Telangana State Council of Higher Education, Govt. of Telangana
B.Com Common Core Syllabi for All Universities in Telangana (wef 2015-'16)

INFORMATION TECHNOLOGY

Paper: BCO104 Max. Marks: 35T + 15P
PPW: 6 (4T & 2P) Time: 3 Hrs.

Objective: *to acquire basic knowledge in Information Technology and its applications in the areas of business.*

UNIT-I: INTRODUCTION:
Introduction to computers - Generations of computers – An overview of computer system - Types of computers - Input & Output Devices.
Hardware: Basic components of a computer system - Control unit – ALU - Input/output functions - Memory – RAM – ROM – EPROM - PROM and Other types of memory.

UNIT-II: OPERATING SYSTEM (OS):
Meaning - Definition & Functions - Types of OS - Booting process - DOS – Commands (internal & external) - Wild card characters – Virus & Hackers – Cryptography & cryptology.
Windows: Using the Start Menu –Control Panel – Using multiple windows – Customizing the Desktop – Windows accessories **(Preferably latest version of windows or Linux Ubuntu).**

UNIT-III: WORD PROCESSING:
Application of word processing - Menus & Tool Bars - Word processor – Creating – Entering - Saving & printing the document - Editing & Formatting Text - Mail Merge and **Macros** **(Preferably latest version of MS Word or Libre Office Writer).**

UNIT-IV: SPREAD SHEET:
Application of work sheet/spread sheet - Menus & Tool bars - Creating a worksheet - Entering and editing of numbers - Cell reference - Worksheet to analyze data with graphs & Charts.
Advanced tools: Functions – Formulae – Formatting numbers - Macros – Sorting - Filtering - Validation & Consolidation of Data **(Preferably latest version of MS Excel or Libre Office Calc).**

UNIT-V: POWER POINT PRESENTATION:
Application of Power Point Presentation – Menus & Tool bars – Creating presentations – Adding - Editing and deleting slides - Templates and manually – Slide show – Saving - Opening and closing a Presentation –Types of slides - Slide Views - Formatting – Insertion of Objects and Charts in slides - Custom Animation and Transition **(Preferably latest version of MS Power Point presentation - Libre Office Impress).**
Internet & Browsing: Services available on internet – WWW – ISP – Browsers.
Multimedia: Application of multimedia – Images – Graphics - Audio and Video – IT security.

SUGGESTED READINGS:

1. Introduction to Computers: Peter Norton, McGraw Hill.
2. Fundamentals of Information Technology: Dr. NVN Chary, Kalyani Publishers.
3. Computer Fundamental: Anitha Goel, Pearson.
4. Information Technology Applications for Business: Dr. S. Sudalaimuthu, Himalaya
5. Introduction to Information Technology: ITL ESL, Pearson.
6. Introduction to Information Technology: V. Rajaraman, PHI.
7. Fundamental of Computers: Balaguruswamy, McGraw Hill.
8. PC Software under Windows: Puneet Kumar, Kalyani Publishers.
9. Information Technology and C language: Rajiv Khanna, New Age International.
10. Fundamentals of Information Technology: Alexis Leon, Vikas Publishing House.
11. Informational Technology: P. Mohan, Himalaya Publishing House.
12. Information Technology: R. Renuka, Vaagdevi Publishers.
13. **OS-Linux Spoken Tutorials & Libre Office Spoken Tutorials by IIT Bombay.**
14. Fundamentals of Information Technology: Rajiv Midha, Tax Mann Publications.

OBJECT ORIENTED PROGRAMMING IN C++

Paper: BCC506 Max. Marks: 35T + 15P
PPW: 5 (3T+2P) Exam Duration: 3 Hrs.

Objective: *to gain skills of Object Oriented Programming using C++ Language.*

UNIT-I: INTRODUCTION:

Object Oriented Programming: Concepts – Benefits – Languages - Structured vs. Object Oriented Programming.
C++: Genesis - Structure of a program – Tokens - Data Types – Operators - Control Structures - C vs C++ - Functions.

UNIT-II: CLASSES, OBJECTS, CONSTRUCTORS AND DESTRUCTORS:

Encapsulation - Hiding - Abstract data types - Object & Classes – Attributes - Methods - C++ class declaration - State identity and behaviour of an object.
Purpose of Constructors - Default Constructor - Parameterized Constructors - Copy Constructor - Instantiation of objects - Default parameter value - Object types - C++ garbage collection - Dynamic memory allocation – Meta class / Abstract classes.

UNIT-III: OVERLOADING, CONVERSIONS, DERIVED CLASSES AND INHERITANCE:

Function and Operator Overloading - Overloading Unary and Binary Operators - Data and Type Conversions - Derived Classes - Concept of Reusability - Visibility modes - Types of Inheritance - Single and Multiple Inheritance - Multilevel Inheritance.

UNIT-IV: POLYMORPHISM, VIRTUAL FUNCTION, STREAMS AND FILES:

Polymorphism - Virtual - Classes - Pointer to Derived class - Virtual functions - Rules for Virtual function - Pure Virtual functions - Stream Classes - Types of I/O - Formatting Outputs - File Pointers – Buffer - C++ Stream - Unformatted console I/O operations – Functions: get( ) - put( ) – formatted console I /O operations - IOS class format functions - Manipulators.

