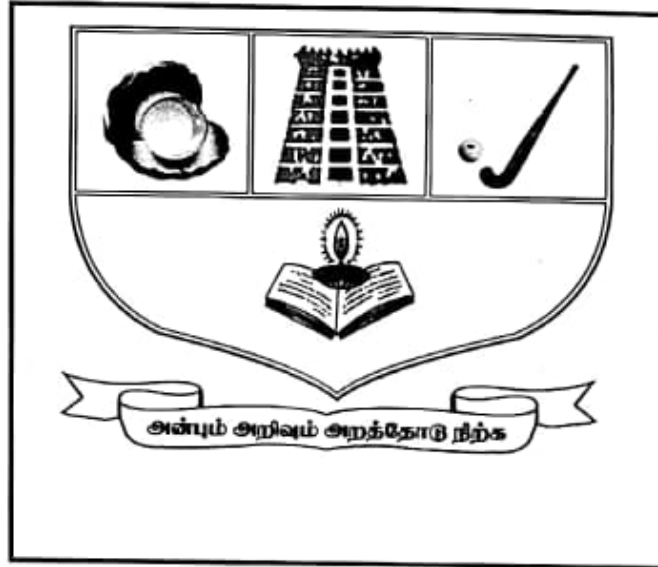# GOVERNMENT ARTS AND SCIENCE COLLEGE
KOVILPATTI - 628 503.

PG DEPARTMENT OF MATHEMATICS

CURRICULUM AND SYLLABUS
YEAR : 2015 - 16
(UG - PROGRAM)

GOVERNMENT ARTS AND SCIENCE COLLEGE, KOVILPATTI -628 503.
DEPARTMENT OF MATHEMATICS : B.Sc PROGRAM (2013 -16 TO 2015 -16)

SEM	NO. OF PAPERS	SUBJECT STATUS	SUBJ.CODE	TITLE OF THE PAPER
	1	PART I	G1TL11	TAMIL
	2	PART II	G2EN11	ENGLISH
I	3	MAJOR 1	GMMA11	CALCULUS
	4	MAJOR 2	GMMA12	ALGEBRA
	5	ALLIED	GAST11	STATISTICS- I
	6	PART V	GEVS11	ENVIRONMENTAL STUDIES

SEM	NO. OF PAPERS	SUBJECT STATUS	SUBJ.CODE	TITLE OF THE PAPER
	1	PART I	G1TL21	TAMIL
	2	PART II	G2EN21	ENGLISH
II	3	MAJOR 3	GMMA21	VECTOR CALCULUS
	4	MAJOR 4	GMMA22	DIFFERENTIAL EQUATIONS
	5	ALLIED	GAST21	STATISTICS- II
	6	PART V	GVBE21	VALUE BASE EDUCATION

SEM	NO. OF PAPERS	SUBJECT STATUS	SUBJ.CODE	TITLE OF THE PAPER
	1	PART I	G1TL31	TAMIL
	2	PART II	G2EN31	ENGLISH
III	3	MAJOR 5	GMMA31	SEQUENCES SERIES & TRIGONOMETRY
	4	SBS	GSMA3A	APPLICATION OF DIFF. EQUATION
	5	ALLIED	GAPH11	PHYSICS - I
	6	NME	GNCS3B	PROGRAMMING IN C

SEM	NO. OF PAPERS	SUBJECT STATUS	SUBJ.CODE	TITLE OF THE PAPER
	1	PART I	G1TL41	TAMIL
	2	PART II	G2EN41	ENGLISH
	3	MAJOR 6	GMMA41	ABSTRACT ALGEBRA
	4	SBS	GSMA4A	NUMERICAL METHODS
IV	5	ALLIED	GAPH21	PHYSICS - II
	6	NME	GNCS4B	PROGRAMMING IN C++
	7	ALLIED PRACTICAL	GAPHP1	PHYSICS PRACTICAL
	8	EXTENTION ACTIVITY	G5EA41	NSS / NCC / YWF / YRC

SEM	NO. OF PAPERS	SUBJECT STATUS	SUBJ.CODE	TITLE OF THE PAPER
	1	MAJOR 7	GMMA51	LINEAR ALGEBRA
	2	MAJOR 8	GMMA52	REAL ANALYSIS
V	3	MAJOR 9 (ELECTIVE- I)	GMMA5C	DISCRETE MATHEMATICS
	4	MAJOR 10 (ELECTIVE- II)	GMMA5F	FUZZY SETS AND LOGIC
	5	PART IV C SBS	GCSB5A	PERSONALITY DEVELOPMENT

SEM	NO. OF PAPERS	SUBJECT STATUS	SUBJ.CODE	TITLE OF THE PAPER
	1	MAJOR 11	GMMA61	COMPLEX ANALYSIS
	2	MAJOR 12	GMMA62	LINEAR PROGRAMMING
VI	3	MAJOR 13	GMMA63	MECHANICS
	4	MAJOR 14	GMMA64	GRAPH THEORY
	5	MAJOR 15 (ELECTIVE- III)	GMMA6B	OPERATIONS RESEARCH

MANONMANIAM SUNDARANAR UNIVERSITY
TIRUNELVELI
CHOICE BASED CREDIT SYSTEM
COURSE STRUCTURE FOR B.Sc., Mathematics
(With effect from the Academic Year 2012-2013 Onwards)

1. COURSE OBJECTIVES:

The objectives of the B.Sc. Mathematics course are:

> To enable the students to have a thorough understanding of the concepts a: terminologies of mathematical science.

> To motivate the students to solve the problems by applying skills knowledge gained.

> To inculcate the logical, analytical and critical thinking which n provide the confidence to face any competitive examination.

> To facilitate the students of B.Sc Mathematics to become a con: teacher after pursuing their post graduation.

2. ELIGIBILITY NORMS FOR ADMISSION:

Those who seek admission to B.Sc Mathematics course must have : the Higher Secondary Examination conducted by the Board of Higher Se:: Examination, Tamil Nadu with Mathematics as one of the subjects or a c: study recognized and approved by the syndicate of the Manonmaniam Sunda: University.

3. TRANSITORY PROVISION:

Candidates admitted to this course of studies, which come into effec: June 2012, should complete the course within six years (before June 2018). 1: who fail to complete the course in the afore-said stipulated time have to pas: equivalent papers to be decided by the prospective U.G.Chairman of Boar: studies (Mathematics) by the Manonmaniam Sundaranar University.

4. Course structure for B.Sc (Mathematics) under CBCS

Semester I

	Components	Hours/ week	Credits
Part I	Tamil/ Other languages – எTL 11/எHD11	6	3
Part II	English – E2EN11	6	3
Part III	**Major Paper 1:** Calculus - emmA1	5	5
	Major Paper 2: Algebra – emmA12 மAST11	5	5
	Allied I:Paper1:Physics/Statistics I /Chemistry	6	5
Part IV	Environmental Studies மEVS11	2	2
	Total(6 Courses)	30	23

Total hours per semester: 450

Semester II

	Components	Hours/ week	Credits
Part I	Tamil/ Other language – எTL21/எHD21	6	3
Part II	English – E2EN21	6	3
Part III	**Major Paper 3:** Vector Calculus' – emmA21	5	5
	Major Paper 4: Differential Equations -emmA22 and Fourier Series மAST21	5	5
	Allied 1:Paper2:Physics/StatisticsII/Chemistry	6	5
Part IV	Value Based Education மVBE21	2	2
	Total (6 Courses)	30	23

Total hours per semester : 450

NME (English for competitive exam) — GNEN 31.
Bud. Eg- GNEN4A
NME - Pgrmmy in C III Sem - GNCS3B
Nm E - C++ IV Sem - GNCS4B

	Components	Hours/ week	Credit
Part I	Tamil/ Other languages - GITL31 /GIHD31	6	
Part II	English	6	
Part III	**Major Paper 5:** Sequences and Series & Trigonometry - GMMA31	6	5
	Allied II: Paper 1: Statistics-I/Physics/Chemistry GAPH11 Pondiscal (GAPH-PY)	6	5
Part IV	**Skill based Subject:** Application of Differential equations GSMA3A	4	4
	Non-Major Elective: Mathematical techniques for social sciences Statistical methods - GNMA3A	2	2
	Total(6 Courses)	30	22

