

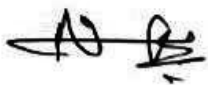


TUMKUR UNIVERSITY

Board of Studies in Computer Science

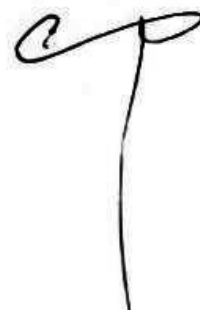
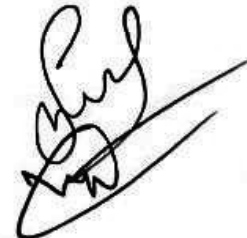
**Curriculum Structure and Syllabus for V and VI
Semesters**

**Bachelor of Arts in Computer Science (BA CS)
Choice Based Credit System**

2026 - 27 onwards



BOS in Computer Science Committee Members

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Special Thanks to:

1.	Capt. Ramalinga Reddy S Assistant Professor Department of Computer Science Sri Siddaganga Arts and Commerce Evening College Tumkur.
2.	Dr. Haridas S. Associate Professor Department of Computer Science Government First Grade College, Tumkur.
3.	Dr. Husna Sultana Associate Professor Department of Computer Science Government First Grade College, Tumkur.
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8.	Mujtaba Farheen Assistant Professor Department of Computer Science Government First Grade College, Madhugiri.
9.	Harikumar M E Assistant Professor Department of Computer Science Government First Grade College, Madhugiri

Internal Assessment Marks for Theory and Practical

Internal Assessment Marks Allotment for Theory	
Internal Test 1	05
Internal Test 2	05
Assignment	05
Seminar/Quiz	05
TOTAL	20

Internal Assessment Marks Allotment for Practical	
Internal Test	05
Record and Attendance	05
TOTAL	10

Evaluation Scheme for Lab Examination

Assessment Criteria	
Writing 2 Programs	10
Execution of 2 Programs	20
Viva	10
Total	40 Marks

SEMESTER - V

Sl. No	Paper	Title of the Paper	Instruction Hrs. per Week	No. of Credits	Duration of the Exam.	Marks		
						Internal Assessment	Semester End Exam.	Total
1	BACST C1-501	HTML 5 & CSS	4	4	3 Hrs.	20	80	100
3	BACST C2-502	Desktop Publishing	4	4	3 Hrs.	20	80	100
4	BACSP C3-503	HTML & DTP Lab	4	2	3 Hrs.	10	40	50
TOTAL			12	10				300

NOTE:

Theory: 1 Hr. = 1 Credit Practical: 2 Hrs. = 1 Credit

BACST : BA Computer Science Core Paper Theory

BACSP : BA Computer Science Core Paper Practical

SEMESTER - VI

Sl. No	Paper	Title of the Paper	Instruction Hrs. per Week	No. of Credits	Duration of the Exam.	Marks		
						Internal Assessment	Semester End Exam.	Total
1	BACST C1-601	Python Programming	4	4	3 Hrs.	20	80	100
2	BACSP C2-602	Fundamentals of AI	4	4	3 Hrs.	10	40	50
3	BACST C3-603	Project lab	4	2	3 Hrs.	20	80	100
TOTAL			12	10				300

NOTE:

Theory: 1 Hr. = 1 Credit

Practical: 2 Hrs. = 1 Credit

BACST : BA Computer Science Core Paper Theory**BACSP** : BA Computer Science Core Paper Practical

FIFTH SEMESTER			
Subject Name: HTML 5 & CSS			
Subject Code	BACST C1-501	CIE Marks	20
No. of Hours/Week:	4	SEE Marks	80
Total Hours:	60	Credits	4

COURSE OBJECTIVES:

1. Understand the fundamentals of web technologies and webpage design.
2. Develop structured webpages using HTML5 elements and semantic tags.
3. Design responsive and attractive web pages using CSS.
4. Apply forms, multimedia, tables, and layout techniques in real-time applications.

COURSE OUTCOMES:

Students will be able to:

1. Create static websites using HTML5 tags and attributes.
2. Design professional webpages using CSS styling techniques.
3. Build responsive page layouts using CSS Flexbox and Grid.
4. Develop business-oriented web pages such as product pages, registration forms, and portfolios.

