

**MAHARASHTRA STATE BOARD OF VOCATIONAL EXAMINATION, MUMBAI - 51**

1	Name of Syllabus	C.C. IN COMPUTER SOFTWARE ENGINEER APPLICATION (101210)																																															
2	Max. No's of Student	25 students.																																															
3	Duration	1 YEAR																																															
4	Type	Full 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	<table><tr><th colspan="3">Training System Per Week</th></tr><tr><td>Theory</td><td>Practical</td><td>Total</td></tr><tr><td>18 Hours</td><td>24 Hours</td><td>42 Hours</td></tr></table>						Training System Per Week			Theory	Practical	Total	18 Hours	24 Hours	42 Hours																																	
Training System Per Week																																																	
Theory	Practical	Total																																															
18 Hours	24 Hours	42 Hours																																															
13	Exam. System	<table><tr><th>Sr. No</th><th>Paper Code</th><th>Name of Subject</th><th>TH/ PR</th><th>Hrs</th><th>Max. Marks</th><th>Min. Marks</th></tr><tr><td>1</td><td>10121011</td><td>Computer Fundamentals, P. C. Software Tools &amp; RDBMS</td><td>TH I</td><td>3 hrs</td><td>100</td><td>35</td></tr><tr><td>2</td><td>10121012</td><td>Computer Fundamentals, Programming in 'C' &amp; Data Structure using C</td><td>TH II</td><td>3 hrs</td><td>100</td><td>35</td></tr><tr><td>3</td><td>10121021</td><td>Computer Fundamentals, P. C. Software Tools &amp; RDBMS</td><td>PR I</td><td>6 hrs</td><td>200</td><td>100</td></tr><tr><td>4</td><td>10121022</td><td>Computer Fundamentals, Programming in 'C' &amp; Data Structure using C</td><td>PR II</td><td>6 hrs</td><td>200</td><td>100</td></tr><tr><td></td><td></td><td>Total</td><td></td><td></td><td>600</td><td>270</td></tr></table>						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
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.	<b>Introduction to Computer systems and Overview of Operating Systems</b> <ul style="list-style-type: none"><li>* Introduction to Computers, generations of computer</li><li>* Classification of Computers based on Purpose, Operation &amp; Size</li><li>* Anatomy of Computers</li><li>* Number Systems</li><li>* Basic I/O Devices</li><li>* Block Diagram of CPU</li><li>* Memory units- Primary and Auxiliary memory</li><li>* Operating Systems</li><li>* Programming Languages, general software features and trends.</li><li>* DOS and Working with DOS Commands</li><li>* Configuring DOS and Batch files</li><li>* Windows Operating System</li></ul>
2.	<b>MS-Word</b> <ul style="list-style-type: none"><li>* Introduction to Word Processing</li><li>* Editing a Document</li><li>* Move and Copy Text and Help System</li><li>* Formatting Text and Paragraph</li><li>* Finding and Replacing Text and Spell Checking</li><li>* Using Tabs</li><li>* Enhancing Document</li><li>* Columns, Tables and Other Features</li><li>* Using Graphics, Templates and Wizards</li><li>* Using Mail Merge</li><li>* Miscellaneous features of Word</li></ul>
3.	<b>MS-Excel</b> <ul style="list-style-type: none"><li>* Introduction to Spreadsheet</li><li>* Creating Worksheets &amp; feeding data</li><li>* Using functions</li><li>* Editing Cells and Using commands and functions</li><li>* Moving and Copying, Inserting and Deleting Rows and Columns</li><li>* Formatting a Worksheet</li><li>* Opening, Saving and Printing a Worksheet</li><li>* Working with Charts</li><li>* Working with Macros</li></ul>

4.	<b>MS-PowerPoint</b> * 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.	<b>MS-Access</b> * Creating Database * Creating Tables, Forms and Queries

**PART B**  
**(RDBMS)**

Sr. No.	Topic
1.	<b>Concept of DBMS:</b> 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.	<b>Entity and relationship:</b> 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.	<b>Relational Data Model:</b> 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.	<b>Concept of SQL:</b> 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.	<b>Software Development and Life cycle:</b> 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.	<b>Introduction to Computer systems and Hardware</b> * 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.	<b>. Introduction to Problem Solving Techniques</b> * Procedure and Algorithms * Flowcharts, Pseudo code
3.	<b>Features of 'C'</b> * 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.	<b>Functions</b> * 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.	<b>Structured data processing in 'C'</b> * Array as Data structure- defining single and multi dimensional arrays, simple operations on arrays, simple programs on arrays. * String as Data Structure: Defining Strings, Simple operations on Strings- String processing functions like strlen(), strcpy(), strcmp() ..etc
6.	<b>Data structured as Records</b> * 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.	<b>Introduction:</b> Binary and Decimal Integers, Real Numbers, Character Strings ...etc:-Arrays in C - Structures in C – Exercise.
2.	<b>The Stack:</b> Definition of a stack, - Representing stack in C – Infix, Postfix and Prefix – Examples and Exercise
3.	<b>Recursion:</b> Recursion definition and processes – recursion in C – Recursive programs – Simulating recursion – Efficiency of recursion – Exercise.
4.	<b>Queues and Lists:</b> Queues and its sequential representation– Linked Lists – Lists in C – Examples using Linked Lists – Other List Structures - exercises
5.	<b>Trees:</b> Binary Trees – Binary tree representation - Huffman’s algorithm – representing list as binary trees – tree and their applications – exercises & examples.
6.	<b>Sorting:</b> Introduction – Exchange of sorts - selection and tree sorting – Insertion sorts – merge and radix sorts.
7.	<b>Searching:</b> Basic search techniques – tree searching –general search tree – hashing exercises

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

\*\*\*\*\*