Total hours per semester: 450

Semester IV

	Components	Hours/ week	Credits
Part I	Tamil/ Other language - GITL41 /3IHD41	6	3
Part II	English	6	3
Part III	**Major Paper 6:** Abstract Algebra - GMMA41	5	5
	Allied II: Paper 2: Statistics-II/Physics/Chemistry GAPH21	6	5
Part IV	**Skill based Subject:** Numerical Methods GSMA4A	4	4
	Non-Major Elective: Mathematical Models(O.R) - GNMA4A Basic Algebra - GNMA4B	2	2
Part V	Extension Activities (NCC,NSS,YRC,YWF)	1	1
	Total(6 Courses)	30	23

Total hours per semester: 450

Semester V

	Components	Hours/Week	Credits
Part III	**Major Paper 7:** Linear Algebra - GMMA51	7	5
	Major Paper 8: Real Analysis - GMMA52	7	5
	2 Major Electives: **Major Paper 9** **Elective: 1**(any one of the following) 1.1. Astronomy 1.2. Combinatorial Mathematics 1.3. Discrete Mathematics	6	5

693

	Major Paper 10: Elective: 2(any one of the following) 2.1. Programming in C(Theory + Practical) 2.2. Coding Theory 2.3. Fuzzy sets and Logic	6	5
Part IV	Skill Based Subject(Common)	4	4
	Total(5 courses)	30	24

Total hours per semester: 450

Semester VI

Part III	Major Paper 11: Complex Analysis	6	5
	Major Paper 12: Linear Programming	6	5
	Major Paper 13: Mechanics	6	5
	Major Paper 14: Graph Theory	6	5
	1 Major Elective: Major Paper 15 Elective: 3(any one of the following) 3.1. Number Theory - GMMA6A 3.2. Operations Research - GMMA6B 3.3. Mathematical Programming with JAVA(Theory+ Practical) - GMMA6C	6	5
	Total(5 courses)	30	25

Total hours per semester: 450

NOTE:

1. Those who have chosen Physics/Chemistry as Allied I in the first year must choose Statistics I and Statistics II as Allied II in the second year.

2. Those who have chosen Statistics I and Statistics II as Allied I in the first year must choose Physics/Chemistry as Allied II in the second year.

Total number of courses : 35 (Theory 34+Practical 1(Allied: Physics/Chemistry))
Total number of hours   : 2700
Total number of credits   : 140
Distribution of marks in theory between External and Internal Assessment is **75:25**
For Programming in C and Programming with JAVA, Internal Assessment is as follows:

Test: 15 marks
Practical: 10 marks

Pass minimum of 40% for external and overall components.

Appropriate Major/Allied related, 'Allied Courses' and 'Skill Based Courses' may be chosen by the Major departments, taking into account the total work-load of the department.

5.QUESTION PATTERN:

Duration: 3 hours   Maximum Marks: 75

Part A: $(10 \times 1 = 10)$

Objective type-Two questions from each unit.

Part B: $(5 \times 5 = 25)$

One question from each unit with internal (either-or) choice.

Part C: $(5 \times 8 = 40)$

One question from each unit with internal (either-or) choice.

Non Major Elective

Duration: 2 hours   Maximum Marks: 75

Part A: $(20 \times 2 = 40)$

Short answer questions.

Four questions from each unit.

Part B: $(5 \times 7 = 35)$

One question from each unit with internal (either-or) choice.

Contents of Syllabus

Semester I

Major Paper- 1:Calculus (75 hrs)

Text: Calculus(Volume I and Volume II), S.Narayanan and T.K.Manicavachagom Pillay, S.Viswanathan (Printers Publishers) Pvt. Ltd.

Unit 1: Tangent and Normal-Direction of the tangent-Angle of intersection of curves-subtangent and subnormal-Differential coefficient of the length of an arc of $y=f(x)$-Polar coordinates-Angle between the radius vector and the tangent-Polar subtangent and polar subnormal-Length of arc in polar coordinates.
(Volume I-Chapter IX-Full-Sections 1.1 to 4.6)

Unit 2: Method of finding the envelope-Curvature-Circle, radius and centre of curvature-Cartesian formulae-Evolute and Involute-Radius of curvature when the curve is given in polar coordinates.
(Volume I-Chapter X- Sections 1.1 to 2.6)

Unit 3: p-r equation-chord of curvature-linear asymptotes.
(Volume I-Chapter X-Sections 2.7 to 3.1 and Chapter XI-Full-Sections 1 to 7)

Unit 4: Multiple integrals-Evaluation of double integrals-Double integral in polar coordinates-Triple integrals.
(Volume II-Chapter 5: Sections 1 to 4)
Unit 5: Infinite integrals-Beta and Gamma functions-Properties of Beta functions-Relation between Beta and Gamma functions-Evaluation of integrals using Gamma functions.
(Volume II-Chapter 7 - Sections 1 to 5)

Major Paper- 2: Algebra (75 hrs)
Text: Algebra(Volume I),T.K.Manicavachagom Pillay & others, S.Viswanathan (Printers Publishers) Pvt. Ltd.

Unit 1: Theory of equations-Remainder theorem-relation between roots and coefficients of equations-symmetric function of the roots.

(Chapter 6: Sections 1to 12)
Unit 2: Sum of the rth powers of the roots of an equation-Newton's theorem-Transformation of equations.
(Chapter 6: Sections 13 to 15)

Unit 3: Reciprocal equations- To increase or decrease the roots of a given equation by a given quantity-removal of terms-to form an equation whose roots are any power of the roots of a given equation.
(Chapter 6: Sections 16 to 20)

Unit 4: Descarte's rule of signs-Rolle's theorem-Multiple roots-Strum's theorem.
(Chapter 6: Sections 24 to 27)

Unit 5: Solutions of Numerical Equations-Newton's method of divisors-Horner's method-Cardon's method of solving cubic equations.
(Chapter 6: Sections 28, 29, 30 and 34)

Major Paper- 3: Vector Calculus (75 hrs)

Text: Vector Analysis, P.Duraipandian and Laxmi Duraipandian, [....]
Publishers

Unit 1: Differentiation of vector functions-Gradient of a scalar point function
(Sections 1.1 to 2.5)

Unit 2: Divergence and curl of a vector point function.
(Sections 2.6 to 2.8)

Unit 3: Integration of point function-Line integrals-Surface integrals.
(Sections 3.1 to 3.5 and Problems 1 to 30 in section 3.8)

Unit 4: Volume integrals-Cylinderical and spherical polar coordinates-Gauss
divergence theorem.
(Sections 3.6, 3,7 and, problems 31 to 35 in Section 3.8, Sections 4.2, 4.3 and
problems 1 to 21 in section 4.8)

Unit 5: Green's theorem in plane, Stoke's theorem, integral theorem-Operational

meaning of $\nabla, \nabla \bullet, \nabla \times$ in terms of surface integrals.

(Sections 4.4 to 4.7 and problems 22 to 44 in Section 4.8)

Major Paper -4: Differential Equations and Fourier Series (75 hrs)

Text: 1. Calculus (Volume III), S.Narayanan and T.K.Manicavachagom Pillay
S.Viswanathan (Printers Publishers) Pvt. Ltd.

Unit 1: First order but of higher degree differential equations-solvable for
p, x, y-Clairaut's form.(Chapter 1-Sections 5 to 7)

Unit 2: Linear differential equations of second order with constant coefficients-
Particular integrals of functions of the form e^{ax}, $sinax, cosax, x^n, e^{ax} f(x)$ and
$x^n f(x)$. (Chapter 2-Sections 1 to 4)

Unit 3: Linear differential equation of second order with variable coefficients
homogeneous equations-equation reducible to homogeneous equations-method of
variation of parameters. (Chapter 2-Sections 8 to 10)

Unit 4: Laplace transforms-Inverse Laplace transforms-solving linear differential
equations and simultaneous equations of first order using Laplace transforms.
(Chapter 5-Sections 1 to 9)

Unit 5: Fourier series-half range sine and cosine series. (Chapter 6-Sections 1 to 6)

ALLIED STATISTICS
Statistics-I

Text : Statistics, S. Arumugam and Others.

Unit I: Moments, Skewness and Kurtosis-Curve Fitting-Method of least squares-Fitting lines Parabolic, Exponential and logarithmic curves.

Unit II: Correlation and regression-Scatter diagram-Karl Pearson's coefficient of correlation-Properties-Lines of regression, Regression, Regression coefficient and properties-Rank correlation.

