc., New Jersey. 1995.

Unit I	Chapter 1 sections 1.3, 1.4 Chapter 2 sections 2.1, 2.3
Unit II	Chapter 3 sections 3.1 to 3.4
Unit III	Chapter 3 section 3.5 Chapter 4 section 4.1
Unit IV	Chapter 4 sections 4.3& 4.4 Chapter 5 sections 5.3, 5.5, 5.6
Unit V	Chapter 5 sections 5.7 & 5.8

Books for Reference:

1. H.J.Zimmermann, Fuzzy Set Theory and its Applications, Allied Publishers Limited, New Delhi, 1991.

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GROUP II – SET II
III YEAR – VI SEMESTER

COURSE CODE: 7SBS6B4

COURSE II – FRUIT AND VEGETABLE PRESERVATION SKILLS

Objectives:

- To understand the science, principles and techniques involved in fruits and vegetables preservation techniques
- To impart thorough knowledge on the technical skills in various aspects of food processing and preservation

Unit I

Principles, Methods, types of Preservation.

Preservation media and mode of action of preservation. Traditional & Modern methods.

Unit II

Study of various types of equipments – care & precautions and usage.

Study of various types of containers.

Unit III

Vegetables & their product preservation Methods

Importance of personal hygiene and sanitary standards

Unit IV

Fruits & their preservation

Unit V

Project:

- Mapping of preservation practices & centre's

(or)

- Preservation practices specific to fruits & Vegetables in your area
  (Project Report 15 to 25 Pages)

Books for Reference:

- Srivastava R.P. and Kumar.S "Fruit and Vegetable Preservation: Principles"
- Ranjit Singh "Fruits" National Book Trust.
- Girdhari Lal Tandon et al "Preservation of Fruit and Vegetable Products"

III YEAR – VI SEMESTER
COURSE CODE: 7SBS6B7
COURSE IV- NATIONAL CADET CORPS(NCC)

Objectives:

- After going through this unit, the students would be able to gain an insight into aims and objectives of NCC.
- Explore the importance of NCC in nation building.
- Understand the concept of National Integration and its importance.

Unit – I

National Cadet Corps(NCC)-Introduction to NCC- Genesis –Objectives of NCC- Concept of Training in NCC- Organization of the NCC – Associate NCC officers – Cert Exam.

Unit –II National Integration:

National interests, Objectives, Threats and Opportunities. Religions, culture, traditions and customs of India, Importance and necessity. Freedom struggle and nationalist movement in India **Drill:**Foot drill, Arms drill, Ceremonial drill, Qualities of immediate and implicit obedience of orders.

Unit-III Social Awareness and Community Development:

NGO's Role and Contribution, Drug abuse and trafficking, Basics of social service and its need, Civic responsibility, Contribution of youth towards social welfare, Rural development programmes.

Unit –IV Environmental Awareness and Conservation:

Natural resources conservation and management, Water conservation and rain water harvesting, Hygiene and sanitation, structure and function of the human body, infectious and contagious diseases and its prevention.

Unit –V Personality Development and Leadership:

Introduction to personality development, self awareness, communication skills, Leadership traits, Time management.

Books for Reference:

- Anonymous. 1995. Officers training manual. PRECIS, NCC, OTS, Kamptee
- Bose, R and Faust, L. 2011. Mother Teresa, CEO, Unexpected Principles for Practical Leaders, Tata McGraw Hill Publications, New Delhi.
- Ganapathi, R. 2003. Swami Vivekanandar, Ramakrishna Math Press, Chennai.
- Gandhi, M.K. 1983. An Autobiography or The story of My Experiments with Truth, Navajivan Publishing House, Ahamedabad
- Gupta, S.K. and Joshi, R. 2008. Human Resource Management, Kalyani Publishers, New Delhi.
- Kalam, A.P.J. 1999. Wings of Fire, University Press, Hyderabad
- Mishra, R.C. 2000. A Hand book of NCC, Kanti Prakashan, Etawah.Precis
- Rana, B.S 2004. Maharana Pratap, Diamond Books (P) Ltd., New Delhi. Rana, B.S. 2004. Chatrapati Shivaji, Diamond Books (P) Ltd., New Delhi

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ALAGAPPA UNIVERSITY, KARAIKUDI
NEW SYLLABUS UNDER CBCS PATTERN
(w.e.f. 2023 – 2024, w.e.f. 2023-2024 and w.e.f. 2022-2023)
B.Sc. MATHEMATICS – PROGRAMME STRUCTURE
B.Sc., MATHS – ODD Semester - 2023-2024 Academic Year

Sem.	Part	Course Code	Title of the Course	Cr.	Hrs. / Week	Max. Marks		
						Int.	Ext.	Total
I	I	2311T	**Tamil / Other Languages – I**	3	6	25	75	100
	II	2312E	**English – I – General English**	3	6	25	75	100
	III	23BMA1C1	**Core–I algebra** and trigonometry.	5	5	25	75	100
		23BMA1C2	**Core–II- - integral l** Calculus	4	4	25	75	100
			Allied – I - A – statistics – I (or) physics/chemistry/ computer science **Allied – I - A Practical - Respective Allied Theory course**	3 2	3 2	25 40	75 60	100 100
		23BMAS1	**Latex**	2	2	25	75	100
		23BMAFC	**Bidge Mathematics**	2	2	25	75	100
			Total	**23**	**30**	**200**	**600**	**800**
III	I	2231T	**Tamil / Other Languages – III**	3	6	25	75	100
	II	2232E	**English Foe Enrichment – I**	3	6	25	75	100
	III	22BMA3C1	**Core–V -** Differential Equations and its Applications	5	5	25	75	100
	III	22BMA3C2	**Core–VI-** Abstract Algebra	4	4	25	75	100
	III		**Allied – II - B – statistics – I (or) physics/chemistry/ computer science** **Allied – II – B – Practical - Respective Allied Theory course**	3 3	3 3	25 40	75 60	100 100
	IV	22BE3	**SEC –III – Enterpreneurship Adipadai Tamil**	2	2	25	75	100
			NME – I – Advance Tamil **IT Skills for Employment Mmooc's**	2	2	25	75	100
			Total (Allied Theory only)	**24**	**30**	**-**	**-**	**800**

V	III	7BMA5C1	**Core–IX-**Real Analysis	4	6	25	75	100
	III	7BMA5C2	**Core–X-**Statistics I	4	5	25	75	100
	III	7BMA5C3	**Core–XI-**Operations Research I	4	5	25	75	100
	III	7BMAE1A	**Elective (I) - A)** Graph Theory	5	5	25	75	100
	III	7BMAE2A	**Elective (II)** – Numerical Analysis	5	5	25	75	100
	IV	7SBS5A5 7SBS5A6	**(2) Skill Based Subjects – I** Heritage and Tourism	2	2	25	75	100
			(2) Skill Based Subjects – I Marketing and Sales Management	2	2	25	75	100
			Total	**26**	**30**	**-**	**-**	**700**
			Grand Total	**76**	**90**	**-**	**-**	**2300**

SEMESTER-1

S.No.	Class	Semester	Title of the Course	Course Code
1.	I B.Sc Maths	I	Tamil-I- Tamil Ilakkiya varalaru	2311T
			English-1- General English	2312E
			Core-I- Algebra & Trigonometry	23BMA1C1
			Core-II Differential Calculus	23BMA1C2
			Allied-I Physics	23BPHA1
			Physics Practical	23BPHAP1
			Latex	23BMAS1
			Bridge Mathematics	23BMAFC

பொதுத்தமிழ்-1

தமிழ் இலக்கிய வரலாறு -1

முதலாம் ஆண்டு – முதற் பருவம்

Course Code	Course Name	category	L	T	P	S	Credits	Ins.Hrs	CIA	Externa	Total
	பொதுத்தமிழ் -1 தமிழ் இலக்கிய வரலாறு -1	Supportive	Y	-	-	-	3	6	25	75	100
Pre-Requisite		பன்னிரெண்டாம் வகுப்பில் தமிழை ஒரு பாடமாகப் பயின்றிருக்க வேண்டும்							SV 2023		