UNIT–V: EXCEPTION HANDLING AND DATA STRUCTURES IN C++:

Exceptions in C++ Programs - Try and Catch Expressions - Exceptions with arguments.
Data Structures: Introduction - Linked list - Stacks - Queues.

SUGGESTED READINGS:

1. Objected Oriented Programming with C++: E. Balagurusamy, McGraw Hill.
2. C++ Programming-A Practical Approach: Madhusudan Mothe, Pearson.
3. Object Oriented Programming Using C++: Chadha & Chadha, Kalyani.
4. Programming in C++: A. N. Kamthane, Pearson.
5. The Complete Reference C++: H. Schildt, McGraw Hill.
6. C++:How to Program: Deitel & Deitel, PHI.
7. Mastering C++: KR.Venugopal & R.Buyya, McGraw Hill.
8. Schaum's Outlines: Programming with C++: by John R Hubbard.
9. Object Oriented Programming using C++: Somashekara, PHI.
10. **C++ Spoken Tutorials by IIT Bombay.**

RELATIONAL DATABASE MANAGEMENT

Paper: BCC606 Max. Marks: 35T + 15P
PPW: 5 (3T & 2P) Time: 3 Hrs.

Objective: *to acquire basic conceptual background necessary to design and develop simple database system, Relational database mode, ER model and distributed databases, and to write good queries using a standard query language called SQL.*

UNIT-I: BASIC CONCEPTS:

Database Management System - File based system - Advantages of DBMS over file based system - Database Approach - Logical DBMS Architecture - Three level architecture of DBMS or logical DBMS architecture - Need for three level architecture - Physical DBMS Architecture - Database Administrator (DBA) Functions & Role - Data files indices and Data Dictionary - Types of Database.

Relational and ER Models**:** Data Models - Relational Model – Domains - Tuple and Relation - Super keys - Candidate keys - Primary keys and foreign key for the Relations - Relational Constraints - Domain Constraint - Key Constraint - Integrity Constraint - Update Operations and Dealing with Constraint Violations - Relational Operations - Entity Relationship (ER) Model – Entities – Attributes – Relationships - More about Entities and Relationships - Defining Relationship for College Database - E-R Diagram - Conversion of E-R Diagram to Relational Database.

UNIT-II: DATABASE INTEGRITY AND NORMALISATION:

Relational Database Integrity - The Keys - Referential Integrity - Entity Integrity - Redundancy and Associated Problems – Single Valued Dependencies – Normalisation - Rules of Data Normalisation - The First Normal Form -The Second Normal Form - The Third Normal Form - Boyce Codd Normal Form - Attribute Preservation - Lossless-join Decomposition - Dependency Preservation.

File Organisation : Physical Database Design Issues - Storage of Database on Hard Disks - File Organisation and Its Types - Heap files (Unordered files) - Sequential File Organisation - Indexed (Indexed Sequential) File Organisation - Hashed File Organisation - Types of Indexes - Index and Tree Structure - Multi-key File Organisation - Need for Multiple Access Paths - Multi-list File Organisation - Inverted File Organisation.

UNIT-III: STRUCTURES QUERY LANGUAGE (SQL):

Meaning – SQL commands - Data Definition Language - Data Manipulation Language - Data Control Language - Transaction Control Language - Queries using Order by – Where - Group by - Nested Queries.
Joins – Views – Sequences - Indexes and Synonyms - Table Handling.

UNIT-IV : TRANSACTIONS AND CONCURRENCY MANAGEMENT:

Transactions - Concurrent Transactions - Locking Protocol - Serialisable Schedules - Locks Two Phase Locking (2PL) - Deadlock and its Prevention - Optimistic Concurrency Control.

Database Recovery and Security: Database Recovery meaning - Kinds of failures - Failure controlling methods - Database errors - Backup & Recovery Techniques - Security & Integrity - Database Security - Authorization.

UNIT-V: DISTRIBUTED AND CLIENT SERVER DATABASES:
Need for Distributed Database Systems - Structure of Distributed Database - Advantages and Disadvantages of DDBMS - Advantages of Data Distribution - Disadvantages of Data Distribution - Data Replication - Data Fragmentation.
Client Server Databases: Emergence of Client Server Architecture - Need for Client Server Computing - Structure of Client Server Systems & its advantages.

LAB: SQL QUERIES BASED ON VARIOUS COMMANDS.

SUGGESTED READINGS:

1. Database Systems: R.Elmasri & S.B. Navathe, Pearson.
2. Introduction to Database Management System: ISRD Group, McGraw Hill.
3. Database Management System: R.Ramakrishnan & J.Gehrke, McGraw Hill.
4. Modern Database Management: J.A.Hoffer,V.Rames &H.Topi, Pearson.
5. Database System Concepts: Silberschatz, Korth & Sudarshan, McGraw Hill.
6. Simplified Approach to DBMS: Parteek Bhaia, Kalyani Publishers.
7. Database Management System: Nirupma Pathak, Himalaya.
8. Database Management Systems: Pannerselvam, PHI.
9. Relational Database Management System: Srivastava & Srivastava, New Age
10. **PHPMySQL Spoken Tutorials by IIT Bombay.**
11. Oracle Database: A Beginner's Guide: I.Abramson, McGraw Hill.