Unit III: Association of attributes, Consistency of data-Criteria for independence-Yule's coefficient of association.

Unit IV:
Discrete Probability Distributions:
Geometric. Binomial and Poisson distributions-Their moments, generating function, Characteristic function, Properties and simple application.

Unit V:
Continuous Probability Distributions:
Bet1 1 and Beta 2 and Gamma distributions-Normal Distribution-Standard Normal Distribution-Their Properties-Simple Problems-Importance of Normal Distribution.

ALLIED STATISTICS
Statistics-II

Text : Statistics, S. Arumugam and Others.

Unit I: Characteristics of index numbers, Laspeyer's and Paasche's –Bowley's-Marshall and Edge-worth's index numbers-Tests-Unit test, Commodity reversal test, Time reversal test, Circular test.

Unit II: Statistical Quality Control-Definition, advantages, Process Control-Control Chart, Mean Chart, Range Chart, P-Chart, Product Control-Sampling Inspection Plans.

Unit III: Testing of hypothesis-Null hypothesis and alternate hypothesis-Type and Type II errors-Critical region, Level of significance-Test of significance for large samples-Testing a single proportion-Difference of proportions-Testing single mean-Difference of means.

Unit IV: Tests based on t-Distribution-Single mean-Difference of mean based on F-Distribution-Variance ratio test - Test based on chi-square Distribution Independence-Goodness of fit.

Unit V: Analysis of Variance-One way and two way classified data-Basis of experimental design-Simple problems.

MANONMANIAM SUNDARANAR UNIVERSITY, TIRUNELVELI-12.
Allied Mathematics
(For Science Students)
(Effective from the Academic year 2012 – 2013)

Paper 1: Algebra and Differential Equations (90 hours)
Text: Allied Mathematics, Dr.S.Arumugam and Others.
Unit 1: Theory of equations-Relation between roots and coefficients-symmetric function of the roots in terms of coefficients.

Unit 2: Transformation of equations-Approximate solutions to equation Newton's method -Horner's method.

Unit 3: Matrices-Characteristic equation of a matrix-Eigen values and eigen vectors-Cayley Hamilton theorem and simple problems.

Unit 4: Differential equation of first order but of higher degree-Equations solvable for p, x, y.

Unit 5: Laplace transformation-Inverse Laplace transform-solving linear differential equations using Laplace transforms.

Paper 2: Vector Calculus (90 hours)
Text: 1. Vector Calculus, Dr.S.Arumugam & others.
   2. Calculus (Volume II), T.K.Manicavachagom Pillay.
Unit 1: Vector differentiation-Gradient- Divergence and curl

Unit 2: Methods of integration.

Unit 3: Evaluation of double and triple integrals.

Unit 4: Vector integration-Line, surface and volume integrals.

Unit 5: Green's, Stoke's and Divergence Theorems(statements only)-simple problems.

ALLIED STATISTICS
Statistics-I

Text : Statistics, S. Arumugam and Others.

Unit I: Moments, Skewness and Kurtosis-Curve Fitting-Method of least squares-Fitting lines Parabolic, Exponential and logarithmic curves.

Unit II: Correlation and regression-Scatter diagram-Karl Pearson's coefficient of correlation-Properties-Lines of regression, Regression, Regression coefficient and properties-Rank correlation.

Unit III: Association of attributes, Consistency of data-Criteria for independence-Yule's coefficient of association.

Unit IV:

Discrete Probability Distributions:

Geometric, Binomial and Poisson distributions-Their moments, generating function, Characteristic function, Properties and simple application.

Unit V:

Continuous Probability Distributions:

Bet1 1 and Beta 2 and Gamma distributions-Normal Distribution-Standard Normal Distribution-Their Properties-Simple Problems-Importance of Normal Distribution.

ALLIED STATISTICS
Statistics-II

Text : Statistics, S. Arumugam and Others.

Unit I: Characteristics of index numbers, Laspeyer's and Paasche's –Bowley's-Marshall and Edge-worth's index numbers-Tests-Unit test, Commodity reversal test, Time reversal test, Circular test.

Unit II: Statistical Quality Control-Definition, advantages, Process Control-Control Chart, Mean Chart, Range Chart, P-Chart, Product Control-Sampling Inspection Plans.

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Unit IV: Tests based on t-Distribution-Single mean-Difference of means- Tests based on F-Distribution-Variance ratio test - Test based on chi-square Distribution-Independence-Goodness of fit.

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Allied Mathematics
(For Science Students)
(Effective from the Academic year 2012 – 2013)

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Text: Allied Mathematics, Dr.S.Arumugam and Others.

Unit 1: Theory of equations-Relation between roots and coefficients-symmetric function of the roots in terms of coefficients.

Unit 2: Transformation of equations-Approximate solutions to equations-Newton's method -Horner's method.

Unit 3: Matrices-Characteristic equation of a matrix-Eigen values and eigen vectors-Cayley Hamilton theorem and simple problems.

Unit 4: Differential equation of first order but of higher degree-Equations solvable for p, x, y.

Unit 5: Laplace transformation-Inverse Laplace transform-solving linear differential equations using Laplace transforms.

Paper 2: Vector Calculus (90 hours)

Text: 1. Vector Calculus, Dr.S.Arumugam & others.
    2. Calculus (Volume II), T.K.Manicavachagom Pillay.

Unit 1: Vector differentiation-Gradient- Divergence and curl .

Unit 2: Methods of integration.

Unit 3: Evaluation of double and triple integrals.

Unit 4: Vector integration-Line, surface and volume integrals.

Unit 5: Green's, Stoke's and Divergence Theorems(statements only)-simple problems.

5. Viscosity – Capillary flow

6. Surface tension- Interfacial – drop weight method

7. Melde s string – Transverse and longitudinal

8. Compound pendulum

9. Newtons law of cooling- verification Graphical plot

10. Sonometer- ac frequency

11. Thermal conductivity of poor conductor -Lees disc

12. Newtons rings- wave length determination

13. Air wedge Thickness of wire

14. Grating - Normal incidence

15. Prism - Dispersive power

ALLIED PHYSICS – PAPER I

UNIT I ELASTICITY AND BENDING MOMENT: Hooke's law - Elastic modulli - Work done in stretching and work done in twisting a wire – Twisting Couple on a wire - Determination of rigidity modulus of a wire using torsion pendulum – Expression for bending moment - Uniform bending - Experiment to determine young's modulus using pin and microscope method.

UNIT II FLUIDS: Surface Tension: Synclastic and anticlastic surface - Excess of pressure - Viscosity: Poiseuille's formula for rate of flow of liquid in a capillary tube by dimensional analysis - Analogy between current flow and liquid flow - streamlined motion – Stoke's formula

UNIT III THERMAL PHYSICS: Conduction in solids: Thermal conductivity - Lee's disc method - Wiedmann-Franz law - Convection: Newton's law of cooling – Radiation: Distribution of energy in the spectrum of a black body - results – Planck's law of radiation (no derivation) and its deduction to wiens and Raleigh Jeans law

UNIT IV SOUND: Simple harmonic motion: free, damped, forced vibrations and resonance - Intensity and loudness of sound - Decibels – Melde's string experiment – Determination of frequency of tuning fork - Acoustics of buildings: Reverberation time - Sabine's formula and derivation

UNIT V ELECTRICITY: Current and Current density – Ohm's law - Resistors - I-V characteristics - colour coding- conversion of galvanometer into an ammeter and voltmeter – Kirchhoff's laws – Balance condition of Whetstone's bridge - Potentiometer – Measurement of potential difference and current

Books for study

1. Properties of Matter: R. Murugeshan, S Chand & Co. Pvt. Ltd., New Delhi
2. Heat and thermodynamics: D S Mathur, S Chand & Co., New Delhi
3. Text book of Sound by M N Srinivasan – Himalaya Publications, 1991
4. Electricity & Magnetism by K K Tewari, S Chand & Co., 3rd Edition, 2001.