Learning Objectives

- முதலாமாண்டுப் பட்ட வகுப்பு மாணவர்களுக்குத் தமிழ் மொழி இலக்கியங்களை அறிமுகம் செய்தல்
- தமிழ் இலக்கியப் போக்குகளையும், இலக்கணங்களையும் மாணவர் அறியுமாறு செய்து அவர்களின் படைப்பாற்றலைத் தூண்டுதல்
- தமிழ் இலக்கியம் சார்ந்த போட்டித் தேர்வுகளுக்கு ஏற்ப கற்பித்தல் நடைமுறைகளை மேற்கொள்ளுதல்

Expected Course Outcomes

On the Sucessful completion of the Course, Students will be able to

இப்பாடத்தைக் கற்பதால் பின்வரும் பயன்களை மாணவர் அடைவர்

CO 1	சங்க இலக்கியத்தில் காணப்பெறும் வாழ்வியல் சிந்தனைகளை அறிந்து கொள்வர்	K4
CO 2	அற இலக்கியம் மற்றும் தமிழ் காப்பியங்களின்வழி வாழ்வியல் சிந்தனையைப் பெறுவர்	K5, K6
CO 3	பக்தி இலக்கியங்களைக் கற்பதன் மூலம் பக்தி நெறியினையும், பகுத்தறிவு இலக்கியங்களைக் கற்பதன் வழி நல்லிணக்கத்தையும் தெரிந்து பின்பற்றுவர்	K3
CO 4	மொழியறிவோடு சிந்தனைத்திறனைப் பெறுவர்	K3
CO 5	மொழிப்பயிற்சிக்குத் தேவையான இலக்கணங்களைக் கற்பர்.	K2

K1 - Remember; K2 - Undestand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

FIRST YEAR - SEMESTER I

PAPER II –GENERAL ENGLISH-I

Subject Code	Category	L	T	P	S	Credits	Inst. Hours	Marks		
								CIA	External	Total
2312E	Part II	Y	Y	-	-	3	6	25	75	100

Learning Objectives		
LO1	To enable learners to acquireself awareness and positive thinking required in various life situations.	
LO2	To help them acquire the attribute of empathy	
LO3	To assist them in acquiring creative and critical thinking abilities	
LO4	To enable them to learn the basic grammar	
LO5	To assist them in developing LSRW skills	
Unit No.	**Unit Title & Text**	**No. of Periods for the Unit**
Unit I	**SELF-AWARENESS(WHO)&POSITIVE THINKING(UNICEF)** **Life Story** Chapter 1 from MalalaYousafzai, I am Malala An Autobiography or The Story of My Experiments with Truth (Chapters 1, 2 & 3) M.K.Gandhi **Poem** Where the Mind is Without Fear – Gitanjali 35 –Rabindranath Tagore Love Cycle – Chinua Achebe	20
Unit II	**EMPATHY** **Poem** Nine Gold Medals – David Roth Alice Fell or poverty – William Wordsworth **Short Story** The School for Sympathy – E.V. Lucas Barn Burning – William Faulkner	20

Unit III	**CRITICAL & CREATIVE THINKING** **Poem** The Things That Haven't Been Done Before –Edgar Guest Stopping by the Woods on a Snowy Evening –Robert Frost **Readers Theatre** The Magic Brocade – A Tale of China Stories on Stage – Aaron Shepard (Three Sideway Stories from Wayside School" by LouisSachar)	20
Unit IV	**Part of Speech** Articles Noun Pronoun Verb Adverb Adjective Preposition	15
Unit V	**Paragraph and Essay Writing** Descriptive Expository Persuasive Narrative **Reading Comprehension**	15

Text books (Latest Editions)

1.MalalaYousafzai. I am Malala, Little, Brown and Company, 2013.

2.M.K. Gandhi. An Autobiography or The Story of My Experiments with Truth (Chapter – I), Rupa Publications, 2011.

3.Rabindranath Tagore. "Gitanjali 35" from Gitanjali (Song Offerings): A Collection of Prose Translations Made by the Author from the Original Bengali.MacMillan, 1913.

4.N.Krishnasamy. Modern English: A Book of Grammar, Usage and Composition Macmillan, 1975.

5.Aaron Shepard. Stories on Stage, ShepardPublications, 2017.

6.J.C. Nesfield. English Grammar Composition and Usage, Macmillan, 2019.

<table>
<tr><td colspan="2">Title of the Course</td><td colspan="6">ALGEBRA & TRIGONOMETRY</td></tr>
<tr><td colspan="2">Paper Number</td><td colspan="6">CORE M1</td></tr>
<tr><td rowspan="2">Category</td><td rowspan="2">Core</td><td>Year</td><td>I</td><td rowspan="2">Credits</td><td rowspan="2">4</td><td rowspan="2">Course Code</td><td rowspan="2">23BMA1C1</td></tr>
<tr><td>Semester</td><td>I</td></tr>
<tr><td colspan="2" rowspan="2">Instructional Hours per week</td><td>Lecture</td><td>Tutorial</td><td>Lab Practice</td><td colspan="3">Total</td></tr>
<tr><td>4</td><td>1</td><td>--</td><td colspan="3">5</td></tr>
<tr><td colspan="2">Pre-requisite</td><td colspan="6">12th Standard Mathematics</td></tr>
<tr><td colspan="2">Objectives of the Course</td><td colspan="6">• Basic ideas on the Theory of Equations, Matrices and Number Theory.
• Knowledge to find expansions of trigonometry functions, solve theoretical and applied problems.</td></tr>
<tr><td colspan="2" rowspan="5">Course Outline</td><td colspan="6">Unit I: Reciprocal Equations-Standard form–Increasing or decreasing the roots of a given equation- Removal of terms, Approximate solutions of roots of polynomials by Horner’s method – related problems.</td></tr>
<tr><td colspan="6">Unit II: Summation of Series: Binomial– Exponential –Logarithmic series (Theorems without proof) – Approximations - related problems.</td></tr>
<tr><td colspan="6">Unit III: Characteristic equation – Eigen values and Eigen VectorsSimilar matrices - Cayley – Hamilton Theorem (Statement only) - Finding powers of square matrix, Inverse of a square matrix up to order 3, Diagonalization of square matrices - related problems.</td></tr>
<tr><td colspan="6">Unit IV: Expansions of $\sin n\theta$, $\cos n\theta$ in powers of $\sin\theta$, $\cos\theta$ - Expansion of $\tan n\theta$ in terms of $\tan\theta$, Expansions of $\cos^n\theta$, $\sin^n\theta$, $\cos^m\theta\sin^n\theta$ –Expansions of $\tan(\theta_1+\theta_2+,\ldots,+\theta_n)$-Expansions of $\sin\theta$, $\cos\theta$ and $\tan\theta$ in terms of θ - related problems.</td></tr>
<tr><td colspan="6">Unit V: Hyperbolic functions – Relation between circular and hyperbolic functions Inverse hyperbolic functions, Logarithm of complex quantities, Summation of trigonometric series - related problems.</td></tr>
<tr><td colspan="2">Recommended Text</td><td colspan="6">1. W.S. Burnstine and A.W. Panton, Theory of equations
2. David C. Lay, Linear Algebra and its Applications, 3rd Ed., Pearson Education Asia, Indian Reprint, 2007
3. G.B. Thomas and R.L. Finney, Calculus, 9th Ed., Pearson Education, Delhi, 2005
4. C. V. Durell and A. Robson, Advanced Trigonometry, Courier Corporation, 2003
5. J. Stewart, L. Redlin, and S. Watson, Algebra and Trigonometry, Cengage Learning, 2012.
6. Calculus and Analytical Geometry, G.B. Thomas and R. L. Finny, Pearson Publication, 9th Edition, 2010.</td></tr>
<tr><td colspan="2">Website and e-Learning Source</td><td colspan="6">https://nptel.ac.in</td></tr>
</table>

