

**Tilak Maharashtra University**  
**Bachelor of Computer Applications**  
**Syllabus 2018 & 2019 Batch**

**BCA – 340-18 Advanced Web Designing**

**Course Outline**

**Chapter : Introduction HTML5**

Basic Concepts  
What is HTML?  
HTML History  
Setting up Your Development Environment  
Understanding Three Layers of Web: HTML, CSS, JavaScript  
Understanding HTML Tags

**Chapter : Understanding Page Structure**

Specifying Document Type  
The Head Section  
The Body Section  
“Hello World” Example  
View HTML5 Page in Browser  
HTML5 Boilerplate  
HTML5 Validation  
Adding External Files  
Adding Stylesheet to HTML  
Adding JavaScript Files to HTML  
Organizing File and Folder Structure

**Chapter : Creating Text Elements**

Line Break  
Creating Headings  
Applying Bold and Italic Formatting  
Superscript and Subscript  
Block Quotation  
Preformatted Text  
Unordered, Ordered and Definition Lists  
Ordered Lists  
Unordered Lists  
Nesting Lists  
Definition Lists  
Using Links & Creating Navigation  
Using Relative and Absolute Paths  
Setting Link Target:  
Linking to a Phone Number  
Linking to an E-Mail Address  
Creating and Hyperlinking to Anchors  
Adding Images  
Displaying Data with Tables  
Table Row  
Table Data

Colspan  
Rowspan  
Table Heading  
Adding Line Break & Horizontal Line  
Commenting Your Work

### **Chapter : HTML: Working with Web Forms**

Adding Input Boxes  
Using Textarea  
Using Label  
Working with Radio Buttons  
Offering Checkbox Options  
Implementing Select List  
Adding Buttons  
Form Processing

### **Chapter : Organizing Page Structure**

The Value of Structure: Semantic Elements  
The Header Container: <header> Tag  
The Footer Content Container: <footer> Tag  
The Navigation Container: <nav> Tag  
The Main Content Container: <main> Tag  
The Page Division Container: <section> Tag  
The Independent Content Container: <article> Tag  
The Related Content Container: <aside> Tag  
Few More Semantic Elements  
Adding Contact Information with <address> Tag  
The Image Container: <figure> Tag  
The Graphics Container: <canvas> Tag  
Embedding Audio and Video with <audio>, <video> Tags  
The Vector Based Image Container: <svg> Tag

### **Chapter : CSS: Cascading Style Sheets**

History of CSS  
3 Methods of Adding CSS to HTML File  
CSS Rule Structure: CSS Syntax  
Using Different Units of Measurement  
Block Level vs Inline Elements  
Adding CSS Comments  
Code Formatting  
Validating CSS Code

### **Chapter : CSS: Selectors**

Element Selector  
ID Selector  
Class Selector  
Universal Selector  
Descendant Selector  
Child Selector  
Sibling Selector  
Attribute Selector  
Grouping Elements  
Pseudo Class  
Inheritance  
Specificity Calculator

!important

## **Chapter :Formatting Text**

Font Family

Using Web Safe Fonts

Using External Fonts

Using Google Fonts

CSS properties for text management

Adding Colors to Text

Changing Font Size

Font Weight

Font Style

Text Transformation

Text Decoration

Text Alignment

Font Variant

Letter Spacing

Word Spacing

Line Height

Text Indent

Word Wrapping

Styling List Elements

List Style Type

List Style Position

List Style Image

List Style

## **Chapter: Understanding Box Model**

Width and Height

Margins and Padding

Adding Borders

Creating Rounded Corners

Background

Background Color

Background Image

Background Repeat

Background Position

Background Size

Background Shorthand Property

## **Chapter : Page Layout**

Top, Right, Bottom, Left

Applying Floats to Your Design

Clearing Float

Display Property

Controlling Visibility

Z-index

Controlling Overflow

Working with Flexbox

## **Chapter : Responsive CSS**

Different Screens and Screen Sizes

Media Queries

## **Chapter : Introduction to Bootstrap 4**

Getting Started with Bootstrap  
Bootstrap Grid System  
Bootstrap Content Classes  
Bootstrap Components and Utilities

## **Chapter : Introduction to JavaScript**

Java and JavaScript: The Misunderstanding  
Client Server Architecture  
Adding JavaScript to HTML Page  
“Hello World!” : First JavaScript Project  
JavaScript Syntax  
Comments  
Reserved Words in JavaScript

## **Chapter : Working with Variables and Data Types**

Data Types in JavaScript  
Working with Numbers  
Working with Strings  
Understanding Booleans Values  
Difference between Undefined and Null  
Arrays  
Object

## **Chapter : Conditions and Loops**

If Statements  
Comparison Operators  
If-else Statements  
If-else-if Statements  
Switch Case  
Loops: Minimizing Repetition  
While Loops  
Do-While Loops  
For Loops

## **Chapter : Functions: Writing Code for Later**

Arguments: Passing Data to Functions  
Return Statement: Outputting data from function  
Function Scope