ALLIED PHYSICS – PAPER II

UNIT I OPTICS: Interference: Air wedge - determination of diameter of a thin wire by air wedge – Diffraction: Fresnel diffraction & Fraunhofer diffraction - plane diffraction grating - theory and experiment to determine wavelength (normal incidence) - Polarization: Double refraction – half wave and quarter wave plate, plane, elliptically and circularly polarized light – production (theory)

UNIT II MAGNETISM AND ELECTROMAGNETISM: Magnetism: Susceptibility - permeability - intensity of magnetization - properties of dia, para and ferro magnetic materials – Electromagnetism: Faraday's laws of electromagnetic induction, Lenz's law – self-inductance - self-inductance of a toroid – mutual inductance – coefficient of coupling- *determination of mutual inductance using a ballastic galvanometer -*

UNIT III ELECTRONICS: Diodes, transistors and ICs: - Zener diode – characteristics - transistor configuration CE mode - IC – Pin diagram of 741 – Digital electronics: binary numbers – conversion of decimal number to binary number - binary number to decimal number – binary addition, subtraction and basic logic gates (OR, AND, NOT. NOR & NAND) – EXOR gate – De Morgan's theorem.

UNIT IV NUCLEAR PHYSICS AND RADIATION PHYSICS: Nuclear Physics: Nuclear constituents, size, mass, spin and charge - binding energy - binding energy curve - nuclear fission - chain reaction – nuclear reactor - Radiation Physics: radioactive disintegration – half-life period - radiation hazards

UNIT V RELATIVITY AND QUANTUM MECHANICS: Relativity: Frames of references - postulates of special theory of relativity - Lorentz transformation equations - Wave mechanics: matter waves - de Broglie wavelength - properties of wave functions - Quantum mechanics: postulates of quantum mechanics -Schrödinger equation - time dependent form

714

Books for study

1. Optics: Brij Lal & Subramaniam, S Chand & Co., New Delhi
2. Electricity and magnetism: R Murugeshan, 8th Edn, 2006, S Chand & Co., New Delhi
3. Principles of Electronics: V K Mehta, 5th edition 2001, S Chand & Co., New Delhi,
4. Atomic and Nuclear Physics: Brij Lal & Subramaniam, S Chand & Co., 2000
5. Quantum Mechanics :V. Devanathan, Narosa, Chennai, 2005.
6. Modern Physics: R Murugeshan, Kiruthiga, Sivaprasath S Chand & Co. 2007
7. Physics of Radiation Therapy : FM Khan - Williamd and Wilkins, Third edition, 2003

Books for Reference

1. Fundamentals of Physics, 6th Edition by D Halliday, R Resnick and J Walker, Wiley NY 2001.
2. Physics, 4th Edition vols. I, II & II Extended by D Halliday, R Resnick and K S Krane, Wiley NY 1994.
3. Nuclear Medicine Physics: Chandra, Lippincot Williams and Wilkins, 1998

ALLIED PHYSICS PRACTICALS (12 compulsory)

> Young's modulus by uniform bending - Pin and Microscope.

> Rigidity modulus - torsion. pendulum

> Coefficient of viscosity of a liquid - capillary flow method

> Thermal Conductivity of a bad Conductor - Lee's disc method

> Newton's law of cooling (with graphical plot)

> Melde's string experiment – frequency of tuning fork (both modes)

> Spectrometer - grating - normal incidence method.

> Air wedge - thickness of a wire.

> Potentiometer - calibration of low range voltmeter

> Series resonance circuit - frequency response and self-inductance

> Basic Logic gates (OR. AND, NOT)

> Zener Diode characteristics; I-V curve and breakdown voltage

> Potentiometer - calibration of ammeter

> Coefficient of viscosity of a liquid – Stoke's method

> Young's modulus by non-uniform bending – Optic lever and telescope method

715

Major Paper 5: Sequences, Series and Trigonometry (90 hrs)

Text:

1. Sequences and Series-S.Arumugam and Others.

2. Trigonometry-S.Narayanan and T.K.Manicavachagom Pillay,

Unit 1: Sequences-Bounded Sequences-Monotonic Sequences-Convergent Sequences-Divergent and Oscillating Sequences-The algebra of limits.

(Text 1: Chapter 3: Sections 3.1 to 3.6)

Unit 2: Behaviour of monotonic sequences- Some theorems on limits-Subsequences-Limit points-Cauchy sequences-Cauchy general principle of convergence of series.

(Text 1: Chapter 3: Sections 3.7 to 3.11)

Unit 3: Series-Infinite series-Comparison test-Kummer's Test-D'Alembert's ra: test-Raabe's test-Gauss's test-Root test-Cauchy's condensation test(without pr::

(Text 1: Chapter 4: Sections 4.1 to 4.4)

Unit 4: Alternating series-Leibnitz's test-Absolute Convergence-Multiplicatio: series-Abel's theorem-Merten's theorem.

(Text 1: Chapter 5: Sections 5.1, 5.2 and 5.5)

Unit 5: Hyperbolic functions-Logarithm of a complex number-Summation of a trigonometric series using C+iS method-Gregory's series.

(Text-2 Chapter IV(full), Chapter V-Section 5, Chapter VI-Section 3)

Skill Based Elective Paper-I (60 Hrs)

Semester III

Application of Differential Equations

Text: Differential Equations and its Applications by -S.Narayanan and T.K.Manicavachagom Pillay,

Unit 1: Application of first order equations-Growth, Decay and Chemical reactions.

(Chapter III: Sections 1)

Unit 2: Flow of water from an orifice-Falling bodies and other rate problems.

(Chapter III: Sections 2 and Sections 3)

Unit 3: The Brachistochrone problem-Simple electric Circuits.

(Chapter III: Sections 4 and 6)

Unit 4: Dynamical problems with variable mass, Application to vibrations in mechanical system.

(Chapter III- Section 7 and Chapter IV-Section 70)

Unit 5: Newton's law of gravitation and motion of planets.

(Chapter IV-Section 8)

Semester III

Non Major Elective Paper I (30 Hrs)

Statistical Methods

Text: Statistics by DR.S.Arumugam

Unit 1: Correlation and Rank Correlation.

(Chapter 6: Section 6 1 and 6.2)

Unit 2: Regression.

(Chapter 6: Section 6.3)

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Unit 3: Interpolation-Finite Differences.

(Chapter 7: Section 7.1)

Unit 4: Newton's Formula, Lagrange's Formula.

(Chapter 7: Section 7.2 and 7.3)

Unit 5: Theory of Attributes-Consistency of Data-Independence and Assoc___
of Data. (Chapter 8)

Semester IV

Major Paper 6: Abstract Algebra(75 Hrs)

Text: Modern Algebra by Dr.S.Arumugam, Scitech Publications.

Unit 1: Relations and Mappings-Relations-Equivalence relations-Functions

(Chapter 2: Section 2.1, 2.2 and 2.4)

Unit 2. Groups-Permutation groups-Cyclic groups-Order of an element-C___
and Lagrange's theorem.

(Chapter 3: Section 3.4, 3.6, 3.7 and 3.8)

Unit 3: Normal subgroups and Quotient groups-Isomorphism-Homomorph___

(Chapter 3: Section 3.9, 3.10 and 3.11)

Unit 4: Rings-Elementary properties of rings-Isomorphism-Types of rings-
Characteristics of a ring-Subring.

(Chapter 4: Section 4.1 to 4.6)

Unit 5: Ideals-Quotient rings-Maximal and Prime ideals-Homomorphism of r___

(Chapter 4: Section 4.7 to 4.10)

Numerical Methods

Text: Numerical Analysis by Dr.S.Arumugam and Isac.

Unit 1: Simultaneous equations-back subsititution-Gauss Jordan elimination method-Calculation of inverse of a matrix-Gauss-Seidal iteration Method.

Chapter 2: Sections 2.1 to 2.5 and 2.7)

Unit 2: Difference operatos-Other difference operators-Newton's interpolation-Central Difference Interpolation formula.

Chapter 3: Section3.1, 3.2 and Chapter 4: Section 4.1 and 4.2)

Unit 3: Lagrange's Interpolation formula-Divided Difference-Newton's divided difference formula-Inverse interpolation.

Chapter 4: Section 4.3 to 4.6)

Unit 4: Numerical Differentiation-Newton's forward and backward difference formula- Stirling's formula-Maxima and Minima of the interpolating polynomials.

Chapter 50)

Unit 5: Numerical Integration-Newton's Cote's Quadrature formula-Trapezoidal rule-Simpson's one third rule-Simpson's three eighth rule-Weddley's rule.

Chapter 6)

Semester IV

Non Major Elective Paper 1 (30 Hrs)

Mathematical Models (O.R)   —   G7NMA4 A

Text: Linear Programming by Dr.S.Arumugam and Oti...

Unit 1: L.P.P-Mathematical formulation of a L.P.P.

