

Tilak Maharashtra University

Bachelor of Computer Applications

Semester	Third	Teaching Hrs = 40	
Subject Code	BCA – 340-20		
Subject Name	Advanced Web Designing		
Examination Scheme			Credits
External Exam	Internal Exam	Total Marks	
60	40	100	4
Course Outcomes (COs)			
After learning this course student will be able to,			
<ul style="list-style-type: none"> * Use fundamental skills required to host a website. * Select and apply mark up languages for processing, identifying and presenting of information in web pages. * Use a scripting languages to transfer data and presenting of information in web pages. * Create and manipulate web media objects using different software. * Incorporate aesthetics and formal concepts of layout and organization to design websites that effectively communicate using visual elements. 			

Chapter 1: Introduction HTML5

(1 Hr)

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

Chapter 2: Understanding Page Structure

(1.5 Hr)

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 3: Creating Text Elements

(4 Hr)

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 4: HTML: Working with Web Forms

(2 Hr)

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

Chapter 5: Organizing Page Structure

(2 Hr)

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: Tag
The Graphics Container: <canvas> Tag
Embedding Audio and Video with <audio>, <video> Tags
The Vector Based Image Container: <svg> Tag

Chapter 6: CSS: Cascading Style Sheets

(2 Hr)

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 7: CSS: Selectors

(2 Hr)

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 8

(3 Hr)

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 9: Understanding Box Model

(2 Hr)

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 10: Page Layout

(2 Hr)

Top, Right, Bottom, Left
Applying Floats to Your Design
Clearing Float
Display Property
Controlling Visibility
Z-index
Controlling Overflow
Working with Flexbox

Chapter 11: Responsive CSS

(1 Hr)

Different Screens and Screen Sizes
Media Queries

Chapter 12: Advanced CSS and Animation

Advanced CSS
Text Shadow
Box Shadow
Gradient
Transformations
Transitions

Chapter 13: Introduction to Bootstrap 4

(3 Hr)

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

Chapter 14: Introduction to JavaScript

(1 Hr)

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 15: Working with Variables and Data Types

(2Hr)

Data Types in JavaScript
Working with Numbers
Working with Strings
Understanding Booleans Values

Difference between Undefined and Null

Arrays

Object

Chapter 16: Conditions and Loops

(3 Hr)

If Statements

Comparison Operators

If-else Statements

If-else-if Statements

Switch Case

Loops: Minimizing Repetition

While Loops

Do-While Loops

For Loops

Chapter 17: Functions: Writing Code for Later

(2 Hr)

Arguments: Passing Data to Functions

Return Statement: Outputting data from function

Function Scope

Chapter 18: DOM: Document Object Model

(1.5 Hr)

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 19: JavaScript Events

(3 Hr)

Handling Window Events

Working with Mouse Events

Form Events Handling

Dealing with Key Events

Chapter 20: JavaScript Events

(2 Hr)

Using jQuery

The \$() factory function

Selecting and Manipulating Elements

Get and Set DOM Element Content

Styling Elements

Handling Events

Chapter 21: Latest Trends in JavaScript

Strict Mode

Regular Expression

Object Oriented JavaScript

Working with AJAX

ECMA Script

Server Side JavaScript: NODE.js

JSON

JavaScript Frameworks: Vue.js, Angular.js, React.js

Chapter 22: Web Design Latest Trends

(Exmpted)

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.
- Oreilly - BootStrap: Responsive Web Development

Tilak Maharashtra University

Bachelor of Computer Applications

Semester	Third	Teaching Hrs = 40	
Subject Code	BCA – 341-20		
Subject Name	Database Management System(DBMS)		
Examination Scheme			
External Exam	Internal Exam	Total Marks	Credits
60	40	100	4
<p>Course Outcomes (COs) After learning this course student will be able to,</p> <ul style="list-style-type: none"> * Gain a good understanding of the architecture and functioning of database management systems as well as associated tools and techniques, * Understand the use of structured query language and its syntax, transactions, database recovery and techniques for query optimization. * Develop learning of management of data in the system * Acquire a good understanding of database systems concepts and to be in a position to use and design databases for different applications. 			