Title of the Course		**DIFFERENTIAL CALCULUS**					
Paper Number		CORE M2					
Category	Core	Year	I	Credits	4	Course Code	23BMA1C2
		Semester	I				
Instructional Hours per week		Lecture	Tutorial	Lab Practice	Total		
		4	1	--	5		
Pre-requisite		12^{th} Standard Mathematics					
Objectives of the Course		• The basic skills of differentiation, successive differentiation, and their applications. • Basic knowledge on the notions of curvature, evolutes, involutes and polar co-ordinates and in solving related problems.					
Course Outline		UNIT-I: Successive Differentiation: Introduction (Review of basic concepts) – The n derivative – Standard results – Fractional expressions – Trigonometrical transformation – Formation of equations involving derivatives – Leibnitz formula for the n derivative of a product – Feynman's method of differentiation.					
		UNIT-II: Partial Differentiation: Partial derivatives – Successive partial derivatives – Function of a function rule – Total differential coefficient – A special case – Implicit Functions.					
		UNIT-III: Partial Differentiation (Continued): Homogeneous functions – Partial derivatives of a function of two variables – Maxima and Minima of functions of two variables - Lagrange's method of undetermined multipliers.					
		UNIT-IV: Envelope: Method of finding the envelope – Another definition of envelope – Envelope of family of curves which are quadratic in the parameter.					
		UNIT-V:Curvature: Definition of Curvature – Circle, Radius and Centre of Curvature – Evolutes and Involutes – Radius of Curvature in Polar Co-ordinates.					

Recommended Text	1. H. Anton, I. Birens and S. Davis, Calculus, John Wiley and Sons, Inc., 2002. 2. G.B. Thomas and R.L. Finney, Calculus, Pearson Education, 2010. 3. M.J. Strauss, G.L. Bradley and K. J. Smith, Calculus, 3rd Ed., Dorling Kindersley (India) P. Ltd. (Pearson Education), Delhi, 2007.
Reference Books	1. R. Courant and F. John, Introduction to Calculus and Analysis (Volumes I & II), Springer- Verlag, New York, Inc., 1989. 2. T. Apostol, Calculus, Volumes I and II. 3. S. Goldberg, Calculus and mathematical analysis.
Website and e-Learning Source	https://nptel.ac.in

PCOURSE	**ALLIEDPAPER**
COURSETITLE	**ALLIEDPHYSICS–I**
CREDITS	3 **COURSECODE-23BPHA1**
COURSE OBJECTIVES	ToimpartbasicprinciplesofPhysicsthatwhichwouldbehelpfulfor studentswhohavetakenprogrammesotherthanPhysics.

UNITS	COURSEDETAILS
UNIT-I	**WAVES,OSCILLATIONSANDULTRASONICS:**simple harmonic motion (SHM) – composition of two SHMs at right angles (periods in the ratio 1:1) – Lissajous figures – uses – laws oftransversevibrationsof strings–determination ofAC frequency using sonometer (steel and brass wires) – ultrasound – production – piezoelectric method – application of ultrasonics: medical field – lithotripsy, ultrasonography –ultrasonoimaging-ultrasonics indentistry–physiotheraphy,opthalmology–advantagesof noninvasivesurgery–ultrasonicsingreenchemistry.
UNIT-II	**PROPERTIES OF MATTER:** *Elasticity*:elasticconstants–bending of beam–theoryof non-uniform bending – determinationof Young's modulus bynon-uniform bending– energy stored ina stretched wire – torsion of a wire – determination of rigidity modulus by torsional pendulum *Viscosity*: streamline and turbulent motion – critical velocity – coefficient of viscosity – Poiseuille's formula – comparison of viscosities – burette method, *Surfacetension*:definition–moleculartheory–dropletsformation– shape,sizeandlifetime–COVIDtransmissionthroughdroplets,saliva – drop weight method – interfacial surface tension.
UNIT-III	**HEAT AND THERMODYNAMICS:** Joule-Kelvin effect – Joule- Thomson porous plug experiment – theory – temperature of inversion–liquefactionofOxygen–Linde'sprocessofliquefactionofair–liquid Oxygen for medical purpose– importance of cryocoolers– thermodynamic system – thermodynamic equilibrium – laws of thermodynamics–heatengine–Carnot'scycle–efficiency–entropy –changeofentropyinreversibleandirreversibleprocess.
UNIT-IV	**ELECTRICITY AND MAGNETISM:** potentiometer – principle – measurement of thermo emf using potentiometer –magnetic field due to a current carrying conductor – Biot-Savart's law – field along the axis of the coil carrying current – peak, average and RMS valuesof ac current and voltage – power factor and current values in an AC circuit – typesofswitchesinhouseholdandfactories–Smartwifiswitches- fusesandcircuitbreakersinhouses
UNIT-V	**DIGITALELECTRONICSANDDIGITALINDIA:**logicgates, OR, AND, NOT, NAND, NOR , EXORlogic gates – universal building blocks – Boolean algebra – De Morgan's theorem – verification – overview of Government initiatives: software technological parksunderMeitY,NIELIT-semiconductorlaboratories underDept.ofSpace–anintroductiontoDigitalIndia

UNIT-VI	**PROFESSIONAL COMPONENTS:**expert lectures –seminars — webinars – industry inputs – social accountability – patriotism
TEXTBOOKS	1. R.Murugesan(2001),AlliedPhysics,S.ChandandCo,NewDelhi. 2. BrijlalandN.Subramanyam(1994), WavesandOscillations,VikasPublishing House,NewDelhi. 3. BrijlalandN.Subramaniam(1994), PropertiesofMatter,S.ChandandCo.,NewDelhi. 4. J.B.RajamandC.L.Arora(1976).HeatandThermodynamics(8th edition), S.ChandandCo.,New Delhi. 5. R.Murugesan(2005), OpticsandSpectroscopy,S.ChandandCo,NewDelhi. 6. A.Subramaniyam, AppliedElectronics2ndEdn.,NationalPublishingCo.,Chennai.
REFERENCE BOOKS	1. ResnickHallidayandWalker(2018).FundamentalsofPhysics(11thedition),JohnWilleyand Sons, Asia Pvt.Ltd., Singapore. 2. V.R.KhannaandR.S.Bedi(1998), TextbookofSound1stEdn. KedharnaathPublishandCo, Meerut. 3. N.S.KhareandS.S.Srivastava(1983), ElectricityandMagnetism10thEdn.,AtmaRamandSonsNew Delhi. 4. D.R.KhannaandH.R. Gulati(1979). Optics,S. Chand andCo.Ltd.,New Delhi. **5.** V.K.Metha(2004).Principlesofelectronics6thEdn. S.Chandandcompany.
WEB RESOURCES	1. https://youtu.be/M_5KYncYNyc 2. https://youtu.be/ljJLJgIvaHY 3. https://youtu.be/7mGqd9HQ_AU 4. https://youtu.be/h5jOAw57OXM 5. https://learningtechnologyofficial.com/category/fluid-mechanics-lab/ 6. http://hyperphysics.phy-astr.gsu.edu/hbase/permot2.htmlhttps://www.youtube.com/watch?v=gT8Nth9NWPMhttps://www.youtube.com/watch?v=9mXOMzUruMQandt=1shttps://www.youtube.com/watch?v=m4u-SuaSu1sandt=3shttps://www.biolinscientific.com/blog/what-are-surfactants-and-how-do-they-work

COURSE	**ODDSEMESTER-CORE**	**CourseCode**
COURSETITLE	**ALLIEDPRACTICAL–I**	**23BPHAP1**
CREDITS	2	
COURSE OBJECTIVES	ApplyvariousphysicsconceptstounderstandPropertiesof Matter and waves, set up experimentation to verify theories, quantify and analyse, able to do error analysis and correlate results	

MinimumofEightExperimentsfromthelist:

1. Young'smodulusbynon-uniformbendingusingpinandmicroscope
2. Young'smodulusbynon-uniformbendingusingopticlever,scaleandtelescope
3. Rigiditymodulusbystatictorsionmethod.
4. Rigiditymodulusbytorsionaloscillationswithoutmass
2. SurfacetensionandinterfacialSurfacetension–dropweightmethod
3. Comparisonofviscositiesoftwoliquids–burettemethod
4. Specificheatcapacityofaliquid–halftimecorrection
5. Verificationoflawsoftransversevibrationsusingsonometer
6. Calibrationoflowrangevoltmeterusingpotentiometer
7. Determinationofthermoemfusingpotentiometer
8. VerificationoftruthtablesofbasiclogicgatesusingICs
9. VerificationofDeMorgan'stheoremsusinglogicgateICs.
10. UseofNANDasuniversalbuildingblock.

