



C. ABDUL HAKEEM COLLEGE

Melvisharam, Vellore Dist- 632509, TN, India

Telephone : +91 4172 266487, 266987 | Fax : +91 4172 266587

Web : www.cahc.edu.in

SUBJECT LIST

Course **B.Sc - Mathematics**

Batch **2015-2016**

Total Credits **140**

S.No	E/D	Cate.	Type	S. Code	S. Name	I.Ma	I.Mi	E.Ma	E.Mi	P	M	Cr	Pt
Semester - 1				Subject Count - 6			Total Credits - 20						
1	E	Theory	Language	U15FTA101	Tamil - I	25	0	75	30	40	4	I	
2	E	Theory	Language	U15FUR101	Urdu - I	25	0	75	30	40	4	I	
3	E	Theory	English	U15FEN101	English - I	25	0	75	30	40	4	II	
4	E	Theory	Main	U15MMA101	Algebra & Trigonometry - I	25	0	75	30	40	3	III	
5	E	Theory	Main	U15MMA102	Differential Calculus & 2-D Geometry	25	0	75	30	40	3	III	
6	E	Theory	Allied	U15APH101	Physics - I (Allied)	15	0	60	24	30	4	III	
7	E	Theory	Environmental Studies	U15CES101	Environmental Studies	10	0	40	16	20	2	IV	
Semester - 2				Subject Count - 9			Total Credits - 24						
1	E	Theory	Language	U15FTA201	Tamil - II	25	0	75	30	40	4	I	
2	E	Theory	Language	U15FUR201	Urdu - II	25	0	75	30	40	4	I	
3	E	Theory	English	U15FEN201	English - II	25	0	75	30	40	4	II	
4	E	Theory	Main	U15MMA201	Algebra & Trigonometry - II	25	0	75	30	40	3	III	
5	E	Theory	Main	U15MMA202	Integral Calculus & 3-D Geometry	25	0	75	30	40	3	III	
6	E	Practical	Main	U15MMAP21	Practical - Computational Techniques - I	10	0	40	16	20	1	III	
7	E	Theory	Allied	U15APH201	Physics - II (Allied)	15	0	60	24	30	4	III	
8	E	Practical	Allied	U15APHP21	Allied Practical - Physics	10	0	40	16	20	2	III	
9	E	Theory	Value Education	U15CVE201	Value Education	10	0	40	16	20	2	IV	
10	E	Theory	Soft Skills	U15CSS201	Soft Skills	10	0	40	16	20	1	IV	



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S.No	E/D	Cate.	Type	S. Code	S. Name	I.Ma	I.Mi	E.Ma	E.Mi	P	M	Cr	Pt
Semester - 3					Subject Count - 7	Total Credits - 23							
1	E	Theory	Language	U15FUR301	Urdu - III	25	0	75	30	40	4	I	
2	E	Theory	Language	U15FTA301	Tamil - III	25	0	75	30	40	4	I	
3	E	Theory	English	U15FEN301	English - III	25	0	75	30	40	4	II	
4	E	Theory	Main	U15MMA301	Differential Equations	25	0	75	30	40	4	III	
5	E	Theory	Allied	U15ACH301	Chemistry - I (Allied)	15	0	60	24	30	4	III	
6	E	Theory	Skill Based	U15SMA301	Mathematics for Competetive Examinations (SBS - I)	15	0	60	24	30	3	IV	
7	E	Theory	Non Major	U15NUR301	Functional Urdu - I (NME - I)	10	0	40	16	20	2	IV	
8	E	Theory	Non Major	U15NTA301	Basic Tamil - I (NME - I)	10	0	40	16	20	2	IV	
9	E	Theory	Non Major	U15NHS301	Indian National Movement (NME - I)	10	0	40	16	20	2	IV	
10	E	Theory	Non Major	U15NCM301	Elements of Accountancy (NME - I)	10	0	40	16	20	2	IV	
11	E	Practical	Main	U15MMAP31	Practical - II Computational Techniques - II	10	0	40	16	20	2	III	
Semester - 4					Subject Count - 7	Total Credits - 22							
1	E	Theory	Language	U15FUR401	Urdu - IV	25	0	75	30	40	4	I	
2	E	Theory	Language	U15FTA401	Tamil - IV	25	0	75	30	40	4	I	
3	E	Theory	English	U15FEN401	English - IV	25	0	75	30	40	4	II	
4	E	Theory	Main	U15MMA401	Vector Analysis and Fourier Analysis	25	0	75	30	40	4	III	
5	E	Theory	Allied	U15ACH401	Chemistry - II (Allied)	15	0	60	24	30	3	III	
6	E	Theory	Skill Based	U15SMA401	Linear Programming (SBS - II)	15	0	60	24	30	3	IV	
7	E	Practical	Allied	U15ACHP41	Allied Practical - Chemistry	10	0	40	16	20	2	III	
8	E	Theory	Non Major	U15NUR401	Functional Urdu - II (NME - II)	10	0	40	16	20	2	IV	
9	E	Theory	Non Major	U15NTA401	Basic Tamil - II (NME - II)	10	0	40	16	20	2	IV	
10	E	Theory	Non Major	U15NHS401	Civil Services and Other Competitive Examinations (NME - II)	10	0	40	16	20	2	IV	
11	E	Theory	Non Major	U15NKS401	Project Management (NME - II)	10	0	40	16	20	2	IV	
12	E	Theory	Non Major	U15NCH401	Chemistry in Every Day Life (NME - II)	10	0	40	16	20	2	IV	
13	E	Theory	Non Major	U15NZL401	Sericulture (NME - II)	10	0	40	16	20	2	IV	
14	E	Theory	Non Major	U15NCM401	General Commercial Knowledge (NME - II)	10	0	40	16	20	2	IV	



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Course **B.Sc - Mathematics**