(Chapter 3: Section 1 and 3.2)

Unit 2: Graphical solution of a L.P.P.

(Chapter 3: Section 3.4)

Unit 3: Transportation problem-initial- Basic feasible solutions only(North West Corner Rule-Row minima –Column minima-Matrix minima(Least Cost method)

(Chapter 4: Section 4.1, step I)

Unit 4: Sequencing-Processing n Jobs in 2 machines-Graphical method.

(Chapter 6: Section 6.1)

Unit 5: Processing n Jobs in m machines.

(Chapter 6: Section 6.2)

Semester V

Major Paper 7: Linear Algebra (105 Hrs)

Text: Modern Algebra by Dr.S.Arumugam, Scitech Publications.

Unit 1: Vector Spaces-Definition and examples-Subspaces-Linear transformation-Span of a set.

(Chapter 5: Section 5.1 to 5.4)

Unit 2Linear independence-Basis and Dimension-Theorems.

(Chapter 5: Section 5.5 and 5.6)

Unit 3: Rank and Nullity-Matrix of a linear transformation.

(Chapter 5: Section 5.7 and 5.8)

Unit 4: Characteristic equation of a matrix-Cayley Hamilton Theorem-Eigen Values and eigen vectors-related problems.

(Chapter 7: Section 7.7 and 7.8)

Unit 5: Inner product spaces-Gram Schmidt Orthogonalisation process-Orthogonal Complements.

(Chapter 6(full))

Paper 8: Real Analysis (105 Hrs)

Analysis by Dr.S.Arumugam, Scitech Publications.

Countable sets-Uncountable sets-Metric spaces-Bounded sets-Open ball-Subspace.

Section 1.2, 1.3 and Chapter 2: Section 2.1 to 2.5)

Interior of a set-Closed sets- Closure-Limit points-Dense sets-Complete space-Cantor's intersection theorem-Baire's Category Theorem.

Section 2.6 to 2.10 and Chapter 3(full))

Continuity-Homomorphism-Uniform Continuity-Discontinuous functions

(full))

Connectedness-Connected subsets of R–Connectedness and Continuity-Mapping Theorem.

(full) and Chapter 8 upto theorem 8.2)

Compactness-Comapct metric spaces-Compact subsets of R-Heine Borel Theorem-Equivalent Characterizations for compactness-Compactness and Continuity.   (Chapter 6(full))

Semester V

Paper 9: Elective I (Only one of the following three papers) (90 Hrs)

Astronomy

Astronomy by S.Kumaravelu and Susheela Kumaravelu (2005 Edition)

Unit 1: The four formulas of spherical triangle-Celestial sphere-Diurnal motion-Time for rising of stars-Diagram of celestial sphere.

Chapter 1: Articles 21 to 24 and Chapter 2: Articles 39 to 86)

Unit 2: The Earth-The zones of Earth-Terrestial Latitudes and Longitudes-Radius Earth-Rotation of Earth-Dip of Horizon-Twilight.

Chapter 3: Articles 87 to 116)

Unit 3: Refraction-Effects of refraction-Cassini's Formula-Simple Problems

(Chapter 4, Articles 117 to 134)

Unit 4: Geocentric Parallax-Effects of geocentric Parallax-Horizontal Parallax-Equatorial horizontal Parallax-Simple Problem.

(Chapter 5: Articles 135 to 145)

Unit 5: Kepler's Law of Motion-Mean Anu. ... ... ine and Helio Ge...
latitude and longitudes-Simple Problem..

(Chapter 6: Articles 146 to 165)

1.2 Combinatorial Mathematics

Text: A first course in Combinatorial Mathematics by Ian Anderson.

Unit 1: Selections and Binomial Coefficients-Permutations-Ordered selecti...
Unordere Selections.

(Chapter 2 ections 2.1, 2.2, 2.3 and 2.5)

Unit 2: Pairing Problems-Pairing within a set-Pairing between sets-An O...
Assignment Problem.

(Chapter 3: Section 3.1, 3.2 and 3.3)

Unit 3: Recurrence-Fibonacci type relations-Using generating functions-
Miscellaneous Methods.

(Chapter 4: Section 4.2, 4.3 and 4.4)

Unit 4: The inclusion-Exclusion Principle-The Principle-Rook Polynomia's

(Chapter 5: Section 5.1 and 5.2)

Unit 5: Block designs and error correcting codes-Block Designs-Square b...
designs.

(Chapter 6: Section 6.1 and 6.2)

1.3 Discrete Mathematics

Text: **Discrete Mathematical Structures with Aplications to Computer Science by J.P.Tremblay, R.Manohar TMH edition.**

Unit 1: Logic-Statements and notations-Connectives-Tautologies.

(Chapter 1: Sections 1.1, 1.2(except 1.2.5))

Unit 2: Nomal forms-The theory of inference for the statement calculus.

(Chapter 1: Sections 1.3 and 1.4)

Unit 3: The predicate-Theory of Inference for the Predicate Calculus.

(Chapter 1: Sections 1.5 and 1.6)

Unit 4: Lattices as Partially Ordered sets.

(Chapter 4: Section 4.1)

Unit 5: Boolean Algebra- Boolean Functions-Representation and minimization of Boolean functions.

(Chapter 4: Section 4.2, 4.3 and 4.4)

Semester V

Major Paper 10: Elective II (Only one of the following three papers)

2.1 Programming in C(Theory+ Practical)(90 Hrs)

Text: Programming in ANCI C by E. Balagurusamy.

Unit 1: Constants-Variables, Data types-Operations and Expressions-Managing Input and Output Operations.

(Chapters 2, 3 and 4)

Unit 2: Decision Making and Branching-Decision Making and Looping.

(Chapters 5 and 4)

Unit 3: Arrays-Handling of Charter Strings.

(Chapters 7 and 8)

Unit 4: User Defined functions-Structures and Unions.

(Chapters 9 and 10)

Unit 5: Pointers-File Management in C.

(Chapters 11 and 12)

2.2 Coding Theory (90 Hrs)

Text: Coding Theory , the essentials-(marcal Dekkar, Inc.Madtrixm Avenue, Newyork.

(Chapters 1 to 4 except sections 3.8 and 3.9)

Unit 1: Basic Assumptions-Correcting and detecting error batterns-Information rate-effect of error correction and detection-finding the most likely code word transmitted.

Unit 2: Linear Codes-Two important subspaces-Independence-Basic, dimension Matrices-Bases for C and C^+ generating matrices on coding.

Unit 3: Parity Check matrices-Equvalent Codes-Distance of a linear code-Linear Codes-Cosets-IMLD for linear codes- Reliability of IMLD for linear codes.

Unit 4: Some bounds for codes-Perfect Codes-Hamming Codes-Extended Codes-The extended Golay code-Decoding the extened Golay code-Golay code..

Unit 5: Polynomials and Words-Introduction to cyclic codes-Polynomial encoding and decoding-Finding cyclic codes-Dual Cyclic Codes.

2.3 Fuzzy Sets and Logic

Text: **Fuzzy Mathematical Concept by S.Nanda and n.R.Das, Narosa Publications**

Unit 1: Fuzzy relations and Fuzzy Mapping.

(Chapter 1(full))

Unit 2: Fuzzy Relations and Fuzzy Logic.

(Chapter 2(full))

Unit 3: Fuzzy Groups and Fuzzy Rings.

(Chapter 3(full))

Unit 4: Fuzzy Fields and Fuzzy linear Space.

(Chapter 4(full))

Unit 5: Fuzzy Metric Space.

(Chapter 8(full))

Semester VI

Major Paper 11: Complex Analysis (90 Hrs)

Text: Complex Analysis by Dr.S.Arumugam and Others, Scitech Publications.

Unit 1: Complex numbers-n^{th} root of a Complex number-Circles and Straight Lines-Region in the Complex plane-Extended Complex plane.

(Chapter 1: Sections 1.1 to 1.9)

Unit 2: Functions of Complex variables-Limits-Differentiability-C.R Equations-Analytic Functions-Harmonic Functions.

(Chapter 2: Sections 2.1 to 2.8)

Unit 3: Elementary transformations-Cross Ratio-Fixed points of bilinear transformations-Some special bilinear transformations.

(Chapter 3: Sections 3.1 to 3.5)

Unit 4: Complex Integration-Definite Integral-Cauchy's Theorem-Cauchy's Integral Formula-Higher Derivatives-Taylor's Series.

