Proposed Syllabus for
F.Y.B.Sc. (Information Technology)

North Maharashtra University, Jalgaon

F.Y.B.Sc. (Information Technology)

(w.e.f. June-2018)

YEAR I: CORE SUBJECTS (DSC)

Semester	Course as per UGC	Course code	Course Title	Lectures	Credits	Workload (hr)
I	IT-DSC 1 A: (Credits: Theory-04, Practicals-02) IT LAB	IT 101	Web Design	30	02	02
		IT 102	OOP in CPP	30	02	02
		IT 103	LAB Course on Web Design and OOP in CPP	60	02	04
II	IT-DSC 2A: (Credits: Theory-04, Practicals-02) IT LAB	IT 201	Advanced Web Design	30	02	02
		IT 202	Programming in C++	30	02	02
		IT 203	LAB Course on WEB Design and Programming in C++	60	02	04

Semester I

Information Technology-DSC 1 A: Web Design

(Credits: Theory-04, Practicals-02)   Theory: 30 Hours

IT 101 Web Design

1. Introduction to Information Technology & Internet   (5H)
1.1. Introduction to Computer Network
1.2. Types of Networks- LAN, MAN, WAN
1.3. History of Internet, Working of Internet & Intranet
1.4. Applications of Internet-Email, WWW, Messenger Services, News Groups
1.5. Search Engines, CyberLaw Against Social networking.

2. Web Design Process   (5H)
2.1. Basic Web Process
2.2. What is Web Design?
2.3. Web Design Pyramid
2.4. What is Good Web Design & Website Evaluation?
2.5. Basic Web Process Model
       2.5.1. Modified Waterfall
       2.5.2. Joint Application Development
2.6. Site Plan
2.7. Site Testing

3. Site Types, Site Structure and Navigation   (7H)
3.1. Site Types
3.3. Site Structure
3.4. What is Navigation? And Placing Navigation
3.6. What is Web Page?
3.7. Web Page Categorization: Splash Page, Entrance Page, Home Page, Sub Home, Page, Content Page, Exit Page.

4. Introduction to HTML   (5H)
4.1. What is HTML?
4.2. Advantages and Disadvantages of HTML
4.4. History & Development of HTML
4.5. Structure of HTML document
4.6. Introduction to CSS
4.7. Basic HTML tags

5. Introduction to HTML tags   (8H)
5.1. Character entity references
5.2. List tags
5.3. Anchor & Image tags
5.4. Table tags
5.5. Frameset tags
5.6. Form tags
5.7. Script tags

References:
1) HTML 4.0 by E Stephen Mack & Janan Platt, BPB Publication
2) The ABC's of Java Script by Lee Purcell Mary Jane Mara, BPBPublication
3) The Complete Reference – Web Design, Thomas A. Powell, TMH,ISBN 0-07-041186.
4) Creating commercial web sites ISBN 1575211696.
5) How to become webmaster in 14 days, James L Mohler ,Techmedia.
6) Web References: www.w3c.org , www.sybex.com

(Credits: Theory-04, Practicals-02)   Theory: 30 Hours

IT 102 OOP in CPP

1. Introduction to Procedure Oriented Programming   (2H)
1.1 What is Procedure Oriented? Advantages and Disadvantages of Procedure Oriented Languages
1.2 Feature and Applications of C
1.3 Structure of C-Programming
1.4 Sample C Program
1.5 Compilation and Execution of C-Programming

2. Object Oriented Methodology   (2H)
2.1 What is Object Oriented?
2.2 What is Object Oriented Development?
2.3 Object Oriented Themes

3. Principles of OOPS   (3H)
3.1 OOPS Paradigm
3.2 Basic Concepts of OOPS
3.3 Benefits and Application of OOPS
3.4 Introduction to structure of C++ program

4. Basics of C++   (4H)
4.1 Header Files
4.2 Access Modifiers
4.3 Tokens, Expressions and Control Structures
4.4 Predefine and User Define Data Types

5. Classes and Objects   (7H)
5.1 Simple classes (Class specification, class members accessing),
5.2 Defining member functions
5.3 Passing object as an argument
5.4 Returning object from functions
5.5 friend classes
5.6 Pointer to object
5.7 Array of pointer to object

6. Functions in C++   (6H)
1.1.What is Function and its needs?
1.2 Function Prototype
1.3 Call by value and Call by reference
1.4 Inline Function
1.5 Friend functions

7. Constructors and Destructors   (6H)
6.1 Introduction
6.2 Default Constructor
6.3 Parameterized Constructor and examples
6.4 Destructors

Reference Books:
1. Object-oriented programming C++ (Third edition) ---E.Balagurusamy by Tata McGraw-Hill
2. Object-oriented modeling and design. --James Rumbaugh, Michel Blaha, William Premerlani,Frederick Eddy, William Sorensen by Prentice Hall of India
3. C++ Programming (7th edition) ---Al Stevens by WILEY-dreamtech India Pvt. Ltd.
4. C++ Programming in easy steps --Mike McGrath by WILEY-dreamtech India Pvt. Ltd

Credit -2

IT 103: LAB (Students should perform at least ten experiments from the following list)

Part - A Practical's based on web design –I

1. Create HTML Web pages using basic tags.
2. Create HTML Web pages using list tags.
3. Create HTML Web pages using image tags.
4. Create HTML Web pages using frameset tags.
5. Create a HTML page to create calendar of current month using <Table> tag.
6. Create a HTML page to create Admission form using <Form> tag.
7. Create web page using basic of CSS

Part – B Practical's based on OOP in C++ (Sem-I)

1. Write a C++ program to find factorial of a given number.

2. Write a C++ program to find whether the given number is Armstrong number or not.

3. Write a C++ program to generate prime numbers between the given range.

4. Write a C++ program that demonstrate simple class for following objects

i) Student Information ii) Employee Information

5. Write a C++ program that demonstrate the use of function with default argument.

6. Write a C++ program that demonstrate function using reference variable to swap two

integers.