Batch **2015-2016**

Total Credits **140**

S.No	E/D	Cate.	Type	S. Code	S. Name	I.Ma	I.Mi	E.Ma	E.Mi	P	M	Cr	Pt
Semester - 5					Subject Count - 7	Total Credits - 25							
1	E	Theory	Main	U15MMA501	Abstract Algebra	25	0	75	30	40	4	III	
2	E	Theory	Main	U15MMA502	Real Analysis - I	25	0	75	30	40	4	III	
3	E	Theory	Main	U15MMA503	Complex Analysis	25	0	75	30	40	5	III	
4	E	Theory	Main	U15MMA504	Statics	25	0	75	30	40	4	III	
5	E	Theory	Elective	U15EMA501	Graph Theory (Elective - I)	25	0	75	30	40	4	III	
6	E	Theory	Skill Based	U15SMA501	Quantitative Techniques (SBS - III)	15	0	60	24	30	3	IV	
7	E	Practical	Main	U15MMA501	Practical - III - Problem Solving Techniques using Geogebra and Matlab	10	0	40	16	20	1	III	
Semester - 6					Subject Count - 8	Total Credits - 26							
1	E	Theory	Main	U15MMA601	Linear Algebra	25	0	75	30	40	4	III	
2	E	Theory	Main	U15MMA602	Real Analysis - II	25	0	75	30	40	5	III	
3	E	Theory	Main	U15MMA603	Dynamics	25	0	75	30	40	4	III	
4	E	Theory	Main	U15MMA604	Programming in C Language	25	0	75	30	30	3	III	
5	E	Theory	Elective	U15EMA601	Calculus of Finite Differences and Numerical Methods (Elective - II)	25	0	75	30	40	4	III	
6	E	Theory	Skill Based	U15SMA601	Fundamentals of Applied Mathematics (SBS - IV)	15	0	60	24	30	3	IV	
7	E	Practical	Main	U15MMA601	Practical in C Language	10	0	40	16	20	2	III	
8	E	Theory	Extension Activities	U15CEA601	Extension Activities	0	0	50	20	20	1	V	

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the year 2015-2016

Year: I Year Subject Code : U15MMA101 Semester : I

Major - 1 Title: **Algebra & Trigonometry - I**

Credits: 3 Max. Marks. 75

ALGEBRA

UNIT-I: THEORY OF EQUATIONS

Polynomial Equations – Imaginary and Irrational Roots - Symmetric Functions of roots in terms of Coefficients - Sum of r-th powers of roots - Reciprocal Equations - Transformation of Equations.

UNIT-II: THEORY OF EQUATIONS (Contd...)

Descartes Rule of Signs - Approximate Solutions of Polynomials by Horner's method - Newton -Raphson method of Solution of a Cubic Polynomial.

UNIT-III: SUMMATION OF SERIES

Summation of series using Binomial - Exponential and Logarithmic series (Theorems without proofs) - Approximation using Binomial & Exponential series.

TRIGONOMETRY

UNIT-IV:

Expansions of $\cos n\theta$, $\sin n\theta$ - Expansion of $\tan n\theta$ in terms of $\tan \theta$ - Expansion of $\tan(A+B+C+ \dots)$ - Formation of Equations.

UNIT-V:

Powers of sines and cosines of θ in terms of functions of multiples of θ - expansions of $\sin \theta$ and $\cos \theta$ in a series of ascending powers of θ - Expansion of Inverse Circular Functions.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Reference Books:

1. T.K.Manicavachagom Pillay, T.Natarajan and K.S.Ganapathy. (2004) *Algebra*, Volume I & II S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.
2. P.Kandasamy, K.Thilagavathy (2004), *Mathematics for B.Sc. Vol-I, II, III & IV*, S.Chand & Company Ltd., New Delhi-55.
3. H.S.Hall & S.R.Kinght HM Publications-1994.
4. S.Narayanan and T.K.Manicavachagom Pillay (2004) *Calculus*. S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.
5. P.R.Vittal. (2004) *Trigonometry*, Margham Publications, Chennai.
6. A.Singaravelu (2003) *Algebra and Trigonometry*, Vol.-I Meenakshi Agency, Chennai.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the year 2015-2016

Year: I Year Subject Code : U15MMA102 Semester : I

Major - 2 Title: **Differential Calculus & 2-Dimensional Geometry**

Credits: 3 Max. Marks. 75

DIFFERENTIAL CALCULUS:

UNIT-I

Differential Calculus: nth derivative - Leibnitz's theorem (Without proof) and its application - Jacobians - Total differential - maxima and minima functions of 2 & 3 independent variable, Lagrange's method (without proof), problems on this concepts.

UNIT-II: Polar coordinates – Angle between radius vector and tangent – Angle between two curves, Curvature, Radius of Curvature in Cartesian and Polar coordinates, p-r equation.

UNIT-III:

Asymptotes: Methods (without proof) of finding asymptotes of rational algebraic curves with special cases.

2- Dimensional Geometry (Conics):

UNIT-IV:

Chord in terms of middle points - Pole, Polar.

UNIT-V:

Conjugate Hyperbola, Conjugate Diameter for Ellipse and Hyperbola.

Reference Books:

1. S.Narayanan and T.K.Manickavachagom Pillay (2004) *Calculus*. S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.
2. P.R.Vittal. (2004) *Calculus*, Margham Publication, Chennai.
3. Shanti Narayan (2001) *Differential Calculus*. Shyamlal Charitable Trust, New Delhi.
4. T.K.Manickavachagom Pillay & others. (2004) *Analytical Geometry* (Two & Three Dimensions) S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.
5. P.Duraipandian and Laxmi Duraipandian (1965) *Analytical Geometry-2D*, Asia Publishing company, Bombay
6. G.B.Thomas and R.L.Finney.(1998) *Calculus and Analytic Geometry*, Addison Wesley (9th Edn.), Mass. (Indian Print).

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the year 2015-2016

Year: I Year

Subject Code : U15MMA201

Semester : II

Major - 3 Title:

Algebra & Trigonometry - II

Credits: 3

Max. Marks. 75

ALGEBRA

UNIT-I: MATRICES

Symmetric - Skew symmetric, - Hermitian - Skew Hermitian - Orthogonal and Unitary Matrices - Cayley-Hamilton Theorem (without proof) - Eigen Values - Eigen Vectors - Similar Matrices - Diagonalisation of a Matrix.

UNIT-II: ELEMENTARY NUMBER THEORY

Prime Number - Composite Number - Decomposition of a Composite Number as a Product of Primes uniquely (without proof) - Divisors of a Positive Integer - Congruence Modulo n - Euler Function (without Proof) - Highest Power of a Prime Number p contained in $n!$ - Fermat's and Wilson's Theorems (statements only) - simple problems.