UNIT 1	Introduction to HTML5 and Basic Webpage Design	Hours 12
	Introduction to Internet and WWW, Web Browsers and Web Servers, Introduction to HTML5, Structure of HTML Document, HTML Editors and Tools, Basic HTML Tags: <html>, <head>, <title>, <body>, Headings, Paragraphs, Line Breaks, Text Formatting Tags, Comments in HTML, Lists: Ordered List, Unordered List, Description List, Hyperlinks and Anchor Tags, Image Tag and Image Mapping	
UNIT 2	HTML5 Elements, Tables and Forms	Hours 12
	HTML5 Semantic Elements: <header>, <footer>, <section>, <article>, <nav>, Tables in HTML5: Rows, Columns, Cell Padding, Cell Spacing, Rowspan and Colspan, HTML Forms: Form Elements, Input Types, Labels, Textbox, Password, Radio Button, Checkbox, Dropdown List, Textarea, Buttons, HTML5 Form Validation, Audio and Video Tags, Embedding Google Maps and YouTube Videos, Iframes	
UNIT 3	Introduction to CSS and Styling Techniques	Hours 12
	Introduction to CSS, Types of CSS: Inline CSS, Internal CSS, External CSS, CSS Syntax and Selectors, Colors and Backgrounds, CSS Fonts and Text Formatting, Borders, Margins, Padding, CSS Box Model, Styling Links and Lists, CSS Properties for Images, CSS Display Property	

UNIT 4	Advanced CSS and Responsive Web Design	Hours 12
	CSS Box Model and CSS Positioning: Static, Relative, Absolute, Fixed, and Sticky positioning. Layer management using z-index, overflow, and visibility. Introduction to CSS Flexbox and flexible layouts. CSS Grid Layout: Grid containers, rows, columns, gaps, and responsive layouts. Responsive Web Design concepts and mobile-first approach. Viewport settings and responsive units (% , em, rem, vw, vh). Media Queries for different screen sizes and devices. Responsive images and videos. CSS Transitions, Transformations, and Animations using @keyframes. Hover effects, shadows, gradients, and basic visual enhancements.	
UNIT 5	Website Design, UI/UX, and Deployment Basics	Hours 12
	Designing navigation bars and responsive menus. Creating drop-down menus using CSS. Website planning, site structure, and page organization. Introduction to wireframes and webpage layouts. UI (User Interface) and UX (User Experience) fundamentals. Color combinations, visual hierarchy, and web typography. Accessibility and readability considerations. Multi-page website development and internal linking. Basics of website hosting, domain names, and web servers.	

TEXT BOOKS:

1. *Beginning HTML5 and CSS3* by Christopher Murphy
2. *Web Programming using HTML5, CSS and JavaScript* by Kogent Learning

REFERENCE BOOKS:

1. *HTML and CSS: Design and Build Websites* by Jon Duckett
2. *Learning Web Design* by Jennifer Robbins

FIFTH SEMESTER			
Subject Name: Desktop Publishing			
Subject Code	BACST C2-502	CIE Marks	20
No. of Hours/Week:	4	SEE Marks	80
Total Hours:	60	Credits	4

COURSE OBJECTIVES:

1. Understand the fundamentals of Desktop Publishing and graphic designing.
2. Use DTP software tools for creating professional documents and publications.
3. Design brochures, posters, certificates, magazines, and advertisements.
4. Apply formatting, layout, typography, and image editing techniques effectively.

COURSE OUTCOMES:

Students will be able to:

1. Create professional documents using DTP software.
2. Design attractive layouts using text formatting and graphics tools.
3. Produce brochures, pamphlets, banners, and magazines for real-time applications.
4. Apply page designing principles and color combinations effectively.

UNIT 1	Introduction to Desktop Publishing and Adobe PageMaker	Hours 12
	Introduction to Desktop Publishing: Meaning and Definition of Desktop Publishing (DTP), Applications of DTP, Types of Publishing including Print Publishing and Digital Publishing, and Features of DTP Software. Adobe PageMaker Fundamentals: Introduction to Adobe PageMaker, PageMaker Interface and Workspace, Creating, Opening and Saving Documents, Page Setup and Layout, Margins, Columns and Guidelines, Working with Text Frames, Inserting and Editing Text, and Basic Formatting in PageMaker.	
UNIT 2	Adobe InDesign for Professional Page Layout	Hours 12
	Introduction to Adobe InDesign: Features and Advantages of Adobe InDesign, InDesign Workspace and Tools, Creating New Documents, and Working with Text Frames. Text Formatting and Typography: Fonts and Typography, Character and Paragraph Formatting, Text Alignment and Justification, Bullets and Numbering, Line and Paragraph Spacing, Drop Caps, Headers and Footers, Page Numbering, and Spell Check and Proofing Tools.	
UNIT 3	CorelDRAW for Graphics and Illustration	Hours 12
	Introduction to CorelDRAW: CorelDRAW Interface and Workspace, Drawing Tools and Shape Creation, Working with Objects, and Object Transformation. Graphics and Image Editing: Importing Graphics and Images, Cropping and Resizing Images, Image Brightness and Contrast, Clip Art	