7. Write a C++ program that demonstrate one dimensional array.

8. Write a C++ program to demonstrate pointer to objects.

Information Technology-DSC 1 B: (Credits: Theory-04, Practicals-02)   Theory: 30 Hours

IT- 201 Advanced Web Design

1. Introduction to Java Script   (6H)
1.1. Evaluation of Scripting Languages
1.2. Advantages of Java Script over other scripting languages
1.3. Variables, Data Types
1.4. Conditional Statements
        If conditional statement
        If else statements
        Switch case statement
1.5. Controlling looping statements
        For loop
        While loop
        Do while loop
1.6. Keywords – with, this, new
1.7. Break, continue statements

2. Java Script Function & Objects   (6H)
2.1. Creating functions in Java script
2.2. Calling a function
2.3. Data conversion functions
2.4. Events in Java Script
2.5. Methods, Properties, Object

3. Java Script Objects hierarchy   (6H)
3.1. Array Object
3.2. Date & time object
3.3. Math object
3.4. String object
3.5. Document object
3.6. History object

4. Java Scripting your forms   (6H)
4.1. Basic Script Constructions
4.2. Organizing your object & script
4.3. Field level validation
4.4. Check required fields
4.5. Calculate expiry date
4.6. Automatic calculations

5. Introduction to XML   (6H)
5.1. Introduction to XML, Difference between XML and HTML
5.2. History and Advantages of XML
5.3. XML Implementations,
5.4. XML approach to web designing,
5.5. Logical and physical structure of XML documents

References:
1) The ABC's of Java Script by Lee Purcell Mary Jane Mara, BPB Publication
2) The Complete Reference – Web Design, Thomas A. Powell, TMH, ISBN 0-07-041186.
3) How to become webmaster in 14 days, James L Mohler, Techmedia.
4) Beginning XML 5th edition by Joe Fawcett Liam R.E. Quin, Danny Ayers Wrox Publication. ISBN: 978-1-118-16213-2
5) Web References: www.w3c.org, www.sybex.com

Information Technology-DSC 1 B: (Credits: Theory-04, Practicals-02)

Theory: 30 Hours

IT 202: Programming in C++

1. Polymorphism   **(5H)**

Concept of function overloading, Overloaded operators, overloading unary and
binary operators, overloading comparison, arithmetic assignment, Data conversion between objects and
basic types.

2. Virtual Functions   **(5H)**

Introduction & need, Pure Virtual Functions, Static Functions ,Assignment & this Pointer, abstract classes
,virtual destructors

3. Program development using Inheritance   **(5H)**

Introduction, Derived class declaration, derived class constructors, class
hierarchies, multiple inheritance, multilevel inheritance, containership, hybrid inheritance, benefits of using
inheritance.

4. Exception Handling   **(5H)**

Introduction, Exception Handling Mechanism, Concept of throw & catch with
Example

5. Templates   **(5H)**

Introduction , Function Template and examples, ClassTemplate

6. Working with Files   **(5H)**

Introduction, File Operations, Various File Modes, File Pointer and their
Manipulation

Reference Books:

1. Object-oriented modeling and design. --James Rumbaugh, Michel Blaha, William Premerlani, Frederick
Eddy, William Sorensen by Prentice Hall of India
2. Object-oriented programming C++ (Third edition) ---E.Balagurusamy by Tata McGraw-Hill
3. C++ Programming (7th edition) ---Al Stevens by WILEY-dreamtech India Pvt. Ltd.
4. C++ Programming in easy steps -- Mike McGrath by WILEY-dreamtech India
Pvt. Ltd.

IT 203: LAB (Students should perform at least ten experiments from the following list)

LAB Course on Web design II

1. Create a HTML page to find given number is prime or not using JavaScript.
2. Create a HTML page to demonstrate String Object using JavaScript.
3. Create a HTML page to demonstrate Date & Time object, using JavaScript.
4. Create a HTML page to demonstrate Field level validation using JavaScript.
5. Create a HTML page to demonstrate check required field validation using JavaScript.
6. Create a XML based application to demonstrate simple page.

Practical's based on OOPS using C++ Programming-II
1. Write a C++ program to demonstrate operator overloading.
2. Write an object-oriented program to demonstrate object as a function
Argument as well as object returned by function.
3. Write an object-oriented program to demonstrate constructor overloading.
4. Write an object-oriented program to demonstrate the use of destructor.
5. Write a C++ to demonstrate the concept of multiple inheritances.
6. Write a C++ to demonstrate the concept of virtual function
7. Write a C++ to demonstrate the concept of function template.
8. Write a C++ to demonstrate the concept of class template.
9. Write a C++ to demonstrate the use of exception handling.