TRIGONOMETRY

UNIT-III:

Definition – Relation between Hyperbolic Functions - Inverse Hyperbolic Functions.

UNIT-IV:

DeMoivre's Property on the Circle and Cote's Property on the Circle - Logarithm of complex quantities.

UNIT-V:

Summation of Trigonometric Series: When the angles are in A.P, C+iS method of summation - Method of Differences - Gregory Series - Euler Series.

Reference Books:

1. T.K.Manicavachagom Pillay, T.Natarajan and K.S.Ganapathy. (2004) *Algebra*, Volume I & II S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.
2. P.Kandasamy, K.Thilagavathy (2004), *Mathematics for B.Sc. Vol-I, II, III & IV*, S.Chand & Company Ltd., New Delhi-55.
3. H.S.Hall & S.R.Kinght HM Publications-1994.
4. S.Narayanan and T.K.Manicavachagom Pillay (2004) *Calculus*. S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.
5. P.R.Vittal. (2004) *Trigonometry*, Margham Publications, Chennai.
6. A.Singaravelu (2003) *Algebra and Trigonometry*, Vol.-I Meenakshi Agency, Chennai.

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Syllabus for B.Sc., Mathematics effective from the year 2015-2016

Year: I Year Subject Code : U15MMA202 Semester : II

Major - 4 Title: **Integral Calculus & 3-Dimensional Geometry**

Credits: 3 Max. Marks. 75

INTEGRAL CALCULUS:

UNIT-I:

Reduction formulae- $\int x^n e^{ax}$, $\int \sin^m x \cos^n x dx$,

$\int \sin^m x \cos^n x dx$, $\int \tan^n x dx$, $\int \cot^n x dx$, $\int x^m (1-x)^n dx$.

Beta and Gamma Functions - Properties and simple problems.

UNIT-II:

Double Integrals - Change of order of Integration - Triple Integrals - Applications to Area, Surface Area and Volume.

3-Dimensional Geometry:

UNIT-III:

Planes: Equation of a plane (General, intercept, normal forms)-angle between two planes-perpendicular distance from the point to the plane-equation of the plane through the intersection of two given planes- simple problems.

Straight lines: Symmetrical form of a straight line-angle between a plane and a line-coplanar lines-the length and equations of the shortest distance.

UNIT-IV: Sphere

Section of a Sphere by a Plane - Tangent Plane, Orthogonal Spheres.

UNIT-V: Cone and Cylinder

Equation of a Cone - Cone whose vertex is at the origin - Quadric Cone with the vertex at the origin - Right Circular Cone - Cylinder- Right Circular Cylinder- Equation of a Cylinder.

Reference Books:

1. S.Narayanan and T.K.Manicavachagom Pillay (2004) *Calculus*. S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.
2. P.R.Vittal. (2004) *Calculus*, Margham Publication, Chennai.
3. Shanti Narayan (2001) *Integral Calculus*. S.Chand & Co. New Delhi.
4. T.K.Manickavachagom Pillay & others. (2004) *Analytical Geometry* (Two & Three Dimensions) S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.
5. P.Duraipandian and Laxmi Duriapandian (1975) *Analytical Geometry-3 D*, Emerald Publishers, Chennai.
6. G.B.Thomas and R.L.Finney.(1998) *Calculus and Analytic Geometry*, Addison Wesley (9th Edn.), Mass. (Indian Print).

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Syllabus for B.Sc., Mathematics effective from the year 2016-2017

Year: II Year Subject Code : U15MMA301 Semester : III

Major - 5 Title: **Differential Equations**

Credits: 4 Max. Marks. 75

UNIT-I: Ordinary Linear Differential Equations

Bernoulli Equation – Exact Differential Equations – Equations Reducible to Exact Equations – Equations of First order and Higher degree: Equations solvable for p, Equation solvable for x and Equations Solvable for y – Clairaut's Equation.

UNIT-II: Ordinary Linear Differential Equations [Contd...]

Method of Variation of Parameters – Equations reducible to Linear equations with constant coefficients – Cauchy's homogeneous Linear Equations – Legendre's Linear Equations

UNIT-III: Differential Equations of Other Types

Equations of form $d^2y/dx^2 = f(x)$ – Equations of the form $d^2y/dx^2 = f(y)$ – Equations which do not contain y – Equations which do not contain x – Total Differential Equations– Equations of the form $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - Method of Grouping.

UNIT-IV: Laplace Transform

Transform-Inverse Transform – Properties – Application of Laplace Transform to solution of first and second order Linear Differential equations [with constant coefficients] and simultaneous Linear Differential Equations.

UNIT-V: Partial Differential Equations

Formation of PDE – Complete Integral – Particular Integral – Singular Integral – equations Solvable by direct Integration – Linear Equations of the first order – Non-linear Equations of the first Order–Non-linear Equations of the first Order:

Types: $f[p, q]=0$, $f(z, p, q)=0$, $f[x, q]=f[y, p]$, $z= p x + q y + f[p, q]$

Recommended Books:

1. B.S.Grewal [2002] Higher Engineering Mathematics, Khanna Publishers, New Delhi.
2. P.R.Vittal [2004] Differential Equations and Laplace Transform, Margham Publications, Chennai.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Reference Books:

1. Sheply L.Ross, [1984] Differential Equations, III Edition John Wiley & Sons, New York.
2. M.D. Raisinghania, [2001] Ordinary and Partial Differential Equations, S.Chand and Co., New Delhi.
3. P.Kandasamy, K.Thilagarathy [2004] Mathematics for B.Sc. Vol. III S.Chand & Co., Ltd., New Delhi-55.
1. S.Narayanan & T.K.Manickavazagapillai [2004] Calculus S.Viswanathan Printers & Publishers Pvt. Ltd., Chennai.

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Syllabus for B.Sc., Mathematics effective from the year 2016-2017

Year: II Year Subject Code : U15SMA301 Semester : III

Skill Based - 1 Title: **Mathematics for Competitive Examinations (SBS - I)**

Credits: 3 Max. Marks. 60

UNIT-I: Problems on General Arithmetic

Ratio and proportions - Inverse ratio - properties (Addendo, subtrahendo, componendo & dividendo) - ratio of four numbers - increasing and decreasing order of fractions – Problems of ages.

