**B.SC., INFORMATION TECHNOLOGY**

**I YEAR – I SEMESTER**

**COURSE CODE: 7BITA1**

**ALLIED COURSE -I– PRINCIPLES OF INFORMATION TECHNOLOGY**

**Unit - I**

An overview of Revolution in computers and communications: From the analog to the digital age: The “New Story” of computers and communications – The six elements of a computer and communication system – Communication: Development in Computer Technology, Developments in communication technology – Computer and communications Technology combined: Connectivity and interactivity The Ethics of information technology.

**Unit – II**

Application software: Tools for thinking and working – Ethics and intellectual property Rights: The four types of application software – The user interface and other basic user features – Word Processing – Spreadsheets – Database Software – Presentation Graphics Software–Communications Software–Desktop accessories and personal information managers integrated software and studies – Groupware – Internet WEB browsers – Specialized Software.

**Unit – III**

Communications: Stating along with the information highway: The Practical uses of communications and connectivity – Telephone related communication services – Video/Voice communication: Video conferencing and picture phones – online information services – The internet – Shared Resources: Workgroup Computing, Electronic Data Interchange and intranets: Telecomputing and virtual offices – Using a microcomputer to communicate: Analog and Digital Signals – Modems and Datacomm Software, ISDN Lines and Cable Modems–Communications Channels: communications networks – Local Networks

**Unit - IV**

Storage and Databases: Foundations for interactivity, Multimedia and knowledge Storage Capacity– Compression and Decompression – Criteria for rating Secondary Storage Devices– Diskettes – Hard Disks – Optical Disks – Magnetic Tapes – Organizing Data in Secondary storage: Databases, Data Storage – Hierarchy and concept of the key field – File management: Basic Concepts – File Management systems – Data management systems – Types of database organization.

**Unit - V**

Information systems and Software Development: Management Information Systems – The Six Phases of System Analysis and Design – The five Steps in programming –The Five Generations of Programming Languages – Programming Languages – Object oriented and visual Programming – Internet Programming

**Text Books:**

1. Stacey C Sawyer, Brain K Williams, Sarah E Hutchinson Using Information Technology –

Brief Version A Practical Introduction to Computer and Communications Second Edition, The McGraw Hill Companies Unit I to IV.2009

1. Stacey C Sawyer,Brain K Williams,Sarah E Hutchinson Using Information Technology – Brief Version A Practical Introduction to Computer and Communications Third Edition, McGraw Hill Companies Unit V.2011

**Book for Reference:**

 J Hames O’Brien – Introducti**o**n to Information systems.

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**I YEAR – II SEMESTER**

**COURSE CODE: 7BITA2**

**ALLIED COURSE-II -C++ PROGRAMMING**

**Unit - I**

Basic concepts of Ooops – benefits of Ooop – applications – What is c++. Introduction – tokens – key Identifiers and constants – basic data types – user defined data types – derived data types – operators in C++ resolution operator – manipulators. Functions in C++: Introduction – main function – prototyping call by, return by reference, inline function – overloading– friend and virtual functions.

**Unit - II**

Classes and Objects – defining member functions – arrays with in a class – static members –static member full – arrays of objects – friend functions – returning objects.

**Unit - III**

Constructor and Destructor: Constructors – parameterized constructors – multiple constructors– multiple constructors in a class – default arguments – dynamic – copy constructor – destructor.

**Unit - IV**

Operators overloading and type conversion: definition – unary, binary, binary operators using friend’s manipulation string rules for overloading.

Inheritance: types of inheritance – derived class – virtual base class – abstract class.

**Unit - V**

Pointers, Virtual functions and polymorphism: pointers to objects – this pointer – virtual functions – cons-operations – C++ stream classes – unformatted I/O operation – output with manipulations I/O.

**Text Book:**

1. E.Balagurusamy, “Object – Oriented programming with C++” Second edition, Tata Megraw hill publishing

**Book for Reference:**

1. Programming in C++ by John Hubbard, Schaum’s Outlines Series.

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**II YEAR – III SEMESTER**

**COURSE CODE: 7BITA3**

**ALLIED COURSE - III – DISCRETE MATHEMATICS**

**Unit - I**

LOGIC: TF Statements – Connective – Disjunction – Negation – Conditional Statements – Bi conditional Statements – Atomic and Compound Statements – Well formed formulae – The truth table – Tautology – Tautological implication formulae with distinct Truth Tables.

**Unit - II**

NORMAL FORMS: Principles of Normal forms – Theory of Inference – Open Statements – Quantifiers – Valid Formulae and Equivalence – Theory of Inference for Predicate calculus.

**Unit - III**

GRAPH THEORY: Definition – Degrees – Sub graph – Isomorphism – Complete graph – Bipartite graph – paths, Cycles – Connectedness.

**Unit - IV**

TREES: Spanning tree – Kruskal’s Algorithm – Prim’s Algorithm – Dijkstra’s Algorithm – Cutset and cutvertices – Eulerian-Hamiltonian graph.

**Unit - V**

LATTICE: Binary relation in a set – partition and covering of a set – Equivalence relations – Partial ordering – Posets – Hasse diagram – Lattices – Sub lattices – Properties of Sub-lattices– Special Lattices – Boolean Algebra – Boolean Functions.

**Text Book**

1. Discrete Mathematics by M.K.Venkataraman, N.Sridharan and N.Chandrasekaran,

 Nation Publishing co., Chennai

**Book for Reference:**

1. Discrete Mathematics Structures with applications to Computer Science by Trembly and Manohar – Mc Graw Hill.

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**II YEAR – IV SEMESTER**

**COURSE CODE: 7BITA4**

**ALLIED COURSE -IV– OPERATION RESEARCH**

**Unit - I**

Development of OR – Definition of OR – Modeling – Features of OR – Main phases of OR – Tools, techniques & methods – scope of OR.

**Unit - II**

Linear Programming Problem – formulation of LPP – slack & surplus variables – Graphical solution of LPP – Simplex method – Artificial variable Technique – Big – M method – Two phase method.

**Unit - III**

Duality – Dual simplex method – IPP – Gomory’s cutting plane method – Branch and Bound method.

**Unit - IV**

Mathematical formulation of assignment problem – method for solving the assignment problem – Traveling salesman problem

**Unit - V**

Mathematical formulation of transportation problem – Initial feasible solution – Optimal solution – Degeneracy in TP – Unbalanced TP

**Text Book:**

1. Operations Research – Theory & Applications by S.D.Sharma, Kedar Nath Ram Nath & Co. Publishers.

**Book for Reference:**

1. Linear programming by S.Arumugam & A.Thangapandi Issac, New gamma Publishing House, Palayamkottai–2003.

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