MAHARASHTRA STATE BOARD OF VOCATIONAL EXAMINATION, MUMBAI - 51

1	Name of Syllabus	**C.C. IN COMPUTER SOFTWARE ENGINEER APPLICATION (101210) (w.e.f. 2018-19)**
2	Max. No's of Student	25 students.
3	Duration	1 YEAR
4	Type	Part Time
5	No Of Days / Week	6 Days
6	No Of Hours /Days	7 Hrs
7	Space Required	Lab = 400 Sq feet Class Room = 200 Sq feet TOTAL = 600 Sq feet
8	Entry Qualification	S.S.C.
9	Objective Of Syllabus/ introduction	To develop professional competency in the use of computers and related hardware equipment. Also to develop the programming skills and DTP techniques. To train the students to acquire skills and mastery in the use and development of different softwares. To prepare for self and wage employment.
10	Employment Opportunity	He can get employment in computer related establishment.
11	Teacher's Qualification	Diploma/Certificate in concern subject
12	Training System	**Training System Per Week** Theory: 6 Hours; Practical: 18 Hours; Total: 24 Hours
13	Exam. System	

Sr. No	Paper Code	Name of Subject	TH/ PR	Hrs	Max. Marks	Min. Marks
1	**10121011**	Computer Fundamentals, P. C. Software Tools & RDBMS	TH I	3 hrs	100	35
2	**10121012**	Computer Fundamentals, Programming in 'C' & Data Structure using C	TH II	3 hrs	100	35
3	**10121021**	Computer Fundamentals, P. C. Software Tools & RDBMS	PR I	6 hrs	200	100
4	**10121022**	Computer Fundamentals, Programming in 'C' & Data Structure using C	PR II	6 hrs	200	100
		Total			**600**	**270**

SYLLABUS :- COMPUTER SOFTWARE ENGINEER APPLICATION

Computer Fundamentals, P. C. Software Tools & RDBMS

THEORY & PRACTICAL - I

Sr. No.	Topic
1.	**Introduction to Computer systems and Overview of Operating Systems** * Introduction to Computers, generations of computer * Classification of Computers based on Purpose, Operation & Size * Anatomy of Computers * Number Systems * Basic I/O Devices * Block Diagram of CPU * Memory units- Primary and Auxiliary memory * Operating Systems * Programming Languages, general software features and trends. * DOS and Working with DOS Commands * Configuring DOS and Batch files * Windows Operating System
2.	**MS-Word** * Introduction to Word Processing * Editing a Document * Move and Copy Text and Help System * Formatting Text and Paragraph * Finding and Replacing Text and Spell Checking * Using Tabs * Enhancing Document * Columns, Tables and Other Features * Using Graphics, Templates and Wizards * Using Mail Merge * Miscellaneous features of Word
3.	**MS-Excel** * Introduction to Spreadsheet * Creating Worksheets & feeding data * Using functions * Editing Cells and Using commands and functions * Moving and Copying, Inserting and Deleting Rows and Columns * Formatting a Worksheet * Opening, Saving and Printing a Worksheet * Working with Charts * Working with Macros

4.	MS-PowerPoint * Creating Presentations using AutoContent Wizard, Template & Blank Presentation * Working with Master's Slide, Title handout and Notes * Viewing a Presentation * Drawing Objects & Inserting OLE * Drawing freeform shapes * Rotating Objects
5.	**MS-Access** * Creating Database * Creating Tables, Forms and Queries

PART B
(RDBMS)

Sr. No.	Topic
1.	**Concept of DBMS:** Purpose of Data Base Systems – Data abstraction –Data models –Instances, Schemes- Data Independence –Data Integrity – DDL, DML. DCL –Data Base Manager –Data Base Administrator.
2.	**Entity and relationship:** Entity and Entity sets – Attributes – Relationship and Relationship sets – Mapping constraints – E-R representation symbols – Drawing E-R diagrams – Reducing E-R diagrams into tables.
3.	**Relational Data Model:** Structure - formal query languages – commercial query languages – CODD rules – Network data model:- Basic structure - DSD's - DBTG Codasyl Model-Hierarchical data model: Basic structure – tree structured diagrams.
4.	**Concept of SQL:** Making the objects and parts – Literals: texts, integers, Number, Data Types, character type, long data type, date data type, RAW data type, long RAW data type, rowid , Null , Pseudo columns Unary and binary operators, arithmetic operators, logical operators and functions SQL commands, DDL commands, DML commands, DCL commands, and some simple queries.
5.	**Software Development and Life cycle:** Definition of system, analysis and design - Study of software life cycle – requirement analysis , design , development, testing, implementation and maintenance.