Section 1.12 and 1.8

UNIT-II

Percentages - gain and loss percents - partnership problems .

Section 1.10, 1.11 and 1.13

UNIT-III: Time, Distance and Work

Time and distance- Time and work

Section 1.17 and 1.15

UNIT-IV: Commercial Arithmetic:

Simple interest- compound interest - shares and stocks.

Section 1.21, 1.22 and 1.29

UNIT-V: Basic statistics

Measures of central tendencies, mean, median, mode, G.M & H.M, error corrections, application, properties.

Measures of dispersion - Range, S.D, Q.D, percentiles and deciles applications.

Reference Books:

1. I to IV units_ Quantitative Aptitude - R.S. Aggarwal (S.Chand & Co - New Delhi 2008)
2. V unit Fundamentals of applied statistics – S.C. Gupta and V.K. Gupta.
3. Course in Mental Abilities and Quantitative Aptitude for Competitive Examinations - Edgar Thorpe (Tata McGraw - Hill Pub., Co., Ltd. New Delhi - II Edn.,).
4. Statistic, RSN Pillai and A. Bagavathi, S.Chand & Co.,
Algebra, Manickavachakam Pillai & Narayanan.

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Syllabus for B.Sc., Mathematics effective from the year 2016-2017

Year: II Year Subject Code : U15NMA301 Semester : III

Non -Major - 1 Title: **BASIC MATHEMATICS (NME - I)**

Credits: 2 Max. Marks. 40

UNIT-I: Sets

Definition - Subsets - Power sets - Equality of sets - Finite and Infinite sets - Set operations - De-Morgan's laws - Distributive tables - Cartesian products.

UNIT-II: Number system

Binary, octal, hexadecimal numbers - conversion from one system to another system - addition and subtraction - one's complement.

UNIT-III: Symbolic logics

Logical statements - connectives - truth tables - tautologies operations - groups – (problems and simple properties only).

UNIT-IV: Determinants

Definition - properties (without proof) - application of determinants - Cramer's rule for the solution of a system of equations

UNIT-V: Matrices

Definition - types of matrices - operations on matrices - adjoint and inverse - applications - solving non-homogeneous equations.

Reference Books

1. Dr.M.K.Venkataraman & others, "Discrete mathematics and structures", The National Publishing Company, Madras.
2. Trembly J.P and Manohar.R "Discrete Mathematical Structures with applications to computer science" Tata McGraw - Hill Pub., Co., Ltd. New Delhi 2003.
3. P.R.Vittal "Algebra, Analytical Geometry and trigonometry" Margham Publications, Chennai.
Richard Johnsonbaugh, "Discrete Mathematics" fifth Edn., Pearson Education Asia, New Delhi 2002.

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Syllabus for B.Sc., Mathematics effective from the year 2016-2017

Year: II Year Subject Code : U15MMA401 Semester : IV

Major - 6 Title: **Vector Analysis and Fourier Analysis**

Credits: 4 Max. Marks. 75

UNIT-I: Differential Vector Calculus

Differentiation of a Vector - Geometrical Interpretation of the Derivative - Differentiation Formulae - Differentiation of dot and Cross Products - Partial Derivatives of Vectors - Differentials of Vectors.

UNIT-II: Gradient, Divergence and Curl

Vector Differential Operator Del - Gradient of a Scalar Function - Directional Derivative - Geometric Interpretation - Gradient of the sum of Functions; of the product of functions and of a function of function - Operations involving Del - Divergence of a Vector and its Physical Interpretation - Curl of a Vector and its Physical Interpretation - Expansion Formulae for Operators involving Del - Solenoidal and Irrotational.

UNIT-III: Vector Integration

The Line Integral - Surface Integral and its Physical Meaning - Surface Integral and the Concept of Divergence of a Vector - Equivalence of two Definitions of Divergence - Statements of Gauss Divergence Theorem and Green's Theorem (only) and Problems - Line Integral - The Concept of the Curl of a Vector - Statement of Stoke's Theorem (only) and Problems.

UNIT-IV: Fourier Series

Euler's Formulae - Conditions for Fourier Expansion - Functions having Discontinuity - Odd and Even Functions - Expansions of Odd or Even periodic Functions - Half-range Series - Parseval's Formula.

UNIT-V: Fourier Transform

Definition - Fourier Transform: Fourier Sine and Cosine Transforms - Finite Fourier Sine and Cosine Transforms (without proof) - Properties of Fourier Transforms - Convolution Theorem for Fourier Transforms - Parseval's Identity for Fourier Transforms (without derivation).

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Recommended Books:

1. B.S.Grewal [2002] Higher Engineering Mathematics, Khanna Publishers, New Delhi.
2. P.R.Vittal. (2004) *Vector Calculus, Fourier series and Fourier Transform*. Margham Publications, Chennai.

Reference Books :

1. M.K.Venkataraman. (1992) *Engineering Mathematics-Part B*. National Publishing Company, Chennai.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the year 2016-2017

Year: II Year Subject Code : U15SMA401 Semester : IV

Skill Based - 2 Title: **Linear Programming (SBS - II)**

Credits: 3 Max. Marks: 60

UNIT-I

Linear programming problem - Mathematical formulation of the problem - Graphical solution method - simplex method - Duality - primal and dual relation (simple Problems).

UNIT-II

Transportation problem - Degeneracy in transportation problem.

UNIT-III

The Assignment problem – Travelling salesman method.

UNIT-IV

Game theory - two persons zero sum game - the maximin- minimax principle - saddle points - games without saddle points.

UNIT-V

Simulation - application - advantages and disadvantages - Monte Carlo method - simple problems.

