PUNE DISTRICT EDUCATION ASSOCIATION'S

MAMASAHEB MOHOL COLLEGE

48/1A, Erandwane, Paud Road, Pune - 411038(Maharashtra) India

DEPARTMENT OF COMPUTER SCIENCE

COURSE OUTCOME

SUBJECT NAME: Applied Algebra **CLASS – SY B.Sc. (COMPUTRE SCIENCE)**

PAPER: -MTC :211 **SEM- 1st**

NAME OF SUBJECT TEACHER:- MS. PRIYANKA JAISWAL

Course outcome:-

A) Relational understanding of mathematical concepts and concerned structures,and should be able to follow the patterns involved, mathematical reasoning.

B) Adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.

C) Development and to equip them with mathematical modeling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment Enabling students to develop a positive attitude towards mathematics as an interesting

D) Clear conceptGeneral Vector Spaces, Eigen values and Eigen vectors, Linear Transformations ,Groups and Coding.

COURCE –MTC 102	Course Specify Outcomes:-	METHODOLOGY	REFRENCE BOOK	NO OF LECTUERS
1.General Vector Spaces: Real vector spaces. Subspaces. Linear independence. Basis and dimensions. Row space, Column space and null space. Rank and Nullity.	a) Clear concept and define a term of General Vector Spaces b) Solve problems on Basis and dimensions, Rowspace, Column space and null space, Rank and Nullity. c) Define and explain Subspaces, Linear independence.	DEMOSTRATION	M. Artin, Algebra, Prentice Hall of India , New Delhi, (1994).	**14**

2.Eigen values and Eigen : Eigen values and Eigen vectors. Diagonalization. Quadratic forms. vectors	a) Obtain basic concept of Eigen values and Eigen vectors. b) Solve problems DiagonalizationQuadratic forms.	PPT, VIDEO LECTURES, DEMOSTREATION	(4) A. Ramchandra Rao and P. Bhimasankaran, Linear Algebra, Tata McGraw Hill, New Delhi (1994).	**09**
3.Linear Transformation: General linear transformations. Kernel and range. (Rank nullity theorem without proof.) Inverse linear transformation. Matrix of general linear transformation.	a) Clear concept and define a term of General linear transformations b) Solve problems on Kernel and range, Inverse linear transformation, Matrix of general linear transformation.	PPT, VIDEO LECTURES, DEMOSTREATION	A. Ramchandra Rao and P. Bhimasankaran, Linear Algebra, Tata McGraw Hill, New Delhi (1994).	**10**
4.Groups and Coding: Cyclic group, normal subgroup. Products and quotients of groups. Coding of binary information and error detection Decoding and error correction. Public key cryptology.	a) Clear concept and define Cyclic group, normal subgroup Products and quotients of groups. b) Define and explain Coding of binary information and error detection, Decoding and error correction. Public key cryptology.	DEMOSTREATION	A. Ramchandra Rao and P. Bhimasankaran, Linear Algebra, Tata McGraw Hill, New Delhi (1994).	**15**

Reference Books:

(1) M. Artin, Algebra, Prentice Hall of India , New Delhi, (1994).

(2) K. Hoffmann and R. Kunze Linear Algebra, Second Ed. Prentice Hall of India New Delhi, (1998).

(3) S. Lang, Introduction to Linear Algebra, Second Ed. Springer-Verlag, New Yark, (1986).

(4) A. RamchandraRao and P. Bhimasankaran, Linear Algebra, Tata McGraw Hill, New Delhi (1994).

(5) G. Strang, Linear Algebra and its Applications. Third Ed. Harcourt Brace Jovanovich, Orlando, (1988).

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DEPARTMENT OF COMPUTER SCIENCE

Course: Numerical Analysis (Sem - I)

Name of the Teacher: Prof. Seema Patil

Class: S.Y.B.Sc. (C.S.) Pattern:2013(Semester)

Course Outcomes: COs: Numerical Analysis

CO 1) Use of numerical analysis is to provide efficient methods for obtaining numerical answers to problems.
CO 2) Perform an error analysis for a given numerical method.
CO 3) Derive appropriate numerical methods to solve algebraic and transcendental equations.
CO 4) Evaluate a derivative at a value using an appropriate numerical method.
CO 5) Calculate a definite integral using an appropriate numerical method.

Course: Numerical Analysis	Course Specific Outcomes CSO	Methodology	Reference Book	No.of Lectures
Errors: Accuracy of Numbers, Errors .	Apply rounding off technique. Know the different types of errors	Constructive	An Introduction to Numerical Analysis :K.E. Atkinson	2
Algebraic & Transcendental equation: False Position Method Newton-Raphson Method	To understand trigonometric, logarithmic exponential functions. Apply the methods for solving transcendental equation.	Constructive	An Introduction to Numerical Analysis :K.E. Atkinson	5
Calculus of finite differences: Differences, Forward Differences, Backward Differences, Central Differences, Other Differences, Properties of Operators, Relation between Operators, Technique to determine the Missing Term.	Identify the different operators. To understand technique to determine the missing term.	Constructive	An Introduction to Numerical Analysis :K.E. Atkinson	10
Interpolation with equal interval : Newton's Gregory Formula for Forward Interpolation , Newton's Gregory Formula for Backward Interpolation ,Central Difference Formulae Gauss Forward Difference Formula ,Gauss Backward Difference Formula ,Bessel's Interpolation Formula .	Know the concept of interpolation. To know the different methods of interpolation.	Constructive	An Introduction to Numerical Analysis :K.E. Atkinson	10
Interpolation with unequal interval: Lagrange's Interpolation Formula , Divided	To understand the concept of interpolation with unequal interval.To knows the different	Constructive	An Introduction to Numerical Analysis :K.E. Atkinson	8

Difference ,Newton's Divided Difference Formula, Hermite's Interpolation Formula	methods of interpolation with unequal interval. .			
Numerical Integration: General Quadrature Formula , Trapezoidal Rule ,Simpson's one-Third Rule , Simpson's Three-Eight Rule ,Euler-Maclaurin's Formula	To know quadrature formulae for approximate integration of a function. Use different methods to determine numerical integration.	Constructive	An Introduction to Numerical Analysis :K.E. Atkinson	6
Numerical Solution of Ordinary Differential Equation: Euler's Method ,Euler's Modified Method, Runge-Kutta Method ,Milne's Predictor-Corrector Method.	To know the concept of ordinary differential equation. Use the different methods for solving ordinary differential equation.	Constructive	An Introduction to Numerical Analysis :K.E. Atkinson	7

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