	and Icons, Color Theory and Color Combinations, Layer Management, Background Design, Text Wrapping Around Images, and Artistic Text and Text Effects.	
UNIT 4	Microsoft Publisher and Advanced Publishing Techniques	Hours 12
	Introduction to Microsoft Publisher: Microsoft Publisher Interface, Creating Publications, Using Templates and Themes, and Designing Business Publications. Advanced Publishing Techniques: Multi-page Document Design, Master Pages, Newsletter Design, Brochure Design, Pamphlet Design, Booklet Design, Business Card Design, Banner and Flex Design, Print Preview and Print Settings, Exporting to PDF and Image Formats, and Introduction to Digital Publishing.	
UNIT 5	Practical Applications	Hours 12
	Design Principles: Principles of Graphic Design, Visual Communication Basics, Branding Concepts, Advertisement Design, Printing and Publishing Standards, and File Formats and Resolution. Practical Applications : Business Card Design using CorelDRAW, Newsletter Design using Adobe InDesign, Book Layout using Adobe PageMaker, Office Publication using Microsoft Publisher, Brochure Design, Poster Design, Advertisement Design, Portfolio Design	

TEXT BOOKS:

1. Desktop Publishing - Dr. V. V. Vinoth (Pustaka Digital Media)
2. BPB's DTP Course - Satish Jain & M. Geetha Iyer (BPB Publications)

REFERENCE BOOKS:

1. Desktop Publishing with PageMaker by Sathish Jain
2. Adobe InDesign Classroom in a Book by Adobe Press
3. CorelDRAW for Beginners by Gary David Bouton
4. Graphic Design Basics by Amy E. Arntson.

FIFTH SEMESTER			
Subject Name: HTML & DTP Lab			
Subject Code	BACSP C3-503	CIE Marks	10
No. of Hours/Week:	4	SEE Marks	40
Total Hours:	60	Credits	2

LIST OF LAB PROGRAMS

Part - A : Using HTML

1. Create a personal profile webpage containing name, photo, educational details, hobbies, and contact information using headings, paragraphs, images, and formatting tags.
2. Design a webpage for a college department including courses offered, faculty details, infrastructure, and achievements using lists and hyperlinks.
3. Create a restaurant menu webpage using ordered and unordered lists with food categories and prices.
4. Develop a professional resume webpage with sections like career objective, education, skills, projects, and contact details.
5. Create a tourism webpage displaying famous places, images, maps, and descriptions of tourist attractions.
6. Design a student registration form using textboxes, radio buttons, checkboxes, dropdown lists, and submit buttons.
7. Create a semester timetable using HTML tables with proper rows, columns, and merged cells.
8. Develop a business company homepage using CSS colors, fonts, backgrounds, and navigation menus.

Part - B : Using DTP

1. **Adobe PageMaker:** Design an official college notice using proper page setup, margins, headings, and text frames.
2. **Adobe PageMaker:** Create a professional company letterhead with logo, address, and contact details.
3. **CorelDRAW:** Design an invitation card for a birthday, wedding, or college event using vector graphics and artistic text.
4. **Adobe PageMaker:** Create a newspaper-style page with columns, headlines, images, and article sections.
5. **CorelDRAW:** Design a tourism or business tri-fold brochure using attractive layouts, typography, and graphics.
6. **Adobe Photoshop:** Design a commercial advertisement poster or banner for a mobile phone, laptop, fashion product, seminar, or business promotion using photo editing and text effects.

7. **CorelDRAW:** Design a professional certificate with borders, logos, signatures, and decorative elements.
8. **Adobe PageMaker, CorelDRAW, and Adobe Photoshop:** Develop a professional portfolio showcasing personal details, achievements, creative works, and projects by integrating page layout, vector graphics, and image editing.

SIXTH SEMESTER			
Subject Name: Python Programming			
Subject Code	BACST C1-601	CIE Marks	20
No. of Hours/Week:	4	SEE Marks	80
Total Hours:	60	Credits	4

COURSE OBJECTIVES:

1. Understand the fundamentals of Python programming language.
2. Develop problem-solving skills using Python.
3. Create programs using functions, strings, lists, tuples, dictionaries, and files.
4. Build simple GUI applications and database applications using Python.
5. Apply Python programming in real-time business and practical applications.

COURSE OUTCOMES:

Students will be able to:

1. Write and execute Python programs using proper syntax.
2. Develop applications using functions and data structures.
3. Handle files and exceptions effectively.
4. Create GUI-based applications using Tkinter.

