

TUMKUR



UNIVERSITY

Board of Studies in Computer Science

Curriculum Structure and Syllabus for I and II Semester

Computer Science

for

Bachelor of Arts

Choice Based Credit System

2024-25 Onwards

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BOS Computer Science Committee Members

1.	Dr. Kusuma Kumari B.M MCA Coordinator & Assistant Professor Department of Studies and Research in Computer Applications Tumkur University, Tumakuru	Chairperson
2.	Dr. Ramani. R Assistant Professor Department of Computer Science University College of Science Tumkur University, Tumakuru	Member
3.	Dr. Chandrali Baishya Associate Professor Department of Studies and Research in Mathematics Tumkur University, Tumakuru	Member
4.	Dr. Prakash B.R Assistant Professor Department of Computer Science Government First Grade College, Tipatur.	Member
5.	Sri. Mohan Kumar N Assistant Professor Department of Computer Science Y.E.R Government First Grade College, Pavagada.	Member
6.	Capt. Ramalinga Reddy S Assistant Professor Sri Siddaganga Arts and Commerce Evening College Tumkur.	Member
7	Dr. Manjunath S Assistant Professor, Department of Computer Science Y.E.R Government First Grade College, Pavagada.	Member
8	Dr. Nagamani H.S Associate Professor, Department of Computer Science Maharani Cluster University, Bengaluru.	Member
9	Dr. Asha Gowda Karegowda Associate Professor , Department of MCA Siddaganga Institute of Technology, Tumkur.	Member
10	Dr. Sumathi R Gowda Assistant Professor MCA Department, Karnataka State Open University, Muktha Gangotri, Mysore.	Member
11.	Dr. Haridas S. Associate Professor Department of Computer Science Government First Grade College, Tumkur.	Member

SEMESTER – I

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 101	Computer Hardware and Networking	3	3	3 Hrs.	20	80	100
2	BACSP 102	Computer Hardware and Networking Lab	4	2	3 Hrs.	10	40	50
TOTAL				5				150

SEMESTER – II

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 201	ICT Tools	3	3	3 Hrs.	20	80	100
2	BACSP 202	ICT Tools Lab	4	2	3 Hrs.	10	40	50
TOTAL				5				150

NOTE: Theory: 1 Hr. = 1 Credit.**Practical: 2 Hrs. = 1 Credit****BACST:** BA CS Core Paper Theory**BACSP:** BA CS Core Paper Practical

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

First Semester			
Subject Name: Computer Hardware and Networking			
Subject Code	BACST 101	CIE Marks	20
No of Hours/Week:	3	SEE Marks	80
Total Hours:	48	Credits	3

COURSE OBJECTIVES:

1. To Train the students to acquire knowledge in PC Hardware, Software and the field of Networking.
2. The students will understand and gain knowledge in the basics of PC assembling and networks.

COURSE OUTCOMES:

After studying this course, the students would gain enough knowledge on

1. Understand and analyze the fundamentals of Computer, the evolution computer with their characteristics.
2. Capturing the various input output devices and its nature of work
3. Understand the concepts of memory management techniques
4. Analyse the Concepts of Architecture, Networks Transmission media.

Unit 1	Introduction to Computers	10 Hours
	Introduction, History of computer, Block diagram of computer, Generation of computer, Classification of computers Characteristics of computer, Applications of computer. Human Computer Interface: Types of software, Operating system as user interface, utility programs, Number System. Input and Output Devices, Windows concepts, general features of windows, different parts of windows screen, Icon explanation, mouse properties, multitasking, folder creation, use of recycle bin, control panel, calculator, note pad and task bar.	
Unit 2	Input and Output Devices	8 Hours
	Components of computer system, Input Devices: wired/wireless, Keyboard, Mouse, Joystick, Scanner, Digitizers, Light pen, Touch screen, Barcode scanner, Output Devices, Monitor (CRT, LCD, LED), Printer, Dot Matrix, Inkjet, Laser, Thermal, Plotter, Barcode Printers, Sound devices, Speaker, Headphone, Bluetooth, Dongle.	
Unit 3	Memory Management Techniques	10 Hours
	Types and characteristics, Classification, Semiconductor, Magnetic, Optical ROM and its types, RAM and its types: SDRAM, EDORAM, DDR Series, Flash RAM. Secondary Memory, Hard Disc Drive, Floppy Disc, CDROM, DVD, Pen Drive, flash memories: Mini/micro, SD Card Formatting and Utility Tools.	
Unit 4	Computer Organization and Architecture	10 Hours
	C. P. U., registers, system bus, main memory unit, cache memory, Inside a computer, SMPS, Motherboard, Ports and Interfaces, expansion cards, ribbon cables, memory chips, processors.	