Note:Useofdigitalbalancepermitted

Course Code 23BMAS1	LaTeX		Credits 2
Year &Semester: I YEAR & I SEMESTER	Course Category	SEC	Total:(L+T+P) Per week: 1+1 =2

Course Objective

- To enable the students to acquire basic concepts of LaTeX
- To get knowledge to prepare sample reports, sample articles, sample presentation and sample poster

	Details	No. of Hours
UNIT I	Preamble : Motivation - Running LaTeX - Resources - Basic LaTeX - Sample Document and Key Concepts - Type Style - Environments - Lists - Centering - Tables - Verbatim - Vertical and Horizontal Spacing	6
UNIT II	Typesetting Mathematics - Examples - Equation Environments - Fonts, Hats, and Underlining - Braces -Arrays and Matrices - Customized Commands -Theorem-like Environments - Math Miscellany - Math Styles - Bold Math - Symbols for Number Sets - Binomial Coefficient	6
UNIT III	Further Essential LaTeX : Document Classes and the Overall Structure - Titles for Documents - Sectioning Commands - Miscellaneous Extras - Spacing - Accented Characters - Dashes and Hyphens - Quotation Marks - Troubleshooting - Pinpointing the Error - Common Errors - Warning Messages .	6
UNIT IV	Packages - Inputting Files - Inputting Pictures - Making a Bibliography - Making an Index –Latex through the years	6
UNIT V	Sample Article –Sample Report – Sample presentation - Sample Poster – Internet Resources	6
	Total	**30**

Course Outcomes

CO	On completion of this course, students will able to
1	Learn LaTeX.
2	Typesetting Mathematics
3	know the essential of LaTeX, Document Classes and the Overall Structure
4	Know the packages, Inputting Files, Inputting Pictures, Making a Bibliography
5	prepare theSample Article, Sample Report, Sample presentation and SamplePoster

Text Book

1	Learning LaTeX : David F. Griffiths, Desmond J. Higham. - SIAM -Society for Industrial and Applied Mathematics, Philadelphia **Chapter 1 ,2,3,4 and 5**

<table>
<tr><td colspan="2">Title of the Course</td><td colspan="6">Foundation course - Bridge Mathematics</td></tr>
<tr><td colspan="2">Paper Number</td><td colspan="6">FOUNDATION 1</td></tr>
<tr><td rowspan="2">Category</td><td rowspan="2">Core</td><td>Year</td><td>I</td><td rowspan="2">Credits</td><td rowspan="2">2</td><td rowspan="2">Course Code 23BMAFC</td><td rowspan="2">FC</td></tr>
<tr><td>Semester</td><td>I</td></tr>
<tr><td colspan="2" rowspan="2">Instructional Hours per week</td><td>Lecture</td><td colspan="2">Tutorial</td><td>Lab Practice</td><td colspan="2">Total</td></tr>
<tr><td>2</td><td colspan="2">-</td><td>--</td><td colspan="2">2</td></tr>
<tr><td colspan="2">Pre-requisite</td><td colspan="6">12th Standard Mathematics</td></tr>
<tr><td colspan="2">Objectives of the Course</td><td colspan="6">To bridge the gap and facilitate transition from higher secondary to tertiary education;
To instil confidence among stakeholders and inculcate interest for Mathematics;</td></tr>
<tr><td colspan="2" rowspan="5">Course Outline</td><td colspan="6">UNIT-I: Algebra: Binomial theorem, General term, middle term, problems based on these concepts</td></tr>
<tr><td colspan="6">Unit II: Sequences and series (Progressions). Fundamental principle of counting. Factorial n.</td></tr>
<tr><td colspan="6">Unit III: Permutations and combinations, Derivation of formulae and their connections, simple applications, combinations with repetitions, arrangements within groups, formation of groups.</td></tr>
<tr><td colspan="6">Unit IV: Trigonometry: Introduction to trigonometric ratios, proof of sin(A+B), cos(A+B), tan(A+B) formulae, multiple and sub multiple angles, sin(2A), cos(2A), tan(2A) etc., transformations sum into product and product into sum formulae, inverse trigonometric functions, sine rule and cosine rule</td></tr>
<tr><td colspan="6">Unit V: Calculus: Limits, standard formulae and problems, differentiation, first principle, uv rule, u/v rule, methods of differentiation, application of derivatives, integration - product rule and substitution method.</td></tr>
<tr><td colspan="2">Recommended Text</td><td colspan="6">1. NCERT class XI and XII text books.
2. Any State Board Mathematics text books of class XI and XII</td></tr>
<tr><td colspan="2">Website and e-Learning Source</td><td colspan="6">https://nptel.ac.in</td></tr>
</table>

ALLIED COURSES FOR OTHER DEPARTMENT STUDENTS

Course code: 22BMAA1	Allied - IA	T/P	C	H/W
	ANCILLARY MATHEMATICS - I	T	3	3
Objectives	□ To learn the basic concepts and problem solving in differential equations □ To explore trigonometry as a tool in solving problems.			
Unit -I	Matrices – Characteristic Equation and Cayley - Hamilton Theorem (Proof not included) – Finding the inverse of a matrix using Cayley – Hamilton Theorem – Eigen values and Eigen vectors.			
Unit-II	Equations of the first order but of Higher Degree – Equations solvable for dy/dx – Equations solvable y, x – Clairaut's form – Linear equations with constant coefficients – Finding the complementary function and particular integral of the type e^{ax} cosax sinax.			
Unit- III	Differential Calculus – Successive Differentiation – n^{th} derivative of standard functions (Derivation not needed) problems – Leibnitz formula for the n^{th}derivative of a product (proof not needed) simple problems only – Curvature and Radius of Curvature in Cartesian coordinates only – problems.			
Unit- IV	Integral Calculus – Integration by Parts – Bernoulli's formula – Definite integrals – Properties – problems.			
Unit- V	Trigonometry : Expression for sinn□, cosn□ and tann□, $\sin^n$□, $\cos^n$□ (n being a +ve integer) Expansion of sin□, cos□, tan□ in powers of □ (only problems in all the above)			

Reference and Textbooks

Arumugam, S., & Thangapandi Isaac, A. (2002). Ancillary Mathematics Paper I (Revised). Palayamkottai: New Gamma Publishing House

Arumugam, S., & ThangapandiIssac, A. (2003). Modern Algebra. Chennai: Scitech Publications.

Narayanan, S., & ManickavachagomPillay, T. K. (2006). Calculus. (Volume I). S.Viswanathan (Printers & Publishers) Pvt. Ltd.

Narayanan, S., & ManickavachagomPillay, T. K. (2014). Calculus. (Volume II). S.Viswanathan (Printers & Publishers) Pvt. Ltd.

Narayanan, S., & ManickavachagomPillay, T. K. (2015). Differential Equations and its Applications. S.Viswanathan (Publishers & Printers) Pvt. Ltd.

Outcomes	Students will be able to □ Develop the ability of solving the integrals □ Understand the applications of differentiation

Course Code 22BMAAP1	Allied - IA	T/P	C	H/W
	Practical	P	2	2

ANCILLARY MATHEMATICS - I

Q1.Find the rank of a 3 into 3 matrix.

Q2.Finding inverse of a given matrix using Cayley- Hamilton Theorem.

Q3.Finding complementary functions and particular integral of given differential equations with right hand side consisting of exponential, trigonometry and algebraic function and its combinations.