UNIT 1	Introduction to Python	Hours 12
	Introduction to Python, Features and Applications of Python, Installing Python, Python IDE, Running Python Programs, Variables and Data Types, Input and Output Functions, Operators in Python, Comments in Python, Decision Making Statements (if, if-else), Looping Statements (for, while), Break and Continue Statements.	
UNIT 2	Functions and Strings	Hours 12
	Introduction to Functions in Python, Advantages of Functions, Defining and Calling Functions, Function Arguments, Types of Arguments, Return Statement, Scope of Variables, Introduction to Strings, Creating Strings, Accessing String Characters, String Slicing, String Concatenation, String Repetition, String Methods (upper(), lower(), title(), strip(), replace(), find(), split()), String Formatting, Checking String Properties (isalpha(), isdigit(), isalnum()).	
UNIT 3	Data Structures	Hours 12
	Introduction to Lists, Creating Lists, Accessing List Elements, Updating List Elements, List Methods (append(), insert(), remove(), pop(), sort()), List Traversing using Loops, Nested Lists, Introduction to Tuples, Creating and Accessing Tuples, Tuple Operations, Introduction to Dictionaries, Creating Dictionaries, Accessing Dictionary Elements, Adding and Updating Dictionary Values, Dictionary Methods (keys(), values(), items()), Introduction to Sets, Creating Sets, Set Operations (add(), remove(), union(), intersection()), Difference between Lists, Tuples, Dictionaries, and Sets.	

UNIT 4	Fundamentals of GUI Programming with Tkinter	Hours 10
	Introduction to Graphical User Interface (GUI), including its concepts, advantages, and applications. Introduction to Tkinter, its features, architecture, and the process of importing the Tkinter module. Creating a basic Tkinter window and understanding the <code>mainloop()</code> function. Setting the window title, size, geometry, and background properties. Creating and customizing Label widgets, implementing Buttons and handling button events using the <code>command</code> option, and using the Entry widget for accepting and displaying user input. Organizing widgets using Frames and managing layouts with the <code>pack()</code> , <code>grid()</code> , and <code>place()</code> geometry managers. Developing simple GUI applications by integrating labels, buttons, entry widgets, and frames.	
UNIT 5	Advanced Tkinter Widgets and Event Handling	Hours 10
	Radio Buttons and Check Buttons for user selections, List Boxes for displaying and selecting multiple items, and the Text widget for multi-line text input and output. Displaying information, warning, error, and confirmation dialogs using Message Boxes. Event handling and event binding with keyboard and mouse actions. Creating simple forms with input validation and introducing Menu widgets for creating menu bars and submenus. Working with common dialog boxes such as file open and save dialogs. Integrating multiple widgets to develop interactive GUI applications.	

TEXT BOOKS:

1. R. Nageswara Rao – *Core Python Programming*, Dreamtech Press.
2. Reema Thareja – *Python Programming: Using Problem Solving Approach*, Oxford University Press.
3. E. Balagurusamy – *Introduction to Computing and Problem Solving Using Python*, McGraw Hill Education India.

REFERENCE BOOKS:

1. Learning Python – Mark Lutz, O'Reilly Media.
2. Head First Python – Paul Barry, O'Reilly Media.
3. Python Crash Course – Eric Matthes, No Starch Press.

SIXTH SEMESTER			
Subject Name: Fundamentals of AI			
Subject Code	BACST C2-602	CIE Marks	20
No. of Hours/Week:	4	SEE Marks	80
Total Hours:	60	Credits	4

COURSE OBJECTIVES:

1. To introduce the basic concepts of Artificial Intelligence.
2. To understand the applications of AI in education, business, banking, agriculture, healthcare, and daily life.
3. To familiarize students with AI tools and technologies.
4. To develop practical skills in using AI-based applications.
5. To encourage ethical and responsible use of Artificial Intelligence.

COURSE OUTCOMES:

After successful completion of the course, students will be able to:

1. Understand the fundamentals and importance of Artificial Intelligence.
2. Identify different AI technologies and applications.
3. Use basic AI tools for communication, content creation, and business purposes.
4. Apply AI concepts in commerce, arts, and social science domains.
5. Demonstrate practical knowledge using AI applications and platforms.