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	Computer Networks	10 Hours
Unit 5	Introduction to computer network, data communication, components of data communication, data transmission mode, LAN (LAN Topologies: Ring, bus, star, mesh and tree topologies), MAN, WAN. Internet, Intranet. Introduction to Guided Media: Twisted pair, Coaxial cable, Optical fiber. Unguided media: Microwave, Radio frequency propagation, Satellite. Network Devices: NIC, repeaters, hub, bridge, switch, gateway and router. OSI, TCP/IP, layers and functionalities.	
TEXT BOOKS: <ol style="list-style-type: none">1. Computer Fundamentals: N. Mythili Devi and E. Padma Sri, SKYWARD Publishers.2. Introduction to computer concepts: Pearson publication.3. Computer Networks 2013 by Andrew S. Tanenbaum		
REFERENCE BOOKS: <ol style="list-style-type: none">1. Computer Fundamentals: Anita Goel, Pearson publication.2. Fundamentals of Computers-V. Rajaraman.: PHI(EEE)3. Network Flows: Theory, Algorithms, and Applications by Ravindra K. Ahuja, Thomas L. Magnanti, James B. Orlin. 1993.		

First Semester			
Subject Name: Computer Hardware and Networking Lab			
Subject Code	BACSP 102	CIE Marks	10
No of Hours/Week:	4	SEE Marks	40
Total Hours:	60	Credits	2

LIST OF PRACTICAL PROGRAMS

PART A:

1. Draw the block diagram of computer and tabularly mention the basic configuration of present PC.
2. To Study the Front panel indicators & switches and Front side & rear side Connectors.
3. Study the peripheral device (Keyboard, Mouse, Monitor, and Printer).
4. Study the over view of Mother Board and Microprocessor.
5. To study the Memory RAM, ROM, DDR Series, Hard disk, CD and DVD
6. Study the different types of ports, Cable and Connectors
 - Serial and Parallel port
 - PS/2 Port
 - VGA Port
 - Audio Ports
 - Expansion Slots

PART B:

1. DOS based practical Internal and External commands.
2. Configure BIOS setup program and troubleshoot the typical problems using BIOS utility.
3. Desktop and control panel settings of windows operating system.
4. Assembling and disassembling the system hard ware components of the personal computer
5. Format the System. Installation of software and anti-virus software.
6. Install and configure Scanner, Web cam, Cell phone and bio-metric device with system and troubleshoot the problems

Second Semester			
Subject Name: ICT Tools			
Subject Code	BACST 201	CIE Marks	20
No of Hours/Week:	3	SEE Marks	80
Total Hours:	48	Credits	3

COURSE OBJECTIVES:

1. For the beginner students learning by using text based is difficult to programming concepts.
2. By using flowcharts, Students can concentrate on programming concepts rather than all the nuances of a typical programming language

COURSE OUTCOMES:

After studying this course, the students able to,

1. Understand the advanced features of MS-Word to make day to day usage easier
2. Work comfortably with MS-Excel Environment to create work sheets and use advanced feature of Excel.
3. Work with MS power point to create presentations and inserting multimedia.
4. Develop skills to use various social networking sites like twitter, flicker, etc.
5. Learn few GOI digital initiatives in higher education.
6. Apply skills to use online forums, docs, spreadsheets, etc. for communication, collaboration and research.