(Chapter 6: Sections 6.1 to 6.4 and Chapter 7: Section 7.1)

Unit 5: Laurent Series-Singular Points-Residues-Cauchy's Residue Theorem-

Evaluation of Definite Integrals-Type 1- $\int\limits_{0}^{2\pi} f(\cos\theta, \sin\theta)d\theta$ only.

(Chapter 7: Sections 7.2, 7.4 and Chapter 8: Sections 8.1 to 8.3)

Major Paper 12: Linear Programming (90 Hrs)

Text: Linear Programming by Dr.S.Arumugam and Others, New Gamma Publishing House.

Unit 1: Formulation of L.P.P-Mathematical formulation of a L.P.P-Canonical form-Solution of a L.P.P-Graphical Solution-Simplex Method.

(Chapter 3: Section 3.1 to 3.5)

Unit 2: Big M-Method-Two Phase Method-Application of Simplex Method-Duality in L.P.P-Primal dual Theorems-Dual Simplex Methods.

(Chapter 3: Section 3.6 to 3.10)

Unit 3: Transportation problem-Mathematical formulation-Solution of a transportation problem- North West Corner Rule-Row minima Method-Column minima Method-Matrix minima(Least Cost method)-Vogel's Approximation Method-Optimality Test.

(Chapter 4: Section 4.1 Only)

Unit 4: Assignment Problem-Mathematical formulation-Solution to Assignment Problem.

(Chapter 5: Section 5.1 and 5.2)

Unit 5: Sequencing-Processing n Jobs in 2 machines- Processing n Jobs in m machines- Processing 2 Jobs in m machines.

(Chapter 6: Section 6.1 to 6.3)

Major Paper 13: Mechanics (90 Hrs)

Text:

1. Statics by M.K.Venkataraman, Agasthiar Publications.

2. Dynamics by M.K.Venkataraman, Agasthiar Publications.

Unit 1: Forces acting at a point-Parallel forces and Moments.

(Text 1: Chapter 1: Articles 1 to 16 and Chapter 2: Articles 1 to 14)

Unit 2: Equilibrium of three forces acting on a rigid body-Frictions.

(Text 1: Chapter 5: Articles 1 to 8 and Chapter 7: Articles 1 to 14)

Unit 3: Projectiles.

(Text 2: Chapter 6: Sections 6.1 to 6.17)

Unit 4: Simple Harmonic motion-Simple Pendulum-Seconds Pendulum.

(Text 2: Chapter 10: Sections 10.1 to 10.15)

Unit 5: Motion under the action of central forces-Differential equation of central orbits-Picdal equation-Velocities in central orbit-Two fold problems in central orbits-Law of the inverse square.

(Text 2: Chapter 11: Sections 11.1 to 11.14)

Major Paper 14: Graph Theory (90 Hrs)

Text: Invitation to Graph Theory by S.Arumugam and S.Ramachandran

Unit 1: Definition and examples of Graphs-Degrees-Subgraphs-Isomorphism-Independent sets and Coverings-Intersection graphs and Line graphs-Matrices-Operation on Graphs.

(Chapter 2(full))

Unit 2: Degree sequences-Graphic sequences-Walks-Trails and Paths-Connectedness and Components-Connectivity.

(Chapter 3 and 4)

Unit 3: Eulerian Graphs-Hamiltonian Graphs-Characterisation of trees-Centre of a tree.

Chapter 5 and 6)

Unit 4: Definition and properties of planar graphs- Characterisation of planar graphs-Chromatic number and Chromatic Index.

(Chapter 8: Sections 8.1, 8.2 and Chapter 9: Section 9.1)

Unit 5: Five Colour theorem and Four Colour theorem-Chromatic polynomials-Definition and basic properties of digraphs-Paths and Connectedness in digraphs

(Chapter 9: Sections 9.2, 9.3, 9.4 and Chapter 10: Sections10.1, 10.2)

Semester VI

Major Paper 15: Elective III (Only one of the following three papers)

3.1 Number Theory (90 Hrs)

Text: Number Theory by David M.Burton, TMH Edition.

Unit 1: Mathematical Induction-The Binomial Theorem-Early Number Theory.

(Chapter 1: Sections 1.1, 1.2 and Chapter 2: Section 2.1)

Unit 2: The Division Algorithm-The G.C.D-The Euclidean Algorithm-The Diophantic Equation $ax+by=c$.

(Chapter 2: Sections 2.2 to 2.5)

Unit 3: The Fundamental Theorem of Arithmetic-The Sieve of Eratosthenes-The Goldbach Conjecture.

(Chapter 4: Sections 4.2 to 4.4)

Unit 4: Basic properties of Congruence-Divisibility tests-Linear Congruence and the Chience Reminder Theorem.

(Chapter 4: Sections 4.2 to 4.4)

Unit 5: Fermat's Theorem-Wilson's Theorem.

(Chapter 5: Sections 5.2, 5.3)

3.2 Operations Research (90 Hrs)

Text: Operations Research by P.R.Vital and V.Malini, Margham Publications.

Unit 1: Queuing Theory-Poisson Process Model I (M|M|1;∞|FIFO)-General Model, Model II(M|M|1;N|FIFO)-Model III(M|M|C;∞|FIFO)-Problems

(Chapter 13: Pages 13.1 to 13.73)

628

Network Analysis-CPM-Determination of Critical path and Project PERT-Time estimates-Variance for activities.

5 Game Theory-Pure and Mixed stragies-Saddle point-Dominance Property- cal method-Method of solving 2×n game-Method of solving n×2 game- cation of L.P.P in Graph theory.

4: Replacement Problem-Individual replacement-Group replacement-Model cement of an item whose maintenance cost increases with time and money s not changed-Model II-Money value changes with time-Model III- ement of items due to sudden failure-Staff replacement.

5. Inventory Control-Various Costs-Deterministic Model-Probabilistic or stic Model I-No Shortage-Model II with Shortage-Newspaper boy problem- Break Model-ABC Analysis.

Mathematical Programming with JAVA (Theory +Practical) (90 Hrs)

JAVA 2 Programming by C.Xavier (Scitech Publications)

1: Introduction to JAVA-Histry-Overview_JAVA Applicatgion rammes-JAVA Applets-Commands-Line Arguments-Data Types-Variables- ments.

Unit 2: Objects and Classes-Defining a Class-Constructors-Multiple Constructors- pper Classes-Conversion of data types-Command live and Keyboard input- ributes-Overriding-Object Composition with a simple example.

Unit 3: "IF" structure-nested IF structure-Break and labeled break-Switch uctures-While Loop-Do Loop-For loop-Natural sum and Partial sum of serties ng loops-Divergent series-Verification using loops-nested loop.

Unit 4: Arrays-Vectors-Stacks-Bitsets-Hash table-Random number generation- eterminant of Matrix-Interpolation.

Unit 5: Differentiation –Integration using trapezoidal rule-Simpson's $\frac{1}{3}$ rule-Numerical solution to differential equations-Euler's method-Runge Kutta method. JAVA programmes for all the above mentioned topics.

Programming IN C-List of Practicals

1. Write a program to convert the temperature from Farenheit to Celcius

2. Write a program to test whether a given year is leap or not.

3. Write a program that will read the value of x and evaluate the following function

$$Y=\begin{cases} 1 & if \ x > 0 \\ 0 & if \ x = 0 \\ -1 & if \ x < 0 \end{cases}$$ using nested 'IF' structures.

4. Write a program to read two integers m and n and print the prime numbers between them.

5. Write a program to evaluate the series $e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots$

6. Write a program to arrange the given set of numbers in ascending order.

7. Write a program to read two matrices and to find the product of the matrix.

8. Write a program to check whether a given string is a palindrome or not.

9. Write a program to find the largest numbers and its location in the given set of numbers using pointers.

10. Write a program to read the content of a text file and copy it into another file.

Mathematical Programming using JAVA (List of Practicals)

Write a program find the surface area and volume of a sphere.