UNIT 1	Introduction to Artificial Intelligence	Hours 12
	Introduction to Artificial Intelligence: Meaning and Definition of AI, History and Evolution of AI, Features and Characteristics of AI, Difference between Human Intelligence and Artificial Intelligence, Importance of AI in Modern Society. Types of Artificial Intelligence: Narrow AI, General AI, Super AI, Reactive Machines, Limited Memory AI Components of AI: Data, Algorithms, Machine Learning, Neural Networks and Automation. Benefits of AI: Challenges of AI, AI and Employment, Future Scope of AI.	
UNIT 2	AI Tools and Digital Productivity	Hours 12
	Introduction to AI Tools: AI Chabot's, AI Writing Assistants, AI Image Generators, AI Voice Assistants, AI Translation Tools. AI Tools for Students and Teachers: AI for Note Preparation, AI for Presentation Creation, AI for Summarization, AI for Language Translation, AI for Grammar Correction. AI Tools for Business and Commerce: AI in Accounting, AI in Marketing, AI in Customer Support, AI in Data Analysis, AI in Online Business. Generative AI: Meaning of Generative AI, Text Generation, Image	

	Generation, Video Generation, Responsible Usage of Generative AI	
UNIT 3	AI in Daily Life and Smart Applications	Hours 12
	Introduction to Smart Technologies: Meaning of Smart Technology, AI in Everyday Life, Smart Phones and AI Features, AI in Television and OTT Platforms, AI in Online Applications AI in Communication: AI-based Voice Assistants, AI Chatbots, AI in Social Media Platforms, AI in Email and Messaging Applications, AI Translation Applications. AI in Education and Business: AI in Online Learning, AI in Digital Payments, AI in Banking Applications, AI in Online Shopping, AI in Customer Service.	
UNIT 4	Ethical AI and Cyber Awareness	Hours 12
	Ethics in Artificial Intelligence: Meaning of AI Ethics, Responsible AI Usage, Transparency in AI, Fairness and Bias in AI. Privacy and Security: Data Privacy, Digital Footprint, AI and Cyber Security, Safe Use of AI Platforms. AI and Society: Impact of AI on Employment, AI in Governance, AI in Media and Communication, Social Impact of AI. Challenges of Artificial Intelligence: Bias and Discrimination, Fake Content and Deepfakes, AI Misuse, Dependency on Technology. Future Trends in AI: AI and Robotics, AI in Smart Cities, AI in Education and Commerce, Future Careers in AI.	
UNIT 5	Practical Applications of AI	Hours 12
	AI in Daily Life: AI in Mobile Phones, AI in Online Shopping, AI in Banking Apps, AI in Social Media. AI in Commerce and Arts: AI for Content Creation, AI for Advertising, AI in Financial Analysis, AI in Digital Marketing, AI in Report Preparation. AI for Communication: AI-based Email Writing, AI Translation Tools, AI Voice Typing, AI Meeting Assistants.	

TEXT BOOKS:

1. **Artificial Intelligence** – Dr. S. Kaushik
2. **Artificial Intelligence and Machine Learning** – C. S. R. Prabhu

REFERENCE BOOKS:

1. **Fundamentals of Artificial Intelligence** – Dr. S. Balamurugan, Dr. S. Chitra, and Dr. R. Rajaram
2. **Introduction to Artificial Intelligence** – Dr. A. P. Godse and D. A. Godse
3. **Artificial Intelligence for Beginners** – Anand Mahindra and AI Learning Contributors

SIXTH SEMESTER			
Subject Name: Project Lab			
Subject Code	BACSP C3-603	CIE Marks	10
No. of Hours/Week:	4	SEE Marks	40
Total Hours:	60	Credits	2

Project Planning

Students should select a project topic based on the knowledge and skills acquired in the previous semesters. They are encouraged to develop projects using technologies such as **HTML5 & CSS**, **DTP**, **Python** and **Artificial Intelligence (AI)** studied during the course.

Team Formation

- Team size: **3 to 5 students**.
- One student should act as the **Team Leader**.
- Each member should contribute to the project and maintain a record of assigned work.

Tools

- Students may use any suitable programming language or software studied in previous Semesters.
- Open-source tools are encouraged.

Report Submission

- Submit the **mini project report** along with the **source code and related project files**.
- The project report must be **spiral bound**.
- Two **spiral-bound copies** of the report should be submitted:
 - **One copy for the Department.**
 - **One copy for the Student's personal record.**
- The report should follow the prescribed project report format and include all relevant documentation and outputs.

Question Paper Pattern for Semester End Examination (SEE)
(Common for V and VI Semester)
SUBJECT NAME

Time: 3 Hrs

Max. Marks: 80

Instruction to Candidate: Answer all the Sections

SECTION A

I. Answer any ten of the following questions **(10X2 = 20)**

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.

SECTION B

II. Answer any five of the following questions **(5X5 = 25)**

- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.

SECTION C

III. Answer any five of the following questions **(5X7 = 35)**

- 20.
- 21.
- 22.
- 23.
- 24.
- 25.
- 26.