



# School of Computer Science & IT Devi Ahilya Vishwavidyalaya

## SYLLABUS

### BCA 3 years/ BCA (Hons./ Research) 4 years

#### Program Educational Objectives (PEOs)

- PEO 1:** Exhibit a strong inclination towards higher education and actively pursue in continuous development of their professional skills.
- PEO 2:** Develop communication and soft skills to inculcate professionalism for working in cross-cultural and global environment.
- PEO 3:** Build expertise on latest technological trends to bridge gap between industry and academia for better employability.
- PEO 4:** Evolve competency to design and develop computing applications that address the societal needs.

#### Program Specific Outcomes (PSOs)

- PSO 1:** Apply knowledge of computing and inter-disciplinary techniques to design and develop quality software applications.
- PSO 2:** Ability to use modern tools and frameworks to create innovative solutions in emerging areas.

## V - SEMESTER

## CS-3604: Data and Computer Communication

**Aim:**

Build an understanding of the fundamental concepts of data communication and computer networking

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**Course Outcomes:**

- CO 1: Describe the basis and structure of an abstract layered protocol model
  - CO 2: Identify the different types of network topologies and protocols
  - CO 3: Enumerate the layers of the OSI model and TCP/IP
  - CO 4: Identify the different types of network devices and their functions within a network
  - CO 5: Understand and building the skills of sub netting and routing mechanisms
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**Unit-I**

Data communications and networking for Today's Enterprise, A communication model, Data communications, Networking, and the Internet. Network model, need for protocol architecture, The TCP/IP protocol architecture, The OSI model, Addressing, Subnetting. Data transmission: Concept and terminology, Analog and digital signals, Transmission impairment, Channel capacity

**Unit-II**

Digital transmission: Digital-to-digital conversion, Analog-to-digital conversion, Transmission mode. Analog transmission, Digital-to-analog conversion, Analog-to-digital conversion

**Unit-III**

Bandwidth utilization: Frequency division multiplexing, Wavelength division multiplexing, Synchronous and statistical time-division multiplexing, Switching: Circuit switching Packet switching

**Unit-IV**

Routing in switched network: Routing in packet switched networks, Least-cost algorithms. Local area network overview: Background topologies and Transmission media, LAN protocol architecture, Bridges, Ethernet

**Unit-V**

Internet and transport protocols: Principles of internetworking IPv4 & IPv6, Connection-oriented transport protocol mechanism, TCP and UDP. Network security: Encryption and decryption technique, Internet applications: E-mail, World Wide Web, And HTTP

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**Text Books:**

Data and Computer Communications: William Stallings, Prentice-Hall, 8th Edition

**Reference Book(s):**

Data Communications and Networking, BehrouzA. Forouzan, McGraw-Hill, 5th Edition

## CS-3605: Web Technology and Programming

**Aim:**

To develop an ability to design and implement static and dynamic website using scripting languages.

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**Course Outcomes:**

- CO 1: Exposure to design responsive web applications using html.
  - CO 2: Ability to implement more efficient styling in html to make well-structured, maintained and user-friendly web pages.
  - CO 3: Enhance skill to valid input and add more functionality in web page using JavaScript.
  - CO 4: Understand the use of tools to implement object-oriented principles in PHP.
  - CO 5: Ability to develop skill to create functional web application and manipulate data effectively with MySQL.
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**Unit-I**

HTML & Forms: Introduction To HTML, WWW, W3C, web publishing, Common HTML, Tags Physical & Logical, some basic tags like changing background color of page, text color etc., Text formatting tags, Ordered & Unordered Lists Tags, Inserting image, Links: text, image links, image mapping, Tables, Frames, Form: Introduction with text box, text area, buttons, List box, radio, checkbox etc.

**Unit-II**

CSS: introduction to CSS, Features and benefits of CSS, types of style sheets-inline, External, Embedded CSS, text formatting properties Selectors: ID Selectors, Class, Grouping, Universal, Descendent /Child, Attribute Selector, CSS Pseudo Classes CSS Border, Background Properties, margin properties, Positioning Use of classes in CSS, color properties, use of <div> & <span> Lists Tables: list-style-type, list-style-position, list-style-image, list-style, CSS Tables (border, width & height, text-align, vertical-align, padding, color).