Recommended Books:

1. Gupta P.K.and Hira D.S., (2000) Problems in Operations Research, S.Chand & Co. Delhi

Reference Books:

1. Kanti Swaroop, Gupta P.K. and Manmohan, (2002) *Problems in Operation Research*, Sultan Chand & Sons.
2. V.K.Kapoor [1989] *Operations Research*, Sultan Chand & sons.
3. P.R.Vittal (2003) *Operations Research*, Margham Publications, Chennai.
4. J.K.Sharma, (2001) *Operations Research: Theory And Applications* Macmillan, Delhi
5. S.J.Venkatesan, *Operations Research*, J.S. Publishes, Cheyyar-604 407.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the year 2016-2017

Year: II Year Subject Code : U15NMA401 Semester : IV

Non -Major - 2 Title: **FOUNDATION MATHEMATICS FOR
COMPETITIVE EXAMINATIONS (NME - II)**

Credits: 2 Max. Marks. 40

UNIT-I

Ratio and proportions

UNIT-II

Percentages

UNIT-III

Profit and loss, discounts.

UNIT-IV

Simple and compound interest.

UNIT-V

Time, Distance and Work

Reference Book

Quantitative Aptitude - R.S. Aggarwal (S.Chand & Co. - New Delhi 2008).

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Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year Subject Code : U15MMA501 Semester : V

Major - 7 Title: **Abstract Algebra**

Credits: 4 Max. Marks. 75

UNIT-I: Groups

Definition of a Group - Examples – Subgroups.

UNIT-II: Groups (Contd.)

Counting Principle - Normal Subgroups - Homomorphisms.

UNIT-III: Groups (Contd.)

Automorphisms - Cayley's Theorem - Permutation Groups.

UNIT-IV: Rings

Definition and Examples - Integral Domain - Homomorphism of Rings - Ideals and Quotient Rings.

UNIT-V: Rings (Contd.)

Prime Ideal and Maximal Ideal - The field of quotients of an Integral domain – Euclidean rings.

Recommended Text

I.N.Herstein. (1989) Topics in Algebra, (2nd Edn.) Wiley Eastern Ltd. New Delhi

Chapter-2: Sections 2.1-2.10 (Omit Applications 1 and 2 of 2.7)

Chapter-3: Sections 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7

Reference Books

1. S.Arumugam. (2004) Modern Algebra. Scitech Publications, Chennai.
2. J.B.Fraleigh (1987). A First Course in Algebra (3rd Edition) Addison Wesley, Mass. (Indian Print)
3. Lloyd R.Jaisingh and Frank Ayres,Jr. (2005) Abstract Algebra, (2nd Edition), Tata McGraw Hill Edition, New Delhi.
4. M.L.Santiago (2002) Modern Algebra, Tata McGraw Hill, New Delhi.
5. Surjeet Singh and Qazi Zameeruddin. (1982) Modern Algebra. Vikas Publishing House Pvt. Ltd. New Delhi.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year Subject Code : U15MMA502 Semester : V

Major - 8 Title: **Real Analysis - I**

Credits: 4 Max. Marks. 75

UNIT-I: Functions & Sequences

Functions – Real valued functions – Equivalence – Countability and Real Numbers – Least Upper Bound – Definition of Sequence and Subsequence – Limit of a Sequence – Convergent Sequence

Ch. 1.4 to 1.7, 2.1 to 2.3 of Goldberg.

UNIT-I: Sequences [Contd...]

Divergent Sequences – Bounded Sequences – Monotone Sequence – Operations on Convergent Sequences – Operations on Divergent Sequences – Limit Superior and Limit Inferior – Cauchy Sequences

Ch. 2.4 to 2.10 of Goldberg.

UNIT-III: Series of Real Numbers

Convergence and Divergence – Series with non negative terms – Alternating series – conditional convergence and Absolute convergence – Test for Absolute convergence.

Ch. 3.1 to 3.4 and 3.6 of Goldberg.

UNIT-IV: Series of Real Numbers [Contd...]

Test for Absolute convergence – The class ℓ^2 – Limit of a function on the real line – Metric spaces – Limits in Metric spaces.

Ch. 3.7, 3.10, 4.1 to 4.3 of Goldberg.

UNIT-V: Continuous Functions on Metric Spaces

Functions Continuous at a point on the real line – Reformulation – Functions Continuous on a Metric Spaces – Open Sets – Closed Sets.

Ch. 5.1 to 5.5 of Goldberg

Recommended Text

R.Goldberg [2000] Methods of Real Analysis. Oxford & IBH Publishing Co., New Delhi.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Reference Books

1. Tom M. Apostol [1974] Mathematical Analysis, 2nd Edition, Addison-Wesley New York.
2. Bartle, R.G. and Shebert [1976] Real Analysis, John Wiley and Sons Inc., New York.
3. Malik, S.C. and Savita Arora [1991] Mathematical Analysis, Wiley Eastern Limited, New Delhi.
4. Sanjay Arora and Bansi Lal [1991], Introduction to Real Analysis, Satya Prakashan, New Delhi.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year Subject Code : U15MMA503 Semester : V

Major - 9 Title: **Complex Analysis**

Credits: 4 Max. Marks. 75

UNIT-I: Analytic functions

Definitions of function of a complex variable- Limits -Continuity-Derivatives and Differentiation formula-Cauchy-Riemann equations in Cartesian and polar Co ordinates -properties of Analytic functions-Necessary and Sufficient conditions for Analytic functions- Harmonic functions -Determination of Harmonic conjugate and Analytic functions.

UNIT-II: Mappings

Conformal mapping- The transformations $w = z + d$, $w = \frac{1}{z}$, $w = z^2$, $w = \sqrt{z}$, $w = e^z$, $w = \sin z$ - Bilinear Transformation and special Bilinear Transformation.

UNIT-III: Integrals

Contours - Line Integrals - Cauchy - Goursat's Theorem (with out proof) - Cauchy's Integral Formula - Derivatives of Analytic Functions – Maximum modulus Theorem.

UNIT-IV: Power Series

Taylor's and Laurent's Theorem – Singularities and classification – Problems.

UNIT-V: Residues and Poles

Residues – Cauchy's Residues Theorem – Evaluation of real improper integrals – improper integrals involving sine and cosine.

Recommended Text

R.V.Churchill and J.W.Brown, (1984) Complex Variables and Applications. McGraw Hill International Book Co., Singapore. (Third Edition).