Q4.Finding nth derivative of a product of functions using Leibnitz formula.

Q5.Finding Integration by parts two or more times using Bernoulli's formula.

Q6.Express $\sin^m \square \cos^n \square$ in terms of either $\sin \square$ or $\cos \square$.

SEMESTER -III

S.No.	Class	Semester	Title of the Course	Course Code
1.	II B.Sc Maths	III	Tamil-III Kappiyamum Puthinamum	2231T
			English – III English Of Enrichment-I	2232E
			Core–V- Differential Equations	22BMA3C1
			Core–VI-Abstract Algebra	22BMA3C2
			Allied –Statistics-I	22BMAA5
			Allied –Statistics-I Practical	22BMAAP5
			Entrepreneurship	22BE3
			IT Skills for Employment	22NME3C

பருவம் - 03				
பாடக்குறியீட்டுஎண்: 2231T	பொதுத் தமிழ்	T/P	C	H/W
	காப்பியமும் புதினமும்	T	3	6

நோக்கம் :	➢ காப்பியம், புதின வடிவங்களை வெளிப்படுத்தல். ➢ படைப்பாளர்கள் வெளிப்படுத்தும் பதிவுகளை எடுத்தியம்புதல்.
அலகு - 1	1. சிலப்பதிகாரம் - அடைக்கலக் காதை (மதுரைக் காண்டம்) 2. மணிமேகலை - ஆதிரை பிச்சையிட்ட காதை 3. கம்பராமாயணம் - அங்கதன் தூதுப் படலம் 4. பெரியபுராணம் - அப்பூதியடிகள் நாயனார் புராணம் 5. தேம்பாவணி - நாட்டுப் படலம் 6. சீறாப்புராணம் - விருந்தூட்டுப் படலம்
அலகு - 2	**புதினம்** பனையடி - இரா.செல்வம் இ.ஆ.ப., நியூ செஞ்சுரி புக் ஹவுஸ் பிரைவேட் லிமிடெட்.சென்னை - 98.
அலகு - 3	**இலக்கணம்** செய்யுள் உறுப்புகள் : எழுத்து - அசை - சீர் - தளை - அடி -தொடை - பாவகை - அணி வகைகள் - உவமை - உருவகம் - சிலேடை - பின்வருநிலை அணி - வேற்றுமை.
அலகு - 4	**இலக்கிய வரலாறு** காப்பியம் மற்றும் புதின இலக்கியம் தொடர்பான இலக்கிய வரலாறு.
அலகு - 5	**படைப்பாற்றல்.** கவிதை படைத்தல்.
பயன்கள் :	➢ கவிதை, புதினம் படைப்பாக்கச் சிந்தனை. ➢ காப்பியம், புதினம் வெளிப்படுத்தும் சமூகச் சிந்தனை வாயிலாக மாணவர் மேம்படுதல்.

Semester -III				
Course code: 2232E	**General English**	**T/P**	**Credit**	**Hrs./Week**
	ENGLISH FOR ENRICHMENT – I	**T**	**3**	**6**

Unit - 1	Poetry 1. Let me not to the Marriage of True Minds - William Shakespeare 2. Stooping by Woods on a Snowy Evening - Robert Frost 3. The Lotus- Toru Dutt
Unit - 2	Prose 1. My Greatest Olympic Prize- Jesse Owens 2. Early Influences- Dr.A.P.J.AbdulKalam 3. On Keyhole Morals- A.G.Gardiner
Unit - 3	Short Stories 1.The Selfish Giant- Oscar Wilde 2. Tree Speaks- C.Rajagopalachari 3.The Diamond Necklace- Guy De Maupassant
Unit - 4	Biography 1. Abraham Lincoln- J.B.Neilson 2. Indira Gandhi- A Profile- R.Sunder Raju
Unit - 5	Grammar and Composition 1. Sentence Patterns 2. Kinds of Sentences 3. Active Voice and Passive Voice 4. Reported Speech 5. Letter Writing (Formal and Informal) 6. Writing Cover Letter and Resume Writing

Text Book:

Snow Flakes, Edited by Dr.V.Nagarajan and Prof.P.Madhan, Harrows Publications, Chennai.

Modern English – A Book of Grammar Usage and Composition by N.Krishnaswamy, Macmillan Publishers.

Semester - III				
Course code: 22BMA3C1	**Core Course - V**	**T/P**	**C**	**H/W**
	DIFFERENTIAL EQUATIONS	**T**	**5**	**5**

Objectives	To gain logical skills in the formation of differential equations. To expose students to use differential equations as a powerful tool in problen solving and to inculcate the application of differential equation in real worl problems.
Unit -I	Exact Differential Equations – Conditions for equation to be exact –Working rul for solving it and problems – Equations of the first order but of higher degree - Equations solvable for p, x, y, Clairaut's form – Equations that do not contain (i) explicitly (ii) y explicitly – Equations homogenous in x and y – Linear Equatio with constant coefficients.
Unit-II	Linear equations with variable coefficients – Equations reducible to the linea equations – Simultaneous Differential Equations – First order and first degree - Simultaneous linear Differential Equations.
Unit III	Linear equations of the Second order – Complete Solution given a known integral - Reduction to Normal form – Change of the independent variable – Variation o parameters
Unit IV	Linear equations of second order with variable coefficients - Total Differentia Equations – Necessary and Sufficient condition of integrability of Pdx + Qdy + Rdz = 0, Rule for solving it.
Unit V	Partial Differential Equations of the First order – Classifications of Integrals – Derivations of Partial Differential Equations – Special methods – Standard forms – Charpit's method.

Textbook

Narayanan, S., & Manicavachagom Pillay, T.K. (2015). *Differential Equations and its Applications*. S.Viswanathan (Printers and Publishers) Pvt. Ltd.

Reference Books

Arumugam, S., & Thangapandi Issac, A. (2014). *Differential Equations and its Applications* Palayamkottai: New Gamma Publishing House.

Venkatraman, M.K. (1985). *Engineering Mathematics*. S.V. Publications.

Outcomes	Students will be able to Extract the solution of differential equations of the first order and of the firs degree by variables separable, Homogeneous and NonHomogeneous methods Find a solution of differential equations of the first order and of a degree highe than the first by using methods of solvable for p, x and y. Compute all the solutions of second and higher order linear differentia equations with constant coefficients, linear equations with variabl coefficients. Solve simultaneous linear equations with constant coefficients and tota differential equations.

Course code: 22BMAA5	Allied - IA	T/P	C	H/W
	STATISTICS – I	T	3	3

Objectives	To extend and□ To introduce the notation□formalize knowledge of the theory of probability. of regression and time series analysis.
Unit -I	Central Tendencies – Introduction – Arithmetic Mean – Partition Values – Mode – Geometric Mean and Harmonic Mean – Measures of Dispersion.
Unit-II	Moments – Skewness and Kurtosis – Curve fitting – Principle of least squares.
Unit- III	Correlation – Rank correlation Regression – Correlation Coefficient for a Bivariate Frequency Distribution.
Unit- IV	Interpolation – Finite Differences – Newton's Formula – Lagrange's Formula – Attributes – Consistency of Data – Independence and Association of Data.
Unit- V	Index Numbers – Consumer Price Index Numbers – Analysis of Time series – Time series – Components of a Time series – Measurement of Trends.

Textbook

Arumugam, S., & ThangapandiIssac, A. (2015). Statistics. Palayamkottai: New Gamma Publishing House.

Reference Books

Gupta, S.C., & Kapoor, V. K. (2002). Fundamentals of Mathematical Statistics. New Delhi: Sultan Chand &Sons Pvt. Ltd.

Pillai, R.S.N., & Bagavathi. (2007). Statistics: Theory and Practice. New Delhi: S.Chand and Company Pvt. Ltd.

Outcomes	Students will be able to □ Understand Moments, Skewness and Kurtosis. □ Calculate the correlation coefficient for the given data. □ Compute Rank correlation for the given data.

