

ACHARYA NAGARJUNA UNIVERSITY
B.C. A. 2015-16
CBCS with effect from 2015-2016

Part-II

FIRST YEAR

I Semester

S.No.	Paper	No. of Hrs per week	Credits	IA	ES	Total
1.	Elementary Mathematics	4	4	25	75	100
2.	Fundamentals of Computers	4	4	25	75	100
3.	Programming Using 'C'	4	4	25	75	100
4.	Computer Fundamentals Lab	3	2	25	50	75
5.	C Programming Lab	3	2	25	50	75
6.	Elementary Maths lab	3	2	25	50	75

ACHARYA NAGARJUNA UNIVERSITY :: NAGARJUNANAGAR-522 510

BCA I year I semester

ELEMENTARY MATHEMATICS

Unit-I: Matrix Algebra:

Matrix Algebra: Types of matrices -Matrix addition and subtraction - Matrix multiplication- Transpose of a matrix, row matrix, column matrix, Symmetric and skew symmetric matrices.

Unit-II: Linear Equations:

Ad joint of a square matrix- Inverse of square matrix by using Adj A 3 order only.

Solution of Linear Equations.

- (i) Cramer's Rule
- (ii) Matrix Inverse method

Unit-III: Maxima and Minima:

Maxima and Minima: Introduction- Increasing and decreasing functions -Maxima and Minima Values of a Function in one variable only.

Numerical Integration:

- 1. Trapezoidal rule
- 2. Simpson's 1/3 rule
- 3. Simpson's 3/8 rule

Unit-IV: Numerical Methods:

Introduction

Solution of algebraic and transcendental equations: Bisection method - Method of false position - Newton - Raphson method.

Unit-V: Finite Differences and interpolation:

Finite Differences - Forward Differences - Backward differences.

Newton's forward interpolation formula - Newton's backward interpolation formula

Note: 1. Proofs of theorems and derivations of Expressions are omitted.

Text Books:

- 1. Mathematical Methods by Dr.T.K.V. Ivengar, Dr.B.Krishna Gandhi, Dr. S.Ranganatham, and Dr.M.V.S.S.N. Prasad by S.Chand publications 6th revised edition 2011.
- 2. Quantitative Techniques by C.Satyadevi by S.chand Company

Reference books:

- 1. Numerical Methods by P.Kandaswamy, K.Thilagavathy, K.Gunavathy by S.Chand
- 2. Higher Engineering Mathematics by Dr.B.S.Grewal by Karna publisher's 34th edition.

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COMPUTER FUNDAMENTALS

UNIT – I

- Chapter 1. introduction to Computers
- Chapter 2. Input and Output Devices

UNIT – II

- Chapter 3. Computer Memory and Processors
- Chapter 4. Number systems and computer codes

UNIT – III

- Chapter 5. Boolean algebra and logic gates

UNIT – IV

- Chapter 6. Computer software

UNIT – V

- Chapter 8. Introduction to algorithms and programming languages
- Chapter 11. The internet

TEXT BOOK:

1. “Fundamentals of Computers” by REEMA THAREJA from OXFORD UNIVERSITY PRESS

BCA I year I semester

C - PROGRAMMING

UNIT – I

- Chapter 8. Introduction to C

UNIT – II

- Chapter 9. Decision Control and Looping Statements
- Chapter 10. Functions

UNIT – III

- Chapter 11. Arrays
- Chapter 12. Strings

UNIT – IV

- Chapter 13. Pointers
- Chapter 14. Structure, Union, and Enumerated Data Types

UNIT – V

- Chapter 15. Files

REFERENCE BOOK:

1. E. Balagurusamy: - COMPUTING FUNDAMENTALS & C PROGRAMMING - Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.
2. “Computer Fundamentals and Programming in C” by ReemaThareja”