Reference Books

1. P. Duraipandian and Laxmi Duraipandian (1976) Complex Analysis: Emerald Publishers, Chennai.
2. S. Ponnusamy. (2000) Foundations of Complex Analysis, Narosa Publishing House, New Delhi.
3. Murray R. Spiegel. (2005) Theory and Problems of Complex Variable. Tata-Mcgraw Hill Edition, New Delhi.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year

Subject Code : U15MMA504

Semester : V

Major - 10 Title:

STATICS

Credits: 4

Max. Marks. 75

UNIT- I

Forces, Type of forces- Resultant of three forces related to triangle acting at a point - Resultant of several forces acting on a particle - Equilibrium of a particle under three forces -Equilibrium of a particle under several forces - Limiting Equilibrium of a particle on an inclined plane.

Chapter: 2 & 3

UNIT- II

Moment of a forces- General motion of a Rigid body- Equivalent system of forces – Parallel forces- Forces along the sides of the triangle – Couples- Resultant of several coplanar forces – Equation of line of action of the resultant – Equilibrium of a rigid body under three coplanar forces.

Chapter: 4

UNIT- III

Reduction of coplanar forces into a force and a couple – Friction – laws of friction – cone of friction and angle of friction – Applications involving frictional forces.

Chapter: 5 (Omit:5.2.1)

UNIT - IV

Center of mass – Center of mass not using integration: triangular lamina – Three particles of same mass - Three particles of certain masses – uniform rods forming a triangle – lamina in the form of a trapezium and solid tetrahedron – Center of mass using integration: circular arc – circular lamina – elliptic lamina – solid hemisphere – solid right circular cone – hemispherical shell – hollow right circular cone – cardioid lamina – Center of mass of a non-homogeneous solid.

Chapter: 6 (Omit 6.2.4 & 6.3)

UNIT- V

Equilibrium of a uniform homogeneous string - Equation of the shape of the strings hanging under gravity in Cartesian form – Equation of the shape of the string hanging under gravity in parametric form – Sag – Suspension bridge.

Chapter: 9

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Recommended Text

P. Duraipandian, Laxmi Duraipandian , Muthamizh Jayapragasam, Mechanics, 6-e, S. Chand and Company Ltd, 2005.

Reference Books

1. S. Narayanan, R. Hanumantha Rao, K. Sitaraman, P. Kandaswamy, *Statics*, S. Chand and Company Ltd, New Delhi.
2. S. L. Loney, *An Elementary Treatise on Statics*, Combridge University Press, 1951
3. A.V. Dharmapadam(1991) *Mechanics*. S. Viswanathan Printers & Publishers. Chennai.
4. M.K. Venkataraman (1990) *Statics*. A Rajhans Publications. (16th Edn), Meerut.
5. Joseph F. Shelley (2005) *Vector Mechanics for Engineers Vol-I: Statics*, Tata McGraw Hill Edition, New Delhi.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year Subject Code : U15EMA501 Semester : V

Elective - 1 Title: **A. Graph Theory (Elective)**

Credits: 4 Max. Marks. 75

UNIT-I

Graphs, subgraphs, Degree of a vertex, Isomorphism of graphs, independent sets and coverings, Intersection graphs.

Chapter: 2 (2.0 – 2.7)

UNIT-II

Adjacency and incidence of matrices; Operations on graphs – Walks; trails; paths.

Chapter:2 (2.8 – 2.9)

Chapter: 4 (4.0 - 4.1)

UNIT-III

Connectedness and components; cut point, bridge, block. Connectivity theorems and simple problems.

Chapter:4 (4.2 – 4.4)

UNIT-IV

Eulerian graphs and Hamiltonian graphs; simple problems. Trees, theorems, and simple problems.

Chapter:5 (5.0 – 5.2)

Chapter:6 (6.0 – 6.2)

UNIT-V

Planarity – definition and properties- characterization of planar graph, colourability, chromatic number.

Chapter:8 (8.0 – 8.2)

Chapter:9 (9.0 – 9.1)

Recommended Text

S.Arumugam and S.Ramachandran, “Invitation to Graph Theory”, SITECH Publications India Pvt. Ltd., 7/3C, Madley Road, T.Nagar, Chennai - 17

Reference Books

1. S.Kumaravelu, Susheela Kumaravelu, Graph Theory, Publishers, 182, Chidambara Nagar, Nagercoil-629 002.
2. S.A.Choudham, A First Course in Graph Theory, Macmillan India Ltd.
3. Robin J.Wilson, Introduction to Graph Theory, Longman Group Ltd.
4. J.A.Bondy and U.S.R. Murthy, Graph Theory with Applications, Macmillon, London.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year Subject Code : U15SMA501 Semester : V

Skill Based - 3 Title: **Quantitative Techniques (SBS - III)**

Credits: 3 Max. Marks. 60

UNIT-I: Statistical Techniques: Statistical Quality Control:

Introduction – basis of control charts – control charts for variables – control charts for attributes – control charts for mean and variance.

UNIT-II: Index Numbers:

Introduction – construction of index number – classification of index number – wholesale index number – cost of living index numbers (Importance to be given only to simple problems)

UNIT-III: Time series analysis:

Introduction – components of time series – analysis of time series – measurement of trends (Importance to be given only to simple problems).

UNIT-IV: Sequencing problem:

Sequencing problem - n jobs through 2 machines, n jobs through 3 machines - two jobs through m machines – n jobs through m machines.

UNIT-V: Z-Transform Techniques

Z-transform – elementary properties – Inverse Z – transforms – solution of difference equations using Z-transforms.

Recommended Text

1. S.C. Gupta and V.K.Kapoor, Fundamentals of Applied Statistics, S.Chand & Co., Delhi.
2. Gupta P.K. and Hira D.S. (2000) Problems in Operations Research, S.Chand & Co. Delhi.
3. A.Singaravelu-[2007] – Engineering mathematics III, Meenakshi agency, Che.

Reference Books

1. P.R.vittal, Business Statistics & Operations Research, Margham Publications, Chennai.
2. P.Kandasamy and others, Probability statistics and queuing theory, Sultan Chand & Sons.
3. V.Sundaresan, K.S. Ganapathy Subramanian and K.Ganesan, Resource management techniques, Meenakshi Pub., Arapakkam-609111.
4. Arumugam & Issac, Linear programming, New Gamma Pub., House Palayamkottai.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year Subject Code : U15MMA601 Semester : VI

Major - 11 Title: **Linear Algebra**

Credits: 4 Max. Marks. 75

UNIT-I: Vector Spaces

Definition and examples-Linear dependence and independence.