## **Chapter : DOM: Document Object Model**

Finding Elements by Tag Name  
Finding Elements by Class Name  
Finding Elements by Id  
Finding Parent  
Finding Children  
Finding Siblings  
Interacting with Attributes  
Changing Styles

## **Chapter : JavaScript Events**

Handling Window Events  
Working with Mouse Events  
Form Events Handling  
Dealing with Key Events

## **Chapter : JavaScript Events**

Using jQuery

The \$() factory function

Selecting and Manipulating Elements

Get and Set DOM Element Content

Styling Elements

Handling Events

## **Chapter : Web Design Latest Trends**

Git and Github: Version Control

Gulp: Automated Task Runner

Understanding SASS

## **Reference Books:**

- HTML by Xavier
- HTML – Black Book
- HTML,DHTML, Java Script, CGI, Perl by Ivan Bayross
- Java Script- Tech media publication
- SAMs Teach Yourself BootStrap in 24 hrs.
- O'Reilly - BootStrap: Responsive Web Development

# **BCA – 341-18 Database Management System (DBMS)**

## **Course Outline**

### **1.0 Objectives**

1.1 Storage devices characters

1.2 File Organization

Sequential Files, Indexing and methods of indexing, Hash files

### **2: Introduction To Database Systems**

2.0 Objective

2.1 Introduction to DBMS

2.1.1 What is Data, Database system, DBMS?

2.1.2 Single and Multi-user systems

2.1.2 Advantages and drawbacks of DBMS

2.1.3 Architecture of DBMS

2.1.4 Users of DBMS

2.1.5 Roll of Database Administrator

2.2 Components of DBMS

2.3 Types of DBMS - Hierarchical, Network, Relational

2.4 Why RDBMS?

2.5 Features of RDBMS

2.6 Attributes, tuples & tables, codd's rules

### **3: Entity Relationship Model**

3.0 Objectives

3.1 Entity Relationship Model

3.1.1 Entity set

3.1.2 Relationship set

3.1.3 Attributes and values.

3.2 Weak and Strong Entity

3.3 Keys in DBMS

3.4 Conventions for drawing ERD

3.5 Abstraction

3.6 Generalization

### **4: DBMS Concepts**

4.0 Objectives

4.1 ACID Properties

4.2 Concurrency Control

4.3 Recovery Mechanisms

4.4 Views And Security

4.5 Integrity Constraints

4.6 Data Security

### **5: Relational Database Design**

5.0 Objectives

5.1 Need For Proper Database

5.2 Undesirable Properties Of Bad Database Design

5.3 Functional Dependencies

5.4 Normalization Using FDS - 1 NF, 2 NF, 3 NF, BCNF

5.5 Properties Of Decomposition - Loss less Join, Dependency Preserving

## **6: SQL Relational Database Design**

6.0 Objectives

6.1 Introduction

6.2 DDL

6.3 DML

6.4 DCL

6.5 Simple Queries

## **7: Security**

7.0 Objectives

7.1 Granting access to users

7.2 Extending and restricting privileges

7.3 Using views of security

## **8: Transaction Processing**

8.0 Objectives

8.1 Transaction, transaction processing

8.2 Properties of Transaction

8.3 Schedules

8.4 Serializing and its need

## **9 :Backup and Recovery**

9.0 Objectives

9.1 Types of failure and storage systems

9.2 Need for backup and recovery

## **10: Concurrency Control & Recovery Techniques**

10.0 Objectives

10.1 Concurrency problems

10.2 Concurrency control mechanisms

10.3 Deadlocks

10.4 Deadlocks handling detection and prevention

## **11: Introduction To Data Warehousing And Data Mining**

11.0 Objectives

11.1 Data Warehousing & Data Mining

### **Reference Books:**

1) Introduction to Database Systems - C. J. Date

2) Database System Concept - Korth

3) Data Management Systems - Alexis Leon, Mathew Leon

4) Principles of Database Management - James Martin

5) Fundamentals of Database Systems - Elmasri, Navathe

## **BCA – 342-18 E-COMMERCE**

### **Course Outline**

#### **I Basic web commerce concepts, electronic commerce modes:**

Overview, EDI, electronic commerce with www-internet, commerce net advocacy.

#### **II Approach to safe E-commerce:-**

Secure transport protocol and transaction, SEPP, SET, certificate for authentication, security on web server and enterprise network.

#### **III Electronic cash and Electronic payment scheme: Internet**

monetary payment and security requirements; Payment & purchase order process, Online Electronic cash.

#### **IV Internet/Intranet Security issues and solutions:**

Needs for computer security, security strategies, Encryption. MasterCard/visa secure Electronic Transaction: Introduction requirements and concepts, payment processing.

#### **V Internet & web site Establishment:**

Internet Resources for commerce: introduction, Web server Technologies, internet tools Relevant to commerce, internet applications for commerce.

#### **VI Law related to IT ACT ,**

Mobile and wireless computing fundamentals.

