Software Engineering Lectureflow

The below given flow should be followed by each faculty while taking lectures. If the faculty decides to change the flow - he/she will need to first take permission from the Training coordinator at the HO (Ahmedabad office)

Module-1) SE - Overview of IT Industry	8
• Introduction of students • Career in IT • Understanding Student Login of TOPS ERP • Using Lab • What is Program • What is programming? • Types of Programming Language • World Wide Web • How Internet Works • Network Layers on Client and Server • Client And Servers • Types of Internet Connections • Protocols • Application Security • Software Applications and its types • Software Architecture • Layers in Software Architecture • Software Environments • Types of Programming Languages • Source Code • Github and introductions • Student Account in Github • Types of Software • Introduction of Software • Application software • Software development process • Software Requirement • Software Analysis • System Design • Software Testing • Maintenance • Development • Web Application • Designing • moble application • DFD • Desktop Application • Flow Chart	
Module-2) SE- HTML and CSS	**6**

• What is Internet, HTTP/HTTPS, WWW, Domain name and Top Domain name • SEO, What is HTML, What is Text Editor, Web Browser, Downloading Text Editor , HTML Structure, First Program in HTML • 1) HTML Introduction 2) HTML Getting Started 3) HTML Elements 4) HTML Attributes 5) HTML Basic Tags • 1) HTML Doctypes 2) HTML Layout 3) HTML Head 4) HTML Meta 5) HTML Scripts • Web Programming Design web pages with HTML structure • Practical Examples: 1) Create any simple web page to display your name. 2) Importance of meta tag and Doctypes • Tags and self Closing Tags, Basic Tag , Attribute and Events, Marquee Tag • HTML - Meta Tags, HTML - Comments, HTML - Images, HTML - Tables, HTML - Lists, HTML - Text Links, HTML - Image Links • HTML basic tags-P,BR,MARQUEE etc • HTML Headings HTML Paragraphs HTML Links HTML Text Formatting HTML Styles HTML Images • Anchor Tag, Img Tag, Image Mapping • List Tag, Tables, Forms • PRactical Examples: 1) Create simple Doc and display your name using different heading tag 2) Create link for open google. 3) Create document using all text formatting tags • Form tags with input tag • Practical Examples: 1) Create simple table 2) Create time table for your school 3) Create table with colspanrowspan example 4) Create invoice using table 5) Create hotel menu. 6) Create index page for your book. 7) Create list with different categories. • PRactical Examples: Create registration form with all fields and validation • 1) CSS 2) In-line CSS Internal Style External Style Sheet @import Style Sheet 3) CSS Class CSS ID • What is CSS How to Implement CSS Class and ID Width and Height Css Unit Box Model (Margin,padding,Border) and create basic template design • CSS Selectors , Pseudo Classes and Elements , Float and Clear and Alignment , Font Styling , Opacity and Visibility , Line Height • Practical example : Create page with difference color text • 1) CSS Text 2)CSS Font 3) CSS Background 4) CSS Links 5) CSS Lists 6) CSS Display 7) CSS Visibility	
Module-3) SE - Fundamentals of Programming	**8**

- Basic Syntax
- Data Structures
- Variables
- Operators
- Control and looping Structures
- functions
- Arrays and strings
- Introduction to C
- What is Language?
- What is programming and program?
- Fundamental of Algorithms and Flowchart
- Real world problems - get solution via programs
- Practical Example: 1. Write a Flow chart of real problems - Days to month conversion system.
- Data Types and Variables - Data Types, Void Data Types,
- History of C
- Compiler and interpreter
- environment setup
- Type Modifiers,
- Basic Structure of C Programs
- Importance of C
- Fundamentals of C
- Difference between turbo C and Dev C/C++
- Practical Example : 1. Write a program of scanf 2. Write a program to demonstrate escape sequence 3. Write a program to demonstrate comments
- Comments
- Keywords
- Escape Sequence
- Practical Example: 1. Write a program to print (Hello World). 2. Write a program to print the sum of two numbers. 3. Write a program to exchange values of two variables using the 3rd variable. 4. Write a program to convert days into years and years into days.

Module-4) OOP Concept	**8**

- Procedure Oriented And object Oriented Programming
- Basic Concepts of OOP
- OOP - Objects and Classes
- Constructors and Destructors
- Data Abstraction and Encapsulation
- inheritance
- Encapsulation
- Types of polymorphism
- Dynamic Binding
- Array
- Types of constructors
- Compile time
- Types of Array
- Class and arrays : 1) Array within class 2) Array of objects
- Run time
- String
- Practical Example: 1. Write a program to print the score card of two students using an array of objects.
- Difference between constructor and destructor
- Practical Example: 1. Write a program to demonstrate difference between constructor and destructor 2. Write a program to demonstrate copy constructor
- Abstract class
- Practical Examples: 1. Write a program to check whether entered number is even or not using if..else statement in C++ 2. Write a menu - driven program to calculate the area of the circle,rectangle and triangle. 3. Write a program to calculate factorial of given number using for loop 4. Write a program to print the fibonacci series using while loop 5. Write a program to check whether the given number is palindrome using do..while loop. 6. Write a program to demonstrate jumping statements
- Practical Example: 4. Write a program to demonstrate pass object to a function 5. Write a program to demonstrate return object from function
- Class and pointer
- Aggregation
- Class and objects
- Practical Example: 1. Write a program to demonstrate pointer with class 2. Write a program to demonstrate dynamic object using new keyword
- Access modifiers
- Practical Example: 1. Write a program to demonstrate function overloading with different types of arguments 2. Write a program to demonstrate function overloading with default arguments 3. Write a program to show the constructor function overloading
- Member Function
- Types of inheritance 1 - Single level 2 - Multi-level 3 - Multiple 4- Hierarchical 5- Hybrid
- Comparisons of class and object
- Practical Example : Write a program to implement single level inheritance 2. Write a program to demonstrate single level inheritance in private mode 3. Write a program to demonstrate the ambiguity in single level inheritance 4. Write a program to demonstrate multilevel inheritance 5. Write a program to demonstrate multiple inheritance 6. Write a program to demonstrate the hierarchical inheritance 7. Write a program to demonstrate the hybrid inheritance
- Namespace
- Static Keyword
- Practical Example: 1) Write a program to demonstrate constructor invocation in inheritance
- Scope resolution operator

- What is Database
- DBMS and RDBMS
- Types of Database
- Normalization
- algebra
- Primary key
- foreign key
- unique key
- Database Programming Language SQL
- SQL Statements Types
- DDL
- DML
- TCL
- TQL
- Database backup and Restore
- What are Joins
- Types of Joins
- Function
- Procedure
- Trigger
- Curser
- Transaction concepts
- properties of transactions
- rollback and commit savepoint
- ER database schema