BCA – 341-20 Database Management System (DBMS)

1. Objectives (4 Hr)

Storage devices characters
 File Organization
 Sequential Files, Indexing and methods of indexing, Hash files

2. Introduction to Database Systems (4 Hr)

Objective
 Introduction to DBMS
 What is Data, Database system, DBMS?
 Single and Multi-user systems
 Advantages and drawbacks of DBMS
 Architecture of DBMS
 Users of DBMS
 Roll of Database Administrator
 Components of DBMS
 Types of DBMS - Hierarchical, Network, Relational
 Why RDBMS?
 Features of RDBMS
 Attributes, tuples & tables, codd's rules

3: Entity Relationship Model (4 Hr)

Objectives
Entity Relationship Model
Entity set
Relationship set
Attributes and values.
Weak and Strong Entity
Keys in DBMS
Conventions for drawing ERD
Abstraction
Generalization

4: DBMS Concepts (4 Hr)

Objectives
ACID Properties
Concurrency Control
Recovery Mechanisms
Views And Security
Integrity Constraints
Data Security

5: Relational Database Design (4 Hr)

Objectives
Need For Proper Database
Undesirable Properties Of Bad Database Design
Functional Dependencies
Normalization Using FDS - 1 NF, 2 NF, 3 NF, BCNF
Properties of Decomposition - Loss less Join, Dependency Preserving

6: SQL Relational Database Design (4 Hr)

Introduction
DDL
DML
DCL
Simple Queries

7: Security (4 Hr)

Objectives
Granting access to users
Extending and restricting privileges
Using views of security

8: Transaction Processing (4 Hr)

Objectives
Transaction, transaction processing
Properties of Transaction
Schedules

Serializing and its need

9 :Backup and Recovery (2 Hr)

Types of failure and storage systems

Need for backup and recovery

10: Concurrency Control & Recovery Techniques (4 Hr)

Concurrency problems

Concurrency control mechanisms

Deadlocks

Deadlocks handling detection and prevention

11: Introduction To Data Warehousing And Data Mining (2 Hr)

Objectives

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

Tilak Maharashtra University

Bachelor of Computer Applications

Semester	Third	Teaching Hrs = 26	
Subject Code	BCA – 342-20		
Subject Name	E-COMMERCE		
Examination Scheme			
External Exam	Internal Exam	Total Marks	Credits
30	20	50	2
Course Outcomes (COs) After learning this course student will be able to, <ul style="list-style-type: none"> * Demonstrate an understanding of the foundations and importance of E-commerce * Analyze the impact of E-commerce on business models and strategy * Describe Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational. * Analyze different types of portal technologies and deployment methodologies commonly used in the industry. * Integrate theoretical frameworks with business strategies. 			

BCA –342-20 E-Commerce

I Basic web commerce concepts, electronic commerce modes: (4Hr)

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

II Approach to safe E-commerce:- (4 Hr)

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 (5 Hr)

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

IV Internet/Intranet Security issues and solutions: (5 Hr)

Needs for computer security, security strategies, Encryption.

MasterCard/visa secure Electronic Transaction: Introduction requirements and concepts, payment processing.

V Internet & web site Establishment: (4 Hr)

Internet Resources for commerce: introduction, Web server

Technologies, internet tools Relevant to commerce, internet applications for commerce.

VI Law related to IT ACT , **(2 Hr)**
Mobile and wireless computing fundamentals.

VII Electronic Customer Relationship Management **(1 Hr)**

- 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

VIII Law Related To It Act **(1 Hr)**

- IT Act
- Intellectual Property In E-Commerce
- Digital Copyright Act

Reference Book :

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

Tilak Maharashtra University

Bachelor of Computer Applications

Semester	Third	Teaching Hrs = 35		
Subject Code	BCA – 344-20			
Subject Name	Enterprise Resource Planning			
Examination Scheme				
External Exam		Internal Exam	Total Marks	Credits
60		40	100	
Course Outcomes (COs)				
After learning this course student will be able to,				
<ul style="list-style-type: none"> * To comprehend the technical aspects of ERP systems * To understand concepts of reengineering and how they relate to ERP system implementations * To be able to map business processes using process mapping techniques * To understand the steps and activities in the ERP life cycle * To be able to identify and describe typical functionality in an ERP system * To obtain practical hands-on experience with ERP Software 				

BCA 344-20 Enterprise Resource Planning (ERP)

1.ERP :

(9hrs)

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:

(9hrs)

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:

(9hrs)

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

4.ERP – PRESENT AND FUTURE

(8hrs)

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)

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Bachelor of Computer Applications

Semester	Third	Teaching Hrs = 40	
Subject Code	BCA - 345-20		
Subject Name	Software Testing & Quality Assurance		
Examination Scheme			Credits
External Exam	Internal Exam	Total Marks	
60	40	100	4
Course Outcomes (COs) After learning this course student will be able to, * Understanding credible research resources verified through methodological software engineering research processes. * Do Software Testing Techniques, Measures, and Process * Experience in conducting a software engineering research project based on peer-reviewed research literature, and, following sound research methodologies. * Analyze different approaches to software testing and quality assurance, and select optimal solutions for different situations and projects.			

BCA 345-20 Software Testing & Quality Assurance

1 Quality Concept

4Hr

- 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

5Hr

- 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

4Hr

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

4 Software Testing Fundamentals	4Hr
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	5Hr
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	5Hr
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	5Hr
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 CaseDesign Techniques)	4Hr
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

4Hr

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