UNIT-II: Vector Spaces (Contd.)

Dual space - Inner Product spaces.

UNIT-III: Linear Transformation

Algebra of linear transformations - Characteristic roots

UNIT-IV: Linear Transformation (Contd)

Matrices, Canonical forms; Triangular forms.

UNIT-V: Linear Transformation (Contd)

Trace and Transpose, Determinants

Recommended Text

I.N.Herstein. (1989) Topics in Algebra. Wiley Eastern Ltd. New Delhi.

Chapter-4: Sections 4.1, 4.2, 4.3, 4.4,

Chapter-6: Sections 6.1, 6.2, 6.3, 6.4, 6.8, 6.9

Reference Books

1. S.Arumugam. (2004) Modern Algebra. Scitech Publications, Chennai.
2. J.B.Fraleigh (1986) A First Course in Algebra (3rd Edition) Addison Wesley. Mass. (IndianPrint)
3. S.Lipschutz (2005) Beginning Linear Algebra, Tata McGraw Hill Edition, New Delhi.
4. M.L.Santiago. (2002) Modern Algebra, Tata McGraw Hill, New Delhi.
5. Surjeet Singh and Qazi Zameeruddin. (1982) Modern Algebra. Vikas Publishing House Pvt.Ltd., New Delhi, 1982.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year Subject Code : U15MMA602 Semester : VI

Major - 12 Title: **Real Analysis - II**

Credits: 5 Max. Marks. 75

UNIT-I: Connectedness, Completeness

Open Sets – Connected Sets – Bounded Sets and Totally Bounded Sets – Complete Metric Spaces.

Ch. 6.1 to 6.4 of Goldberg

UNIT-II: Compactness

Compact Metric Space – Continuous Functions on Compact Metric Spaces - Continuity of Inverse Functions – Uniform Continuity.

Ch. 6.5 to 6.8 of Goldberg

UNIT-III: Riemann Integration

Sets of measure zero - Definition Riemann Integral – Properties of Riemann Integral – Derivatives.

Ch. 7.1, 7.2 7.4, 7.5 of Goldberg.

UNIT-IV: Riemann Integration [Contd...]

Rolle's Theorem – The law of mean – Fundamental theorems of calculus – Taylor's theorem.

Ch. 7.6 to 7.8 and 8.5 of Goldberg.

UNIT-V: Sequences and Series of Functions

Pointwise convergence of sequences of functions – Uniform convergence of sequences of functions – consequences of uniform convergence – Convergence and uniform convergence of series of functions.

Ch. 9.1 to 9.4 of Goldberg.

Recommended Text

R.Goldberg Methods of Real Analysis Oxford & IBH Publishing Co., New Delhi.

Reference Books

1. Tom M.Apostol [1974] Mathematical Analysis, 2nd Edition, Addison-Wesley Publishing Company Inc. New York.
2. Bartle, R.G. and Shebert [1976] Real Analysis, John Wiley and Sons Inc., New York,
3. Malik, S.C. and Savita Arora [1991] Mathematical Analysis, Wiley Eastern Limited, NewDelhi.
4. Sanjay Arora and Bansilal [1991] Introduction to Real Analysis, Satya Prakashan, NewDelhi

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year Subject Code : U15MMA603 Semester : VI

Major - 13 Title: **Dynamics**

Credits: 4 Max. Marks. 75

UNIT- I

Velocity: Relative Velocity, Angular Velocity.

Acceleration: Rectilinear motion, Rectilinear motion with constant acceleration.

Coplanar motion: Velocity and acceleration in a coplanar motion, angular velocity and relative angular velocity.

Chapter: 1.2 to 1.4

UNIT- II

Forces on a projectile- Projectile projected on an inclined plane – Enveloping parabola.

Chapter: 13.1 to 13.3

UNIT -III

Impulsive force, Conservation of linear momentum, Impact of a sphere, Laws of impact, Impact of two smooth spheres: Direct impact and Oblique impact, Direct impact of a smooth sphere on a plane, Oblique impact of a smooth sphere on a plane. Simple problems.

Chapter: 14

UNIT- IV

Central force and Central Orbit, Equation of central orbit, finding law of force and speed for a given orbit, Determination of the orbit when law of force is given, Kepler's Laws on planetary motion. Simple Problems.

Chapter: 16

UNIT -V

Moment of Inertia of simple bodies, Theorems of parallel and perpendicular axes, Moment of inertia of triangular lamina, circular lamina, circular ring, right circular cone, sphere. Simple problems.

Chapter: 17

C. Abdul Hakeem College (Autonomous), Melvisharam.
Recommended Text

P. Duraipandian, Laxmi Duraipandian ,Muthamizh Jayapragasam, Mechanics, 6-e, S.Chand and Company Ltd, 2005.

Reference Books

1. S. Narayanan, R. Hanumantha Rao, K. Sitaraman, P. Kandaswamy, Statics, S. Chand and Company Ltd, New Delhi.
2. S. L. Loney, An Elementary Treatise on Statics, Cambridge University Press, 1951
3. A.V. Dharmapadam(1991) Mechanics. S. Viswanathan Printers & Publishers. Chennai.
4. M.K. Venkataraman (1990) Statics. A Rajhans Publications. (16th Edn), Meerut.
5. Joseph F. Shelley (2005) Vector Mechanics for Engineers Vol-I: Statics, Tata McGraw Hill Edition, New Delhi.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year

Subject Code : U15MMA604

Semester : VI

Major - 14 Title:

Programming in C Language

Credits: 3

Max. Marks. 60

UNIT-I

C Constants, variables, Data-type, Declaration of variables, assigning values to variables.

UNIT-II: Operators

Arithmetic, Relational, Logical, Assignment, Increment and decrement, Conditional, Arithmetic Expressions, Evaluation of Expressions, Precedence of Arithmetic operators, Formatted input and output.

UNIT-III: Operators and Arrays

Decision making and branching If, simple if, If else, Nesting of if - else, Else - If ladder, Switch statement, the?: operator, Go to statement. Decision making with looping: While, Do, For statement, Jumps in loops.