Course Code: 22BMAAP5	Allied - IA	T/P	C	H/W
	Practical	P	2	2

STATISTICS – I

From the following table showing the wage distribution in a certain factory determine:
The mean wages
The median wages
The modal wages
The wage limits for 50% of the earners
The percentages of workers who earned between Rs. 75 and Rs. 125
The percentages of workers who earned more than Rs. 150 per week, and
The percentages of workers who earned less than Rs. 100 per week

Weekly Wages (Rs.)	20-40	40-60	60-80	80-100	100-120	120-140	140-160	160-180	180-200
No. of Employees	8	12	20	30	40	35	18	7	5

The following table gives the frequency distribution of marks in a class of 65 students

Marks	0-4	4-8	8-12	12-14	14-18	18-20	20-25	25 and over
No. of Students	10	12	18	7	5	3	4	6

Calculate: (i) Upper and lower quartiles
Number of students who secured marks more than 17
Number of students who secured marks between 10 and 15

Find the second, third and fourth central moments of the frequency distribution given below. Hence find the measure of skewness (γ) and measure of kurtosis(γ).

Class limits	110.0-114.9	115.0-119.9	120.0-124.9	125.0-129.9	130.0-134.9	135.0-139.9	140.0-144.9
Frequency	5	15	20	35	10	10	5

In calculating the moments of a frequency distribution based on 100 observations, the following results are obtained:

Mean = 9, Variance = 19, β = 0.7 β = 4

But later on it was found that one observation 12 was read as 21. Obtain the correct values of first central moments, β and β.

If X and X are independent normal variates and U and $V$are defined by
$U = X \cos \alpha + X \sin \alpha$and $V = X \cos \alpha - X \sin \alpha$, show that the correlation

Semester - III				
Course code: 22BMA3C2	**Core Course - VI**	**T/P**	**C**	**H/W**
	ABSTRACT ALGEBRA	**T**	**4**	**4**

Objectives	To develop an understanding of fundamental algebraic structures. To introduce the structure and characteristics of groups and rings.
Unit -I	Groups: Definition and Examples – Elementary Properties of a Group – Equivalent Definitions of a Group – Permutation Groups – Definitions and examples.
Unit-II	Subgroups – Cyclic Groups – Order of an Element – Cosets and Lagrange's Theorem.
Unit- III	Normal Subgroups and Quotient Groups – Isomorphism – Homomorphism.
Unit- IV	Rings: Definitions and Examples – Elementary properties of rings – Isomorphism – Types of Rings – Characteristic of a ring – Subrings.
Unit -V	Ideals – Quotient rings – Integral Domain - Homomorphism of rings.

Textbooks

Arumugam, S., & Thangapandi Issac, A. (2003). *Modern Algebra.* Chennai: SciTech Publications Pvt. Ltd.

Khanna, V. K., & Bhambri, S.K. (2017). *A Course in Abstract Algebra* (Unit – IV & Unit – V) Vikas Publishing House Pvt. Ltd.

Reference Books

Herstein, N. (1975). *Topics in Algebra*. (Student 2nd edition). John Wiley India Pvt. Ltd.

Vasishta, A.R., &. Vasishtha, A.K. (2015). *Modern Algebra*. Meerut: Krishna Prakashan Mandhir Media Pvt. Ltd.

Outcomes	Students will be able to Define subgroup, Center, Normalizer of a subgroup. Find cycles and transpositions of a given permutations. Prove Lagrange's theorem, Euler's theorem and Fermat's theorem. Define normal subgroups, quotient groups and index of a subgroup. Understanding the concept of the rings and integral domain.

Semester - III				
Course code: 22BE3	**SEC-III**	**T/P**	**C**	**H/ W**
	ENTREPRENEURSHIP	**T**	**2**	**2**

Objectives	To enable the students to understand the concept of Entrepreneurship and to learn the professional behaviour about Entrepreneurship. To identify significant changes and trends which create new business opportunities? To analyse the institutional arrangement for potential business opportunities. To provide conceptual exposure on converting ideas to an women entrepreneurship
Unit -I	Entrepreneur – Meaning – Importance – Definition – Types – Functions – Qualities of an Entrepreneur – Entrepreneurship as a career.
Unit-II	Business Promotion – Product selection – Form of ownership – Plant location – land, building, water and power, raw material, machinery, power and other infrastructural facilities– Licensing, registration and local bye laws.
Unit- III	Institutional arrangements for entrepreneurship development – DIC, SIDCO, NSIC, SISI – Institutional finance to entrepreneurs – TIIC, SIDBI, Commercial banks – Incentives to small scale industries.
Unit -IV	Project report – Meaning and importance – Project report – Format of a report (as per requirements of financial institutions) – Project appraisal – Market feasibility – Technical feasibility – Financial feasibility and economic feasibility – Break even analysis.
Unit -V	Entrepreneurship development in India – Women entrepreneurship in India – Sickness in small scale industries and their remedial measures.

Reference and Textbooks: -

Entrepreneurship and Management of Small business – Centre for Entrepreneurship Development, Madurai

Joseph Paul, N. Ajit kumar and T.Mampilly. Entrepreneurship development. Himalayan Publishing House.

Khan, M.A. Entrepreneurship Development Programmes in India. Kanishka Publishing House, Delhi

Saravanavel, P. (1997). Entrepreneurial Development. Ess Pee kay Publishing House, Chennai.

Vasant Desai. Dynamics of Entrepreneur Development and Management. Himalayan Publishing House.

Outcomes	After studied, the student will be able to To understand the significance of entrepreneurship and entrepreneur qualities. To know about the developing ideas and techniques of business. To understand about the procedures of startup. To identify the institutional support provided to entrepreneurs. To analyse the women entrepreneurship development

Semester III				
Course Code	NME	T/P	C	H/W
22NME3C	IT Skills for Employment (Common to all UG programmes)	T	2	2

Objectives:

- Understand the components of computer
- Understand Internet and its terminology
- Understand basic cyber safety and security norms

Unit- 1	Introduction to Computers –Types of Computer - Hardware – Motherboard-Processor-RAM –ROM – SMPS – Graphics Card– Storage Devices – Hard Disc – SSD – DVD – CD – Pen drive- – Input/Output Devices – Keyboard – Mouse – Mic- Monitor-Camera-Types of Printer, Scanner, Projector.Basic of Computer network-Modem, Hub, Switch, Bridge, Routers-Wi-Fi – Bluetooth. Introduction to Free and Open Source Software(FOSS) – Need of Open Sources – Advantages of Open Sources– Copy rights- Software piracy.
Unit- 2	Basics of Operating System –Difference between various operating systems-User Interface of windows 10 OS - create , Copy ,Move and delete files and folders -Use of pen drive -CD-DVD Burning -Windows tools and features-Disk Space management-Disk Clean up-Managing Recycle Bin-Disk defragmentation -Add/ remove software's and programs.
Unit- 3	Basic operating of word processing - Creating, opening and closing documents- Use of shortcuts-Creating and Editing of Text - Formatting the text - Find and replace - Drawing Table-Page layout-Header / Footer - Setting page number-Creating simple applications like - resume - letter writing ,job application ets- Printing document. Basics of Excel worksheet & its importance-creating simple worksheets- formulas-conditional formatting-sort-filter- chart. Introduction to PowerPoint-understand various views of presentation, animations, transitions, header, footer etc.
Unit -4	Internet – ISP- Word wide web (www)- web browser-search engine- creating & using an email account like gmail or any other- checking email and composing Email-Attaching documents- Usageof CC & BCC. Understanding IP address-Bandwidth -Storing and retrieving file through google drive –sharing files and folders-google docs - language translation -voice to text, text to voice application-Google Meet-Zoom-Social media merits and demerits. Online educational websites (Moocs-nptel - Swayam Central- spoken-tutorial.org)-Video tutorials-Step to use Government portals like aadhaar-Election commission website-Eservices(eservices.tn.gov.in) etc— Job Portals - Online Bill payment- Online fund transfer using UPI gateway.
Unit- 5	Internet Safety concerns: (Digital Footprints, Threats, Virus, Worm, Trojan Horse, Spam, Malware,Adware, Spyware, Snooping)-Security Measures :(Antivirus, Firewall)- Cyber Crime: (Phishing, Pharming, Spoofing, Hacking, Cracking, Identity Theft)Cyber Safety (IT Act, Cyber Laws).