2. Write a program to print the first 15 Fibonacci numbers.

3. Write a program to find the nature and roots of a quadratic equation.

4. Write a program to evaluate the series $\sin x = x - \dfrac{x^3}{3!} + \dfrac{x^5}{5!} - \dfrac{x^7}{7!} + \ldots\ldots$

5. Write a program to evaluate the series $\cos x = 1 - \dfrac{x^2}{2!} + \dfrac{x^4}{4!} - \dfrac{x^6}{6!} + \ldots\ldots$

6. Write a program to for finding the determinant of a matrix.

7. Find f(3) for the following function using Lagrange's Interpolation method.

x :	0	1	2	5
f(x) :	2	3	12	147

8. Write a program to find the solution of a differential equation using Taylor's Series.

9. Write a program to evaluate the integral $\int_{a}^{b} e^{\tan x}\, dx$ using Trapezoidal rule.

10. Write a program to solve a differential equation using Runge-Kutta second order method.

Allied Statistics

(For Mathematics Students)

Statistics I

Text: Statistics, Dr.S.Arumugam and Others.

Unit 1: Moments, Skewness and Kurtosis, Curve Fitting-Method of least Squares-Fitting Lines-Parabolic, Exponential and Logarithmic Curves.

Unit 2: Correlation and Regression-Scatter Diagram-Karl Pearson's Coefficient of Correlation-Properties-Lines of Regression, Regression, Regression Coefficient and Properties-Rank Correlation.

Unit 3: Association of Attributes, Consistency of Data-Criteria for Independence-Yule's Coefficient of Association.

Unit 4: Discrete Probability Distributions:

Geometric, Binomial and Poisson Distributions-Their Moments, Generating function, Characteristic function, Properties and Simple Application.

Unit 5: Continuous Probability Distributions:

Beta 1 and Beta 2 and Gamma Distributions-Normal Distribution-Standard Normal Distribution-their Properties-Simple Problems-Importance of Normal Distribution.

Statistics II

Text: Statistics, Dr.S.Arumugam and Others.

Unit 1: Characteristics of index numbers-Laspeyer's and Paasche's-Bowley's-Marshall and Edge-worth's index numbers-Tests-Unit test, Commodity reversal test, Time reversal test, Circular Test.

Unit 2: Statistical Quality Control-Definition, Advantages, Process Control-Control Chart, Mean Chart, Range Chart, P-Chart, Product Control-Sampling Inspection Plans.

Unit 3: Testing of Hypothesis-Null Hypothesis and Alternate Hypothesis-Type I and Type II errors-Critical Region, Level of Significance-Test of significance for large samples-Testing a single Proportion-Difference of Proportions-Testing a single mean-Difference of Means.

Unit 4: Tests based on t-Distribution-Single Mean-Difference of Means-Tests based on F-Distribution-Variance Ratio Test-Test Based on Chi-Square Distribution-Independence-Goodness of fit.

Unit 5: Analysis of Variance-One way and two way classified data-Basis of experimental design-Simple Problems.

Allied (Computer Science I)

(For Mathematics Students)

Colleges not opting Physics /Chemistry as Allied Subjects.

Introduction to Computer System

Text Book: Fundamentals of Information Technology, Alexis Leon and Mathews Leon-Leon Tech world.

Unit 1: Introduction to computers-Classification of digital computer system-Anatomy of digital computer-Computer architecture-Number system-Memory Units-Storage devices-Input devices-Output devices, Basic Windows Commands. Uses of Microsoft-General Commands.

Unit 2: Computer software: Introduction to Computer software-Operating systems-Programming languages-General software features and trends, M.S word-Creating, Saving, Editing and Printing a document.

Unit 3: Database Management Systems: Data Processing-Introduction to Database Management Systems-Database design, M.S Excel-Creating, Editing and Printing Worksheets.

Unit 4: Internet and Intranet: Internet and World Wide Web-Electronic Mail-Intranets, M.S Power Point: Creating Power point Presentation-Inserting Slides-Types of Views-Custom Animation-Inserting Clip Art, Pictures and Videos-Slide Show.

Unit 5: Application of Information Technology: Computers in Business and Industry, Computers in Home, Computers in Education and Training, Computers in entertainment, Science-Medicine and Engineering, M.S Access-Structure Creation-Editing Database-Creation of reports and labels-Insertion and deletion of records-Filtration.

M.S Office –List of Practicals

1. Text editing with different styles

2. Table creation and editing

3. Cut, Paste, find and replace usage

4. Mathematical symbols, suffix and super fix, equation creation and editing

5. Worksheet for Payroll

6. Worksheet for EB billing

7. Database Creation for library books

9. Database Creation for employee's details

10. Presentation for a seminar with dynamic provisions

Allied (Computer Science II)

(For Mathematics Students)

Programming in C

Text Book: Programming with ANSI and Turbo C-Ashok N. Kamthane, Pearson education.

Unit 1: C language-Elementary Programming: Declarations-Assignments and Variable-Integers Arithmetic Expressions-More data types-Relational and logical Operators-if and if-else Statements-Switch Statement-while and do-while statements.

Unit 2:For loop-escape sequences and control characters-conversion specifications -user defined functions-local & global variables-parameters-Boolean functions

Unit 3: Arrays-strings and character arrays-break and continue-conditional expression-multidimensional arrays.

Unit 4: Strings and string functions-static and auto classes-strcpy, strlen, max size of, strcmp. Structures: concepts-initialization-tag-pointers to structures-period and arrow operators.

Unit 5: Standard input and output-putchar, getchar-header files-getc, putc file input and output.

634

C Programming-List of Practicals

... to convert the temperature from Fahrenheit to C ...

Write a program to test whether the given year is leap year or not

Write a program to read two integers m and n and print the ... between them.

Write a program to evaluate the series $e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \dots$

Write a program to arrange the given set of numbers in ascending order

Write a program to read two matrices and to find the sum and product of the matrices.

7. Write a program to check whether a given string is Palindrome or not

8. Write a program to read the context of a text file and copy it into another file.

9. Write a program to find the largest number and its location in the given set of numbers using pointers.

10. Write a program to find Factorial value, Fibonacci, GCD value (Recursion).

Note:

M.S.Office Practical and C Programming Practical must be clubbed together.

MANONMANIAM SUNDARANAR UNIVERSITY, TIRUNELVELI-12

Allied Mathematics

(For Science Students)

(Effective from the Academic year 2012 – 2013)

Paper 1: Algebra and Differential Equations (90 hours)

Text: Allied Mathematics, Dr.S.Arumugam and Others.

Unit 1: Theory of equations-Relation between roots and coefficients-symmetric function of the roots in terms of coefficients.

Unit 2: Transformation of equations-Approximate solutions to equations-Newton's method -Horner's method.

Unit 3: Matrices-Characteristic equation of a matrix-Eigen values and eigen vectors-Cayley Hamilton theorem and simple problems.

Unit 4: Differential equation of first order but of higher degree-Equations solved for p, x, y.

Unit 5: Laplace transformation-Inverse Laplace transform-solving linear differential equations using Laplace transforms.

Paper 2: Vector Calculus (90 hours)

Text: 1. Vector Calculus, Dr.S.Arumugam & others.

2. Calculus (Volume II), T.K.Manicavachagom Pillay.

Unit 1: Vector differentiation-Gradient- Divergence and curl .

Unit 2: Methods of integration.

Unit 3: Evaluation of double and triple integrals.

Unit 4: Vector integration-Line, surface and volume integrals.

Unit 5: Green's, Stoke's and Divergence Theorems(statements only)-simple problems.

MANONMANIAM SUNDARANAR UNIVERSITY

Dr. A. JOHN DE BRITTO
REGISTRAR

No.MSU/R/BOS/Exit. Syllabus/2015-2016

ABISHEKAPATTI
TIRUNELVELI 627 012

02.06.2015

To

The Principals of all affiliated Colleges/
M.S. University Colleges/Constituent Colleges

Sir/Madam,

Sub: BOS – Extension of existing syllabi for all UG and PG courses in
affiliated colleges for the academic year 2015-2016 – Informed – reg.

I am, by direction, to inform that the existing syllabi for all UG and PG courses
offered in affiliated colleges will be followed for the academic year 2015-2016.

This may kindly be brought to the notice of the staff & students accordingly.

Yours faithfully

REGISTRAR

Rc. No. 183/D/2015 dated 22.6.15
copy communicated for information

To
All the H.O.D's

PRINCIPAL
GOVERNMENT ARTS & SCIENCE COLLEGE
KOVILPATTI - 628 503.

20/6/15

MANONMANIAM SUNDARANAR UNIVERSITY

Dr. T. TAMIZH CHELVAM
REGISTRAR i/c

**ABISHEKAPATTI
TIRUNELVELI - 627 012**

No.MSU/R/BOS/Part –IV/ II sem/2014

01.10.2014

0 8 OCT 2...