Arrays: 1 - dimensional array, 2 - dimensional array, Initializing 2 - dimensional array, Multi - dimensional arrays.

UNIT-IV: User-Defined Function

Need for User-defined function, Multi-function program, the form of C-Function, Return Value and their types.

Structures and Unions:

Structure definition, Structure initialization, Comparison of structure variables, union.

UNIT-V: Pointers

Understanding Pointers, Accessing the address of a variable, Declaring and initializing of pointers, accessing a variable through its pointer, Pointer expression. Pointers and arrays, Pointers and structures.

Recommended Text

E.Balagurusamy. (1996) Programming in ANSI C. Tata McGraw Hill, New Delhi.

Chapters:

2.5 to 2.9, 3.2 to 3.7, 3.10 to 3.12, 4.4 to 4.5

5.2 to 5.9, 6.2 to 6.5, 7.2 to 7.5, 9.2 to 9.5

10.2, 10.4, 10.5, 10.10, 11.2 to 11.6, 11.8, 11.11

Reference Books

1. V.Rajaraman. (1995) Computer Programming in C. Prentice Hall. New Delhi
2. H. Schildt, Osborne. (1994) Teach Yourself C McGraw Hill. New York.
3. Mullish Cooper. The Spirit of C- An Introduction to Modern Programming. Jaico Publishing House. Delhi. 1998.
4. Yashavant kanetkar, let us C, 16TH edition BPB publication.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year Subject Code : U15EMA601 Semester : VI

Elective - 2 Title: **A. Calculus of Finite Differences and Numerical Methods (Elective - II)**

Credits: 4 Max. Marks. 75

(Note: All the Formulae without Proof - Units I to V)

UNIT-I: Finite differences & Interpolation

Forward difference operator Δ and Backward difference operator ∇ and shifting operator E, Relation between Δ , ∇ and E - Interpolation - Newton - Gregory forward & backward formulae, Estimating the missing terms- Lagrange's and Newton's divided difference Formula for unequal intervals. Only Problems.

Chapter: 2 (2.1) page: 7 - 28

Chapter: 3 (3.1 – 3.3) page: 53 – 86

Chapter: 3(3.5) Page: 91 – 111.

UNIT-II: Solutions of simultaneous linear equations

Gauss elimination method - matrix inversion method - Gauss-Jordan Method, Gauss – Seidal method. Only Problems.

Chapter: 12 (12.6) Page: 394-405

Chapter: 13 (13.1 – 13.4) Page: 406-416.

UNIT-III: Numerical Differentiation

Newton's forward and backward differences formulae to compute derivatives - using Gauss forward and backward formulae.

Chapter: 5 Page: 151- 165.

UNIT-IV: Numerical Integration

General Quadrature formula - Trapezoidal rule - Simpson's one third rule - Simpson's three eight rule – Weddle's Rule.

Chapter: 6 (6.1) Page: 174 – 206.

UNIT-V: Solution of Algebraic and Transcendental Equations:

Bisection method - Regula - falsi method (False Position method) - Newton-Raphson method. Numerical solution of ordinary Differential equation (First order only): Euler's method modified Euler's method, Picard's method, Runge - Kutta method.

Chapter: 15 (15.4 – 15.5 & 15.8)

Chapter: 16 (16.1, 16.2, 16.4, 16.6, 16.7).

C. Abdul Hakeem College (Autonomous), Melvisharam.

Recommended Text

B.D. Gupta. (2001) Numerical Analysis. Konark Pub. Ltd., Delhi.

Reference Books

1. H.C.Saxena, Calculus of finite differences and Numerical Analysis, S.Chand & Co., New Delhi. IX Edition.
2. M.K.Venkataraman. (1992) Numerical methods for Science and Engineering National Publishing Company, Chennai.
3. S. Arumugam (2003) - Numerical Methods, New Gamma Pub., for Palayamkottai.
A.Singaravelu, Numerical Methods, Meenakshi Publications-First Edition 1992.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Mathematics effective from the Batch 2015-2016

Year: III Year Subject Code : U15SMA601 Semester : VI

Skill Based - 4 Title: **Fundamentals of Applied Mathematics (SBS - IV)**

Credits: 3 Max. Marks. 60

UNIT-I: Recurrence Relations and Generating Functions

Recurrence - Polynomials and their Evaluations - Recurrence Relations - Solution of Finite Order Homogeneous [linear] Relations - Solutions of Non-homogeneous Relations.

Chapter: V (1 – 5).

UNIT-II: Mathematical Logic

TF Statements - Connectives - Atomic and Compound Statements - Well-formed [Statement Formulae] - Parsing Trees- The Truth Table of a Formula - Tautology - Tautological Implications and Equivalence of Formulae.

Chapter: IX (1 - 8).

UNIT-III: Mathematical Logic [Contd..]

Replacement process - Functionally complete sets of connectives and Duality law – Normal Forms - Principal Normal Forms.

Chapter: IX (9 - 12).

UNIT-IV: Lattices

Lattices (omit example 15 Pp No.10.6) - Some properties of Lattices - New Lattices (omit remark Pp 10.14) - Modular and Distributive Lattices (omit theorem 10 and 17, Example 4 - Pp 10.23, Example 11 - Pp 10.24)

Chapter: X (1 - 4).

UNIT-V: Boolean Algebra

Boolean Algebra (omit theorem 25) – Boolean Polynomials – Karnaugh Maps (omit K-map for 5 and 6 variables)

Chapter: X (5 - 7).

Recommended Text

M.K.Venkataraman, N.Sridharan and N.Chandrasekaran, [2003] Discrete Mathematics, The National Publishing Company, Chennai.

Reference Books

1. R.Johnsonbaugh [2001] Discrete Mathematics [5th Edn.] Pearson Education, Asia.,
2. C.L.Liu, [1985] elements of Discrete Mathematics, McGraw Hill, New York,
3. J.Truss. [2000] Discrete Mathematics for Computer Scientists [2nd Edn.] Pearson Education, Asia.
4. M.K.Sen and B.C.Chakraborty [2002] Discrete Mathematics [2nd Edition,] Books and allied private Ltd., Kolkata.