ALLIED COURSES FOR OTHER DEPARTMENT STUDENTS

Course code: 22BMAA1	Allied - IA	T/P	C	H/W
	ANCILLARY MATHEMATICS - I	T	3	3
Objectives	To learn the basic concepts and problem solving in differential equations To explore trigonometry as a tool in solving problems.			
Unit -I	Matrices – Characteristic Equation and Cayley - Hamilton Theorem (Proof not included) – Finding the inverse of a matrix using Cayley – Hamilton Theorem – Eigen values and Eigen vectors.			
Unit-II	Equations of the first order but of Higher Degree – Equations solvable for dy/dx – Equations solvable y, x – Clairaut's form – Linear equations with constant coefficients – Finding the complementary function and particular integral of the type e^{ax} cosax sinax.			
Unit- III	Differential Calculus – Successive Differentiation – n^{th} derivative of standard functions (Derivation not needed) problems – Leibnitz formula for the n^{th}derivative of a product (proof not needed) simple problems only – Curvature and Radius of Curvature in Cartesian coordinates only – problems.			
Unit- IV	Integral Calculus – Integration by Parts – Bernoulli's formula – Definite integrals – Properties – problems.			
Unit- V	Trigonometry , sin and tann, cosn: Expression for $\sin n^n$, $\cos^n$ (only in powers of , tan, cos(n being a +ve integer) Expansion of sin problems in all the above)			

Reference and Textbooks

Arumugam, S., & Thangapandi Isaac, A. (2002). Ancillary Mathematics Paper I (Revised). Palayamkottai: New Gamma Publishing House

Arumugam, S., & ThangapandiIssac, A. (2003). Modern Algebra. Chennai: Scitech Publications.

Narayanan, S., & ManickavachagomPillay, T. K. (2006). Calculus. (Volume I). S.Viswanathan (Printers & Publishers) Pvt. Ltd.

Narayanan, S., & ManickavachagomPillay, T. K. (2014). Calculus. (Volume II). S.Viswanathan (Printers & Publishers) Pvt. Ltd.

Narayanan, S., & ManickavachagomPillay, T. K. (2015). Differential Equations and its Applications. S.Viswanathan (Publishers & Printers) Pvt. Ltd.

Outcomes	Students will be able to Develop the ability of solving the integrals Understand the applications of differentiation

SEMESTER-V

S.No.	Class	Semester	Title of the Course	Course Code
1.	III B.Sc Maths	V	Core–IX-Real Analysis	7BMA5C1
			Core–X-Statistics I	7BMA5C2
			Core–XI-Operations Research I	7BMA5C3
			Elective (I) - Graph Theory	7BMAE1A
			Elective (II)- Numerical Analysis	7BMAE2A
			Skill Based Subjects – I Heritage and Tourism	7SBS5A5
			Skill Based Subjects – I Marketing and sales Management	7SBS5A6

III YEAR - V SEMESTER
COURSE CODE: 7BMA5C1

CORE COURSE - IX – REAL ANALYSIS

Unit – I

Introduction – Sets and functions – Countable and Uncountable sets – Inequalities of Holder and Minkowski – Metric spaces – Definition and examples – Bounded sets in a metric space – Open Ball in a metric space – Opensets.

Unit – II

Subspace – Interior of a set – Closed sets – Closure – limit point – Dense sets – Completeness – Baire's Category Theorem

Unit – III

Continuity – Homeomorphism – Uniform continuity.

Unit – IV

Connectedness – Definition and examples – Connected subsets of R – Connectedness & Continuity.

Unit – V

Compact Metric spaces – Compact subsets of R – Equivalent Characterization for Compactness – Compactness and Continuity.

Text Book:

1. Modern Analysis, Dr. S.Arumugam& Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, Edition 2015.

Unit I	Chapter 1sections 1.1 to 1.4 Chapter 2 sections 2.1 to 2.4
Unit II	Chapter 2 sections 2.5 to 2.10 & Chapter 3
Unit III	Chapter 4 sections 4.1 to 4.3
Unit IV	Chapter 5
Unit V	Chapter 6

Book for Reference:

1. Richard R.Goldberg, Methods of Real analysis, IBM Publishing, New Delhi.

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III YEAR - V SEMESTER
COURSE CODE: 7BMA5C2

CORE COURSE - X – STATISTICS - I

Unit – I

Central Tendencies – Introduction – Arithmetic Mean – Partition Values – Mode – Geometric Mean and Harmonic Mean – Measures of Dispersion.

Unit – II

Moments – Skewness and Kurtosis – Curve fitting – Principle of least squares.

Unit – III

Correlation – Rank correlation Regression – Correlation Coefficient for a Bivariate Frequency Distribution.

Unit – IV

Interpolation – Finite Differences – Newton's Formula – Lagrange's Formula – Attributes – Consistency of Data – Independence and Association of Data.

Unit – V

Index Numbers – Consumer Price Index Numbers – Analysis of Time series – Time series – Components of a Time series – Measurement of Trends.

Text Book:

1. Statistics by Dr. S. Arumugam and Mr. A.ThangapandiIssac, New Gamma Publishing House, Palayamkottai, June 2015.

Unit I	Chapter 2sections 2.1 to 2.4 Chapter 3 section 3.1
Unit II	Chapter 4 sections 4.1 & 4.2 Chapter 5 section 5.1
Unit III	Chapter 6 sections 6.1 to 6.4
Unit IV	Chapter 7 sections 7.1 to 7.3 Chapter 8 sections 8.1 to 8.3
Unit V	Chapter 9 sections 9.1 & 9.2 Chapter 10 sections 10.1 to 10.3

Book for Reference:

1. Statistics Theory and Practice by R.S.N.Pillai and Bagavathi, S.Chand and Company Pvt. Ltd. New Delhi, 2007.

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III YEAR - V SEMESTER
COURSE CODE: 7BMA5C3
CORE COURSE - XI – OPERATIONS RESEARCH

Unit – I

Introduction – Origin and Development of O.R – Nature and features of O.R. – Scientific Method in O.R. – Modelling in O.R. – Advantages and Limitations of Models – General solution methods of O.R. models – Applications of Operations Research – Linear Programming problem – Mathematical formulation of the problem – Illustration on Mathematical formulation of linear programming problems – Graphical solution method – Some exceptional cases – General linear programming problem – Canonical and Standard forms of L.P.P – Simplex method.

Unit – II

Use of Artificial variables (Big M method – Two Phase method) Duality in linear programming – General primal and dual pair – Formulating a Dual problem – Primal – Dual pair in matrix form – Duality Theorems – Complementary Slackness Theorem – Duality and Simplex method – Dual simplex method.

Unit – III

Introduction – L.P. formulation of T.P. – Existence of solution in T.P. – The Transportation table – Loops in T.P. – Solution of a Transportation problem – Finding an initial basic – feasible solution (NWCM – LCM – VAM) – Degeneracy in TP – Transportation Algorithm (MODI Method) – Unbalanced T.P – Maximization T.P.

Unit – IV

Assignment problem – Introduction – Mathematical formulation of the problem – Test for optimality by using Hungarian method – Maximization case in Assignment problem.

Unit – V

Sequencing problem – Introduction – problem of sequencing – Basic terms used in Sequencing– n jobs to be operated on two machines – problems – n jobs to be operated on K machines–problems–Two jobs to be operated on K machines (Graphical method)–problems.