Books:

1. Data Base Management Systems — Korth and Sudershan
2. Data Base Management — C.J. Date
3. Software Engineering — Roger Pressman

Computer Fundamentals, Programming in 'C' & Data Structure using C

THEORY & PRACTICAL - II

PART A

Sr. No.	Topic
1.	**Introduction to Computer systems and Hardware** * Introduction to Computers, generations of computer * Classification of Computers based on Purpose, Operation & Size * Anatomy of Computers, Number Systems * Basic I/O Devices, Block Diagram of CPU * Memory units- Primary and Auxiliary memory * Operating Systems, Programming Languages, general software features and trends. * Utilities
2.	**. Introduction to Problem Solving Techniques** * Procedure and Algorithms * Flowcharts, Pseudo code
3.	**Features of 'C'** * Introduction to 'C' * Structure of a 'C' Program * Data types in 'C' – Constants & Variables- operators and Expressions * Statements – data definition- assignment- * I/O control structure (if, if-else, for, while, do-while) * Structure for looping and nested looping * Branching(switch, break, continue) * Unconditional branching(go to statement) Simple programs covering above topics
4.	**Functions** * What is a function * Difference between a function and a procedure * Advantages of functions * User defined, library functions, main function * Return types. * Concepts associated with functions Recursion, scope of a function, extent of a variable
5.	**Structured data processing in 'C'** * Array as Data structure- defining single and multi dimensional arrays, simple operations on arays, simple programs on arrays. * String as Data Structure: Defining Strings, Simple operations on Strings- String processing functions like strlen(), strcpy(), strcmp() .,etc
6.	**Data structured as Records** * Structures and unions:- declaration – operation on structures, array of structures, array with structures, structure as data types

PART B
(Data Structure using C)

Sr. No.	Topic
1.	**Introduction:** Binary and Decimal Integers, Real Numbers, Character Strings …etc:-Arrays in C - Structures in C – Exercise.
2.	**The Stack:** Definition of a stack, - Representing stack in C – Infix, Postfix and Prefix – Examples and Exercise
3.	**Recursion:** Recursion definition and processes – recursion in C – Recursive programs – Simulating recursion – Efficiency of recursion – Exercise.
4.	**Queues and Lists:** Queues and its sequential representation– Linked Lists – Lists in C – Examples using Linked Lists – Other List Structures - exercises
5.	**Trees:** Binary Trees – Binary tree representation - Huffman's algorithm – representing list as binary trees – tree and their applications – exercises & examples.
6.	**Sorting:** Introduction – Exchange of sorts - selection and tree sorting – Insertion sorts – merge and radix sorts.
7.	**Searching:** Basic search techniques – tree searching –general search tree – hashing exercises

Books: (1) Data structures using C by M. Tanenbaum, Langsan and Augenstien

List of Tools, Machinery, Equipments etc. (Course Code – 101210)

Sr. No.	Name Of Item	Quantity (Nos.)
1	Intel core 2 duo or higher processor, 2 GB RAM, Intel Motherboard, 500 GB Hard Disk, 17" Monitor, Keyboard, Mouse, DVD Combo Drive or latest configuration	08+01 (1 Computer for Teacher)
2	Server	01
3	24 port unmanaged switch	02
4	LAPTOP	01
5	LCD Projector	01
6	MODEM	01
7	Dot matrix printer	01
8	Inkjet printer	01
9	Laser printer	01
10	Scanner	01
11	UPS 5 KVA	01
12	MS SQL latest version	01
13	TURBO C	01
14	MS Office latest version	01
15	Antivirus latest version	As required
16	ISDN/Broad Band Internet Connection	01
17	Speaker	01
18	Computer Table	09
19	Chair	26

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