#### **Reference Book :**

- Daniel Minoli & Emma Minoli : Web Commerce Technology Hand Book
- Martyn Mallick : Mobile & wireless design essentials

Newly Added topics:

Electronic Customer Relationship Management

- Meaning and definition
- Features of E-CRM
- Framework and architecture of E-CRM
- Collaborative CRM
- Analytical CRM
- Operational CRM
- Advantages of ECRM
- Components of ECRM
- E CRM tools
- Law Related To It Act
- IT Act
- Intellectual Property In E-Commerce
- Digital Copyright Act



## **BCA – 344-18 Enterprise Resource Planning**

### **Course Outline**

#### **1.ERP :**

An Overview, Enterprise – an overview, Benefits of ERP, ERP and Related Technologies, Business Process Reengineering (BPR), Data Warehousing, Data Mining, On- line Analytical Processing (OLAP), Supply Chain Management.

#### **2.ERP IMPLEMENTATION:**

ERP Implementation lifecycle, Implementation Methodology, ERP implementation – The hidden cost, Organizing the Implementation, Vendors, Consultants and Users, Contracts with Vendors, Consultants and Employees, Project Management and Monitoring, After ERP implementation.

#### **3.THE BUSINESS MODULES:**

Business Modules in an ERP packages, Finance, Manufacturing, Human Resource, Plant Maintenance, Materials Management, Quality Management, Sales and Distribution.

#### **4.ERP – PRESENT AND FUTURE**

Turbo Charge the ERP System, Enterprise Integration, Application (EIA), ERP and E- Commerce, ERP and Internet, Future Directions in ERP.

#### **Reference Book:**

Enterprise Resource Planning: Aleix Leon(Tata Mc. Grew Hill)

# **BCA - 345-18 Software Testing & Quality Assurance**

## **Course Outline**

### **1 Quality Concept**

- 1.1 Definition of Quality, QA, SQA
- 1.2 Quality factors
- 1.3 Software Quality Metrics
- 1.4 Process Improvement
- 1.5 Process and Product Quality
- 1.6 The SEI Process Capability Maturity model, ISO, Six-Sigma
- 1.7 Process Classification

### **2 Software Quality Assurance & Software Reliability**

- 2.1 Need for SQA
- 2.2 SQA Activities
- 2.3 Building blocks of SQA
- 2.4 SQA Planning & Standards
- 2.5 Reliability Measures
- 2.6 Reliability models

### **3 Verification & Validation**

- 3.1 Verification & Validation Planning
- 3.2 Software inspections
- 3.3 Automated static Analysis

### **4 Software Testing Fundamentals**

- 4.1 Testing objectives
- 4.2 How test information flows
- 4.3 Testing lifecycle
- 4.5 Test Cases – What it is?, Test Case Designing (Concept & introduction should be covered here. Detailed techniques should be covered in Unit No. 2.4)

### **5 Levels of Testing**

- 5.1 Unit Testing
- 5.2 Integration Testing
- 5.3 System Testing
- 5.4 Acceptance Testing
- 5.5 Alpha testing & Beta testing
- 5.6 Static vs. Dynamic testing
- 5.7 Manual vs. Automatic testing
- 5.8 Testers workbench
- 5.9 11-steps of testing process (Only steps should be covered)

### **6 Different types of Testing**

- 6.1 Installation Testing
- 6.2 Usability testing
- 6.3 Regression testing
- 6.4 Performance Testing

- 6.5 Load Testing
- 6.6 stress testing
- 6.7 Security testing

## **7 Static & Dynamic Testing**

- 7.1 Static Testing Technique
- 7.2 Review types: Informal Review, Technical or peer review, Walkthrough, Inspection, static analysis
- 7.3 Review Meeting,
- 7.4 Review Reporting & Record keeping, Review guidelines & Review checklist
- 7.5 Data flow analysis
- 7.6 Control flow analysis
- 7.7 Cyclometric Analysis
- 7.8 Dynamic testing – need & Advantages

## **8 Black Box & White Box Testing (Test Case Design Techniques)**

- 8.1 Functional Testing (Black Box) Equivalence partitioning, BVA, Cause- Effect graphing, Syntax testing (Concept & Test case generation only)
- 8.2 Structural Testing (White Box) Coverage testing, Statement coverage, Branch & decision coverage, Path coverage
- 8.3 Domain Testing
- 8.4 Non functional testing techniques
- 8.5 Validation testing Activities Low level testing, High level testing
- 8.6 Black box vs. White Box

## **9 Testing specialized Systems and Applications**

- 1. Testing object oriented software
- 2. Testing Web based Applications

### **Reference:**

- 1. Software Engineering - R. Pressmen
- 2. Software Engineering - Sommerville
- 3. Introducing Software Testing - Louise Tamres
- 4. Effective Methods for software Testing - William Perry
- 5. Software Testing in Real World - Edward Kit
- 6. Software Testing Techniques - Boris Beizer
- 7. Software quality assurance: Principles and Practices - Nina Godbole, Narosa