Text Book:

1. Operations Research (14th edition) by KantiSwarup, P.K.Gupta and Man Mohan, Sultan Chand & Sons, New Delhi, 2008.

Unit I	Chapter 1sections 1.1 to 1.7, 1.10 Chapter 2 sections 2.1 to 2.4 Chapter 3 sections 3.1 to 3.5 Chapter 4 sections 4.1 to 4.3
Unit II	Chapter 4 sections 4.4 Chapter 5 sections 5.1 to 5.7, 5.9
Unit III	Chapter 10 sections 10.1 to 10.3, 10.5, 10.6, 10.8, 10.9, 10.12, 10.13, 10.15
Unit IV	Chapter 11 sections 11.1 to 11.4
Unit V	Chapter 12 sections 12.1 to 12.6

Books for Reference:

- P.K.Gupta and D.S.Hira, Operations Research, 2nd Edition, S.Chand& Co., New Delhi, 2004.
- Taha H.A.,Operations Research–An Introduction,8th edition,Pearson Prentice Hall.

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III YEAR - V SEMESTER
COURSE CODE: 7BMAE1A

ELECTIVE COURSE - I (A) – GRAPH THEORY

Unit – I

Graphs – Definition and examples – Degrees – Sub graphs – Isomorphism – Ramsey Numbers – Independent Sets and Coverings – Intersection graphs and Line graphs – Matrices – Operations on Graphs.

Unit – II

Dergee Sequences – Graphic sequences – Walks, Trials and Paths – Connectedness and Components – Blocks – Connectivey – Eulerian Graphs – Hamiltonian Graphs.

Unit – III

Trees – Characterisation of Trees – Centre of a Tree – Matchings–Matchings in Bipartite Graphs.

Unit – IV

Planer graphs and properties – Characterization of Planer graphs – Thickness, crossing and outer planarity – Chromatic number and ChromaticIndex – The Five colour theorem and four colour problem.

Unit – V

Chromatic polynomials – Definitions and Basic properties of Directed Graph – Paths and Connections – Digraphs and Matrices – Tournaments.

Text Book:

1. Invitation to Graph Theory by Dr. S.Arumugam & S.Ramachandran, Scitech Publications (India) Pvt. Ltd,2001 .

Unit I	Chapter 2
Unit II	Chapters 3, 4 & 5
Unit III	Chapters 6 & 7
Unit IV	Chapter 8, Chapter 9, sections 9.1 to 9.3
Unit V	Chapter 9 section 9.4; Chapter 10

Book for Reference:

1. Graph Theory with Applications to Engineering and Computer Science byNarasinghDeo, Prentice Hall of India, New Delhi.

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III YEAR - VI SEMESTER
COURSE CODE: 7BMAE2A
ELECTIVE COURSE - II (A) – NUMERICAL ANALYSIS

Unit – I

Solution of Algebraic and Transcendental equations – Introduction, Bisection Method, Iteration Method, Method of False position, Newton Raphson Method.

Unit – II

Interpolation : Finite differences – Forward differences, Backward differences, Central differences, Symbolic relations, Newton's formula for Interpolation – Interpolation with unevenly spaced points – Lagrange's Interpolation formula.

Unit – III

Numerical Differentiation and Integration – Introduction, Numerical Differentiation – Errors in Numerical Differentiation – Cubic Spline method – maximum and minimum values of a tabulated function, Numerical Integration – Trapezoidal Rule and Simpson's 1/3 and 3/8 rules.

Unit – IV

Matrices and Linear system of Equations – Gaussian Elimination method, Gauss – Jordan method, Modification of the Gauss method to compute the inverse – Method of Factorization – Iterative method – Jacobi and Gauss Seidal methods.

Unit – V

Numerical Solutions of Ordinary Differential Equations – Solution by Taylor Series, Picard's method of Successive approximations, Euler method, Modified Euler method Runge – Kutta Methods.

Text Book:

1. Introductory Methods of Numerical Analysis, (4th Edition) by S.S.Sastry, PHI Learning Pvt. Ltd., New Delhi, 2009.

Unit I	Chapter 2sections 2.1 to 2.5
Unit II	Chapter 3 sections 3.3, 3.6, 3.9, 3.9.1.
Unit III	Chapter 5 sections 5.1, 5.2 - 5.2.2, 5.3, 5.4 – 5.4.1, 5.4.2, 5.4.3.
Unit IV	Chapter 6 sections 6.3.2, 6.3.3, 6.3.4, 6.4.
Unit V	Chapter 7 sections 7.2 to 7.4, 7.4.2, 7.5

Books for Reference:

- Numerical Methods by P.Kandasamy and Others S.Chand Publications.
- Numerical Analysis with Programming in C by Dr. S.Arumugam, A.Thangapandi Issac, Dr. A.Somasundaram, New Gamma Publishing House, Palayamkottai, 2013.

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GROUP I – SET II
III YEAR – V SEMESTER
COURSE CODE: 7SBS5A5
COURSE II – HERITAGE AND TOURISM

Objectives:

- To understand the definitions, terminology and concepts of cultural heritage and its relationships with tourism.
- To Understand heritage tourism supply by examining different categories of heritage attractions and the contexts within which heritage exists and additional perspectives on scale from the supply perspective
- To understand the role of interpretation in cultural heritage sites and the relevance of such interpretation approaches to visitors.
- Provide a framework to plan, design, and assess interpretation programs for tourists

Unit I

Tourism – Introduction – Concepts – Significance – Forms of Tourism – Effects of Tourism – Social, Economic and Environmental aspects – Human Rights

Unit II

Importance of preserving heritage – Heritage Spots in India – In Tamil Nadu – Brief history of the heritage spots – The role of heritage spots in promoting tourism – UNESCO guidelines on Heritage

Unit III

Role of Government in promoting tourism – ITDC- TTDC-Palace on wheels – Travel industry service network – Land (rail and road) Air – Water – Travel Agency – Hospitality and Accommodation

Unit IV

Travel Guide – Features – requirements – One's role as a guide – Income and Employability – Qualities and skills of a professional travel or tourist guide

Unit V

Project work – Field visit to heritage and tourism spots in Sivagangai and Ramanathapuram Districts and submission of a report (15 to 25 pages)

Books for Reference:

Bhatia, A. K – Tourism Development Principles and Practices, (Sterling Publishers (P) Ltd., New Delhi)

Ananand M. M – Tourism and Hotel Industry in India (Sterling Publishers (P) Ltd., New Delhi)

Acharya Ram – Tourism and Cultural Heritage (Rosa Publications: Jaipur, 1986)

Jha, S.M – Tourism Marketing (Himalaya Publishing House)

GROUP I – SET II
III YEAR – V SEMESTER

COURSE CODE: 7SBS5A6

COURSE III – MARKETING AND SALES MANAGEMENT

Objectives:

- To acquire analytical skills for solving marketing related problems and challenges and to familiar with the strategic marketing management process
- To learn the elements of sales force to be an effective component of an organization's overall marketing strategy.

Unit I

Introduction: Evolution of Marketing – Types of Marketing: Consumer Products Marketing, Industrial Marketing and Services Marketing – Demographic and Behavioural Dimensions of Marketing – Marketing Planning

Unit II

Basics of Market Segmentation, Targeting and Positioning – Components of The Marketing Mix: Product – Price – Place – Promotion – Distribution Channels: Types – Merits and Demerits

Unit III

Marketing Vs Selling – Nature and Scope of Sales Management – Personal Selling and Salesmanship – Selling Function – Understanding Consumer's Decision Making Process – Sales Organization and Types Of Selling

Unit IV

Prospecting – Approaching The Customer – Sales Presentation – Sales Demonstration – Negotiating Buyer Concerns – Closing The Sale – Post Sales Service and Complaint Handling

Unit V

Modern Trends in Marketing and Sales: Internet Marketing – Direct Marketing – Multi Level Marketing – Relationship Marketing – Selling through Kiosks

Books for Reference:

- Chunawalla, S. A., Sales Management, 5th Edition (2007), Himalaya Publishing House
- Havaldar, Krishna; Sales And Distribution Management, 1st Edition (2006), Tata Mcgraw Hill
- Perreault, Jr., William; Mccarthy, E. Jerome, Basic Marketing, 15th Edition, 2006, Tata Mcgraw Hill

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