STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

TNCF 2017 - DRAFT SYLLABUS

Subject : Computer Science (Maths Group) **Class :** XI

Topics	Content
UNIT I **FUNDAMENTALS OF** **COMPUTER**	**Introduction to Computers** Introduction to Computers-Generations of Computers-Components of –Computers-Concepts of Booting ***Case Study: Prepare a comparative study of various computers of past and present with respect to speed, memory, size, power consumption and other features*** **Computer Organization** Introduction-Basics of Microprocessors-Types of Microprocessors-Reduced Instruction Set Computer-Complex Instruction Set Computer-Memory--Random Access Memory-types of RAM-Dynamic RAM (DRAM)-Static RAM (SRAM)-Read Only Memory (ROM)--Secondary Storage Devices-Ports **Operating Systems** Operating Systems-Introduction -Need for an OS -Types of OS-Functions of an OS-Prominent OS **Number Systems** Introduction-Data Representations-Decimal Number System-Binary Number –System--Octal Number System-Hexa-Decimal System-Number Conversions-Binary representation of Integers--Signed and Unsigned

	–representations-Representing Characters in Memory **Working with Windows** Introduction to Operating system-Introduction to Windows operating system-The Desktop-The Window-Application Window-Document Window-The Icons-Windows directory structure-Explore the Computer-Creating Folders-Shutting down the computer ***Case Study: How to create and manage folders***
UNIT 2 PROBLEM SOLVING AND ALGORITHAM	**Specification and Abstraction -**Specification-Concepts-Examples-Abstraction-Concepts-Examples **Decomposition and Composition -** Abstraction-Decomposition/Composition-Examples **Iteration and Recursion-** Iteration-Concepts-Examples—Recursion-Concepts-Examples ***Case Study: Writing algorithms and drawing flow charts to solve simple problems***
UNIT III INTRODUCTION TO C++	**Introduction to C++** Introduction-Character Set-Tokens (Lexical Units)-Keywords-Identifiers-Literals-Punctuators-Operators-Usage of I/O operators-A Sample C++ -Program-Execution of a program-C++ Development environments (Dev C++)- Types of Errors ***Case Study: Write a simple program to display your name and address.*** ***Note down the errors for every execution*** **Data Types, Variables and Expressions** -Introduction-Concepts of Data types-C++ Data types-Fundamental Data types-Modifiers / Qualifiers-Variables--Formatting Output-Expressions-Type Conversions

	Case study: ***(1) Write a simple program to get and display roll number, name of your friends using formatting features.*** ***(2) Find the memory allotment in bytes for each fundamental data type and also for a range of values*** ***Write expressions to conversion of temperature, currency, metric measurements and rate of interest etc.,***
UNIT IV **PROGRAMMING IN C++**	**Flow of Control** -Introduction-Statements-Selection Statements--Iteration statement-Jump statements ***Case study:*** ***(1) Write programs to generate number series, multiplication tables, area of shapes, discount calculation, tax computation.*** ***(2) Write program to generate patterns*** **Functions** Introduction-C++ Header Files & Built-in Functions-Generating Random Numbers--User-defined Functions-Accessing a function--Call by value-Call by reference-Returning from a function-Recursion -Scope Rules ***Case Study:*** ***(1) Write programs to find square root, power values, tan, cube root using functions.*** ***(2) Write a program to get names of five students with initials at end and display them in either case and display the number of letters for each name.*** ***(3) Write functions to find factorial, prime number, Armstrong numbers etc.,*** ***(4) Write a program to accept name and gender as input and display name with relevant salutation (Mr/Ms).*** **Structured Data type: Arrays** Purpose of Arrays-Type of Arrays-Single Dimension

	array-Two Dimension array-Array Initialization-Calling functions with array-Elementary data representation ***Case Study:*** ***(1) Write a program to accept the marks of 10 students and find the average, maximum and minimum marks.*** **(2)** ***Write a program to accept rainfall recorded in four metropolitan cities of India and find the citythat has the highest and lowest rainfall.*** (3) ***Survey your neighboring shops and find the price of any particular product of interest and suggest where to buy the product at lowest cost.*** **Structures** Purpose of Structures-Referencing Structure elements-Initializing structure elements-Structure assignments-Nested structures-Structures and Arrays-Passing Structures to functions-Call by value-Call by reference-User Defined Data types-Preprocessor directives ***Case study:*** (1) ***Create appropriate structures to read Students' Roll no, name, date of birth, address (door no, street, locality, city/town, pincode) display Roll no, name and locality.***
UNIT V COMPUTER ETHICS AND CYBER SECURITY	**Computer Ethics and Cyber Security** Introduction-Ethical issues-Cyber security and threats -Introduction to -Information Technology Act- **Tamil in Computers** Introduction -Tamil in Internet -Tamil Typing and Interface software -TSCII (Tamil Script Code for Information Interchange) -Indian Script Code for Information Interchange (ISCII)-UNICODE -Tamil in Microsoft Windows & Linux -Tamil Virtual Academy -Project Madurai -Tamil Wikipedia

TNCF 2017 - DRAFT SYLLABUS

Subject : Computer Science (Maths Group) **Class :** XII

TOPIC	CONTENT
Unit - I Algorithmic Problem Solving	**Functions** concepts-Examples **Data Abstraction** Data Abstraction-Concepts-Examples **Scoping** Scoping-Concepts-Examples **Algorithmic Strategies** Algorithmic strategies-Concepts-Examples
Unit - II Object Oriented Programming Concepts	**Classes and Objects** Introduction-Programming Paradigms-Basic Concepts of OOP-Merits and Demerits of OOP-**Classes-**Functions in a class-Working with inline functions-**Objects-Static -class members--** ***Case Study*** **Constructors and Destructorsonstructors—Destructors-Case Study**
Unit - III Polymorphism, Inheritance and Data File Handling	**Polymorphism Polymorphism-**Function overloading-Constructor overloading-Operator overloading-***Case Study*** **Inheritance-**Need for Inheritance-Types of Inheritance- **Inheritance** Derived and Base classes-Inheritance and Access Control-Overriding / Shadowing Base class functions in -derived class-Multiple inheritance revisited-Constructors in Multiple inheritance-Virtual Base

	Classes-Multilevel inheritance-Nesting of classes **Data File Handling da ta File Handling-** Introduction-The Header file – fstream.h-Data Files-Opening and Closing Files
Unit - IV Database Concepts and MySQL	**Database Concepts** Introduction-Purpose of a Database-Database Abstraction-Introduction to Data Models-The Relational Database Model **Structured Query Language (SQL)** Introduction-Processing Capabilities of SQL-Data Definition Language (DDL)-Data Manipulation Language (DML)-SQL Processing ***Case Study***
Unit - V Web Design using	**TML** Introduction-Browsers-Basic Concepts-Structural Tags of HTML-Inserting Breaks-Creating Paragraphs-Formatting Tags of HTML--Creating Lists-Creating Links-Inserting Images-Adding Music and Movie-Creating Tables-Creating Frames-Creating Forms--Document Object Model: ***Case study: Create a website of your own interest which includes tables and frames e.g. for your school***