Unit 1	Introduction to MS Word	10 Hours
	Features of MS-Word, MS-Word Window components, Starting MS-Word, Basic of MS-Word, Entering and saving text in a document, closing the MS-Word, opening of an existing document, working with formatted text, Shortcut keys, Formatting documents: Selecting text, Copying & moving data, Formatting characters, changing cases, Paragraph formatting, Indents, Drop Caps , Using format painter, Page formatting, Header & footer, Bullet and numbering, undo and redo, working with fonts, page break, header and footer, page setup, Tabs, Forming tables. Finding & replacing text, go to(F5) command, proofing text (Spell-check, Auto correct).	
Unit 2	Introduction to MS Excel & Its Applications	10 Hours
	INTRODUCTION TO MS EXCEL & ITS FEATURES MS-Excel: Excel Features, Spreadsheets, workbooks, creating, saving & editing a workbook, renaming sheet, cell entries (numbers, labels, and formulas), spell check, find and replace, Adding and deleting rows and columns Filling series, fill with drag, data sort, Formatting worksheet, Functions and its parts, Some useful Functions in Excel (SUM, AVERAGE, COUNT, MAX, MIN, IF). Introduction to charts: types of charts, creation of charts, printing a chart, printing worksheet – Sort – Filters – View Menu.	
Unit 3	MS-PowerPoint and Its Applications	10 Hours
	MS-Power Point: Features of Power Point, Uses, components of slide, templates and wizards, using template, choosing an auto layout, using outlines, adding sub headings, editing text, formatting text, using master slide, adding slides, changing color scheme, changing background and shading, adding header and footer, adding clip-art and auto shapes. Various presentation, Working in slide sorter view(deleting, duplicating, rearranging slides), adding transition and animations to slide show,	

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	inserting music or sound on a slide, viewing slide show, Printing slides.	
Unit 4	Fundamentals of Internet	8 Hours
	Internet, Internet applications, Internet Addressing- Entering a Web Site Address, URL Components of URL, Searching the Internet, Browser -Types of Browsers, E-mail: Definition of E-mail-Advantages and Disadvantages -User Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, Message Composition, Mail Management. Overview of Internet security, E-mail threats and secure E-mail, Viruses and antivirus software, Firewalls, Cryptography, Digital signatures, Copyright issues.	
Unit 5	Digital Platforms and Initiatives	10 Hours
	Introduction to Social Networking: Twitter, Tumblr, LinkedIn, Facebook, flicker, Skype, yahoo, YouTube, WhatsApp.	
	G-Suite: Google drive, Google documents, Google spread sheets, Google Slides and Google forms.	
GOI digital initiatives in higher education: SWAYAM, Swayam Prabha, National Academic Depository, National Digital Library of India, E-Sodh-Sindhu, Virtual labs, e-Acharya, e-Yantra and NPTEL.		
TEXT BOOKS:		
<ol style="list-style-type: none"> 1. Computer Fundamentals–Pradeep. K.Sinha: BPB Publications. 2. Fundamentals of Computers -Reema Thareja, Oxford University Press India 		
REFERENCE BOOKS:		
<ol style="list-style-type: none"> 1. Fundamentals of Computer – V. Rajaraman, Printice Hell of India. 2. Introduction to Computers–Peter Norton McGraw-Hill. 3. Microsoft Office 2010: John Walkenbach, Herb Tyson, Michael R Groh, Faithe Wempen. 4. Microsoft office 2010 The complete reference- by Virginia Andersen. 5. In-line/On-line Fundamentals of the Internet and the World Wide Web, 2/e by Raymond Greenlaw and Ellen Hepp, Publishers: TMH 6. Internet technology and Web design, ISRD group, TMH. 7. Information Technology The breaking wave, Dennis Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH. 		