**Unit-III**

Java Script: Introduction of JavaScript, data types, JavaScript identifiers, operators, control & Looping structure, Introduction to Array, Array with methods, Math, String, Date Objects with methods, User defined & Predefined functions, DOM objects.

**Unit-IV**

PHP: Introduction of PHP, Requirements for PHP, PHP Fundamentals, Calculations and Operators, Control Structures, Built-in PHP Functions, User-Defined Functions, Arrays and Objects, File handling functions, miscellaneous functions, opening a File, Reading Text from a File, Writing Text to a File, closing a File, Locking Files.

**Unit-V**

Handling Session and Cookies: Concept of session, starting session, modifying session variables, Concept of cookies, Handling of cookies, GET and POST methods, Working MySQL with PHP, database connectivity, usages of MySQL commands in PHP.

**Text Books:**

1. Schafer, Steven M. Web standards programmer's reference: HTML, CSS, JavaScript, Perl, Python, and PHP. John Wiley & Sons, 2007.
2. Batross, Ivan. Web Enabled Commercial Application Development Using HTML, DHTML, Javascript, Perl CGI. Bpb Publications, 2010.

**Reference Book(s):**

1. Sebesta, Robert W. Programming the world wide web. Pearson Addison Wesley, 2008.
2. Glass, Michael K. , et al. Beginning PHP, Apache, MySQL Web Development. John Wiley & Sons, 2004.
3. Powell, Thomas A. HTML: the complete reference. McGraw-Hill Professional, 2010.

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## CS-4522: SYSTEM ANALYSIS AND DESIGN

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**Aim:** The aim of teaching Systems Analysis and Design (SAD) is to equip students with the knowledge and skills to analyse, design, and improve information systems to meet specific business needs.

### Course Outcomes (COs)

**CO1:** Demonstrate basic concepts of a system.

**CO2:** Have firm basis for understanding the life cycle of a system development project.

**CO3:** To write clear and concise system requirements and convert them into technical specifications.

**CO4:** Examine appreciation of the cost, behavioural & technical issues involved in system development.

**CO5:** To develop familiarity with a variety of tools and approaches in different stages of system development life cycle, to visualize and model the design phase using scientific approaches.

### Unit-I:

**No. of Hours: 8**

System concepts, Definition, Characteristics of a system, Elements of a system, Types of System Physical or Abstract System, Open or Closed Systems, Man-Made Information Systems: Categories of Information, Formal Information Systems, Informal Information Systems.

### Unit-II:

**No. of Hours: 8**

Introduction: Recognition of need, feasibility study, Analysis, Design, Implementation, Post implementation and Maintenance, Project Termination, Prototyping. Role of System Analyst: Definition, Skills, Academic and Personal Qualifications, The Multifaceted Role of Analyst.

### Unit-III:

**No. of Hours: 8**

Bases of Planning in System Analysis, Dimensions of Planning, Initial Investigation, Needs Identification, Strategies for Determining Information Requirements, Problem Definition and Project Initiation, Background Analysis: Fact-Finding, Fact Analysis, Determination of Feasibility.

### Unit-IV :

**No. of Hours: 8**

Introduction to Structured Analysis, Tools of Structured Analysis: Dataflow Diagrams, Data Dictionaries, Decision Tables, Decision Trees, Structured English. Feasibility Considerations, Feasibility Study Stages, Feasibility Report, Cost/Benefit Analysis.

### Unit-V:

**No. of Hours: 8**

The Process and Stages of System Design: Introduction, The Process of Design: Logical and Physical Design, Design Methodologies: Structured Design, Form-Driven Methodology – The IPO Charts. Input /Output and Form Design: Introduction, Input Design, Output Design, Form Design. File Organization and Data Base Design: Introduction, File Structure, File Organization, Data Base Design, Views of Data, Data Structure.

**Text Book(s):**

## School of Computer Science & Information Technology, DAVV, Indore

1. System Analysis and Design Elias M. Award, Galgotia Publication.

### Reference Book(s):

1. System Analysis and Design Methods, Whitten, Bentley and Barlow, Galgotia Publication.

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