To

The Principals of all affiliated Colleges/
M.S. University Colleges/Constituent Colleges

Sir/Madam,

Sub: UG Courses – II Semester – Part –IV – Inclusion of one optional paper
"சமூக ஒழுக்கங்களும் பண்பாட்டு விழுமியங்களும" – Syllabus – Informed –
reg.

Ref: Resolution of the SCAA dated 26.08.2014.
****

I am, by direction, to inform that the "சமூக ஒழுக்கங்களும் பண்பாட்டு விழுமியங்களும்" has been introduced as *third "Optional paper"* which comes under Vaule Based Education of Part IV in II semester of all UG courses for those who joined the course from the academic year **2014-2015.** (Vide Appendix - BB 39 – Page No. 89, 90)

I am also by direction to inform that the college shall choose any one of the papers from among the following three papers.

(i) Social Value Education
(ii) Manavalakkalai Yoga
(iii) சமூக ஒழுக்கங்களும் பண்பாட்டு விழுமியங்களும்

This may kindly be brought to the notice of the faculty members and students.

Yours faithfully,

REGISTRAR i/c

Copy to:

1. The Controller of Examinations
2. Confidential Section
3. B.A Section
4. B.Sc. Section
5. B.Com Section

Re No 444 / D / 2014 Dated 14.10.14

Copy communicated for information
and necessary action.

TO

The Head of the Departments

1. Tamil
2. English
3. B.Com
4. Mathu
5. Computer science

PRINCIPAL
GOVERNMENT ARTS & SCIENCE C
KOVILPATTI - 628 503.
14.10.14

MANONMANIAM SUNDARANAR UNIVERSITY

Dr. T. TAMIZH CHELVAM
REGISTRAR i/c

ABISHEKAPATTI,
TIRUNELVELI 627 012

No.MSU/R/BOS/Common Skilled Based Subject /2014   04.7.2014

To

The Principal of affiliated Colleges/
M.S. University Colleges/Constituent Colleges

Sir/Madam,

Sub: UG courses - Common Skilled Based Subject – 2012-2013 –
       Intimation- reg.

Ref: 1.This office Lr.No.MSU/R/BOS/Per.Devpt./2011,dated 9.11.2011
       2. This office Lr.No.MSU/R/BOS/Common Skilled Based Subject/
       2014, dated 03.02.2014.
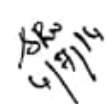
In continuation of this office letter cited under reference (1) & (2), I am to inform that you are requested to follow the **existing syllabus** for the Common Skilled Based Subject under V Semester - Part - IV for those who joined the course from the academic year 2012-2013, as follows:

Subject	SCAA Minutes
Effective Communication	Appendix - AS 140 – Page No. 1652 to 1654 /SCAA Meeting dated 01.06.2009
Personality Development	Appendix - AW 33 – Page No. 339 to 342 /SCAA Meeting dated 21.12.2010

This may kindly be brought to the notice of the staff and students concerned.

Yours faithfully

REGISTRAR i/c

Dr. T. TAMIZH CHELVAM
REGISTRAR i/c

ABISHEKAPATTI,
TIRUNELVELI 627 012

No.MSU/R/BOS/Common Skilled Based Subject /2014

04.7.2014

To   The Principal of affiliated Colleges/
      M.S. University Colleges/Constituent Colleges offering
      B.A. English & B.A. English with Computer Applications

Sir/Madam,

   Sub: UG courses – B.A. English & B.A. English with Computer Applications
   – Common Skilled Based Subject –Soft Skills Enhancement –
   Modification in the syllabus – sending – reg.

   Ref: This office Lr.No.MSU/R/BOS/English/2014, dated 24.06.2014.

   In partial modification of this office letter cited under reference, **reference book** has been included in the syllabus for the paper "**Soft Skills Enhancement**". Common Skilled Based Subject under V Semester - Part – IV for the course **B.A. English & B.A. English with Computer Applications** for those who joined the course from the academic year 2012-2013.

   It is further informed that this is applicable only for B.A. English & B.A. English with Computer Applications.

   This may kindly be brought to the notice of the staff and students concerned.

Yours faithfully

REGISTRAR i/c

Encl: Copy of the syllabus

Manonmaniam Sundaranar University, Tirunelveli – 12

COMMON SKILL BASED SUBJECT

(FOR BA English and BA English with Computer Application)

(V Semester)

SOFT SKILLS ENHANCEMENT

Syllabus for those who joined the course from the Academic Year 2012-13

Communicating effectively and developing positive interpersonal relationships forms the core of skills to be developed by an individual to be successful in his/her career and personal life. The objective of this paper is to develop the communicative competence so as to build in the students self confidence to face the real life scenario. The focus of the teacher / trainer should be to

- Develop excellent communication skills
- Develop effective presentation techniques
- Help the students to master the art of written communication – business and personal
- Develop an all-round personality so that they can face interviews and group discussion with confidence

UNIT I

Life Skills

Attitude

Interpersonal Skills

UNIT II

Communication Skills

Process of Communication

Listening Skills

Speaking Skills

Reading Skills

Writing Skills

UNIT III

Professional Writing Strategies

Scientific Papers

Articles

Conference Paper

Reviews

UNIT IV

Employability Skills

Telephone Skills

Interview

Group Discussion

UNIT V

Corporate Skills

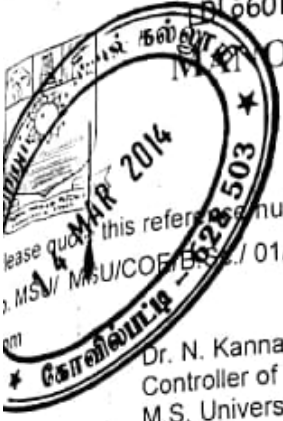Time Management: Tips and Techniques

Stress Management: Causes and Remedies

Book Prescribed

Soft Skills. S. Hariharan, N. Sundararajan, S.P. Shanmugapriya. MJP Publishers Chennai.

(please quote this reference number)

No. MSU/ MSU/COE/B.Sc./ 01/2014

Date 12.03.2014

Dr. N. Kannan,
Controller of Examinations,
M.S. University,
Tirunelveli – 12

To

The Principal, of all affiliated colleges

Sub: B.Sc., Mathematics IIIrd year Major Elective Papers-
Corrections in the subject code informed – reg.

Ref: Details of subject codes already sent to the college by this office .

In continuation of the above reference, I am to inform you that the subject codes are changed along with correct nos. and titles of the papers as detailed below, for those who joined the course from the Academic Year 2012 -2013 onwards)

Course : B.Sc., Mathematics

Semester : VI

Subject code	Title of the paper
GMMA6A	Number Theory
GMMA6B	Operations Research
GMMA6C	Mathematical Programming with JAVA

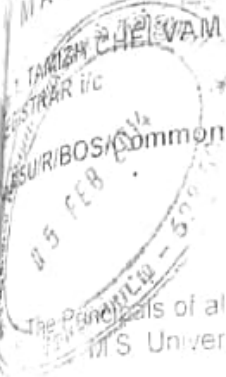The above corrections may please be informed to the staff and students concerned accordingly.

Yours faithfully,

CONTROLLER OF EXAMINATIONS

12/3/14

Copy to
1. Confidential section.
2. EDP section

MANONMANIAM SUNDARANAR UNIVERSITY

ABISHEKAPATTI
TIRUNELVELI 627 012

MSU/R/BOS/Common Skilled Based Subject/2014

03.02.2014

The Principals of all Affiliated Colleges/
MS University Colleges/Constituent Colleges

Madam,

Sub: UG Courses – V Semester – Part – IV – Common Skilled Based Subject – Existing Syllabus those who have joined the course 2012 – 2013 - Certain changes - Intimation – reg.

I am, by direction, to inform that the following changes have been made in the existing syllabus under V Semester - Part – IV - Common Skilled Based Subject viz. (i) Effective Communication and (ii) Personality Development for all UG courses for those who have joined the course from the academic year 2012-2013 & afterwards.

(i) Internal marks 25 instead of 40

(ii) External marks 75 instead of 60

This may kindly be brought to the notice of the faculty members and students concerned.

Yours faithfully,

REGISTRAR i/c

L.Dis No. 51 / A14 dt - 2-14

Copy communicated for intimation and necessary action.

The H.o.Ds of
Tamil Dept-
English Dept-
Maths Dept-
Commerce Dept-