Second Semester			
Subject Name: ICT Tools Lab			
Subject Code	BACSP 202	CIE Marks	10
No of Hours/Week:	4	SEE Marks	40
Total Hours:	60	Credits	2

LIST OF PRACTICAL PROGRAMS

PART A:

1. Design a visiting card for Managing Director of a company as per the following specification.
 - Size of visiting card is $3\frac{1}{2}\times 2$
 - Name of the company with big font
 - Phone number, Fax number and E-mail address with appropriate symbols.
 - Office and Residence address separated by a line.
2. Create a table with following columns and display the result in separate cells for the following
 - Emp Name, Basic pay, DA, HRA, Total salary.
 - Sort all the employees in ascending order with the name as the key
 - Calculate the total salary of the employee
 - Calculate the Grand total salary of the employee
 - Finding highest salary and
 - Find lowest salary
3. Prepare an advertisement to a company requiring software professional with the following
 - Attractive page border
 - Design the name of the company using WordArt
 - Use at least one clipart.
 - Give details of the company (use bullets etc.)
 - Give details of the Vacancies in each category of employee's (Business manager, Software engineers, System administrators, Programmers, Data entry operators) qualification required.
4. Create two pages of curriculum vitae of a graduate with the following specifications
 - Table to show qualifications with proper headings
 - Appropriate left and right margins
 - Format $\frac{1}{2}$ page using two-column approach about yourself
 - Name on each page at the top right side
 - Page no. in the footer on the right side.
5. Create a letter as the main document and create 10 records for the 10 persons use mail merge to create letter for selected persons among 10.

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6. Create an excel spreadsheet to calculate the net pay of the employees following the conditions below.

	A	B	C	D	E	F	G	H	I
1	EMP ID	EMP NAME	BASIC	DA	HRA	GPF	INCOME TAX	GROSS SAL	NET SAL
2									

- DA: -56% of the basic pay if Basic pay is greater than 20000 or else 44%.
- HRA: -15% of the Basic pay subject to maximum of Rs. 4000.
- GPF: -10% of the basic pay.
- INCOMETAX: - 10% of basic if Basic pay is greater than 20000.
- Find who is getting highest salary & who is get lowest salary?

7. The ABC Company shows the sales of different product for 5 years. Create BAR Graph, 3D and Pie chart for the following.

A	B	C	D	E	F
SL.NO.	YEAR	PROD1	PROD2	PROD3	PROD4
1	2019	1000	800	90	1000
2	2020	800	90	70	1100
3	2021	1200	190	100	900
4	2022	600	260	58	1400
5	2023	1800	510	80	800

8. Create a suitable examination data excel sheet and find the sum of the marks (total) of each student and respective, class secured by the student.

- Pass: if marks in each subject ≥ 35
- Distinction: if average ≥ 75
- First class: If average ≥ 60 but < 75
- Second Class: if average ≥ 50 but less than 60
- Third class: if average ≥ 35 but less than 50
- Fail: if marks in any subject < 35

9. Enter the following data into the sheet.

NAME	DEPARTMENT	SALARY
Anusha	Accounts	30000
Ramesh	Marketing	20000
Tejaswi	Engineering	44000
Harika	Accounts	35000
Poornima	Engineering	56000
Vijay	Marketing	22000
Prasad	Accounts	48000
Swetha	Engineering	60000
Rajesh	Marketing	19000

- Extract records for department Accounts and Salary > 10000
- Sort the data by salary with the department using “sort commands”.
- Calculate total salary for each department using Subtotals

10. Create a presentation with slide transitions and animation effects.

PART B:

1. Create an Email account for yourself- Send an email with two attachments to another friend.
Group the email addresses use address folder.
2. Establish a video conference using Skype/Gmeet and share your screen or presentation.
3. Create your own YouTube Channel and upload few educational videos.
4. Create few folders in Google Drive to organize the data and upload your data into the folders.
5. Create a Google docs and share them to your friends with different access permissions.
6. Create a Google sheet and share the link with your friends to update online.
7. Create a Google Slides and share the link with your friends to modify online.
8. Create a registration form for your college campus placement through Google forms.
9. Create a Google form and share the link with your friends to conduct online test (MCQ's).
Display the result.
10. Register for one online course through any of the online learning platforms like NPTEL, SWAYAM, Code academy, Coursera.

**Question Paper Pattern for Semester End Examination (SEE)
(Common for I and II Semester)
SUBJECT NAME**

Time: 3 Hours

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.