

Computer Application & Programming

1. **Course title: Computer Application & Programming**

2: **Course Code –Co-301**

3: **Semester- 3rd**

4: **Aim of the Course :**

- To give basic concepts related to organization of a computer
- To give fundamental terminologies in networking
- To develop simple programs in C.

5: **Course Outcome:**

On completion of the course students will be able to:

- Explain the basics of a computer hardware and software
- Solve problems related to number systems
- Define basics of Operating System
- Familiarize with networking components
- Write simple C programs

6: **Prerequisites for the Course:** Have basic idea about a computer and its functions.

7: **Teaching Scheme (in hours):**

Teaching Scheme			
L	T	P	Total hours per week
3	0	3	6

8: ExaminationScheme :

	Theory (T)	Sessional (TS)	Practical (P)	Practical Sessional (PS)
Full Marks	70	30	25	25
Pass Marks	33		17	

9: Detailed Course Content:

Unit	Topic/Sub-Topics	Intended Learning Outcome	Hours
1	Computer Architecture: Brief history, Charles Babbage Machine, Von Neumann Architecture, block diagram, memory & its different types, I/O devices, Role of O.S., computer languages, translator software, editor. Data, different types of data, information and its characteristics	<ol style="list-style-type: none"> 1. Define a computer and identify its parts. 2. Define computer memory & describe its different types. 3. Define computer languages & translators. 4. Describe the characteristics of information. 	8
2	Number System and codes: Different number system- decimal, binary, octal, hexadecimal number system, their conversion, 1's and 2's Complement, subtraction using complements. Different codes- ASCII, BCD, Ex-3, Gray. Conversion from Gray to binary and vice-versa, BCD addition.	<ol style="list-style-type: none"> 5. Define decimal, binary, octal & hexadecimal number systems. 6. Convert between different number systems. 7. Define 1's & 2's complements. 8. Subtract using 1's & 2's complements. 9. Describe some different codes. 	8

Unit	Topic/Sub-Topics	Intended Learning Outcome	Hours
3	<p>Introduction to Operating System:</p> <p>Definition, single user and multi-user OS, different function performs by OS, various popular OS like DOS, Windows, UNIX/LINUX. DOS and UNIX commands.</p>	<p>10. Define operating system.</p> <p>11. Operate different commands of DOS, Windows & UNIX/LINUX.</p>	5
4	<p>Computer Network and the Internet:</p> <p>Definition, necessity of network, different types of network-LAN, MAN, WAN, network topology, transmission media, different network devices like NIC, hub, bridge, switch, gateway. Introduction to the internet, Internet services, browser, search engine.</p>	<p>12. Define network.</p> <p>13. Describe different types of network.</p> <p>14. Define network topology.</p> <p>15. Describe different network devices.</p> <p>16. Define internet & describe different internet services.</p> <p>17. Explain use of different browsers & search engines.</p>	6
5	<p>Introduction to C programming:</p> <p>Fundamentals of programming-Algorithm & Flowchart, source code and object code., Basic structure of C programs, Executing a C program, Constants, Variables, and data types. Operators and expression, Input Output function like printf, scanf, getchar, putchar, gets, puts, Decision making and branching using IF..Else, Switch, looping using for, while, and do-while, array.</p>	<p>18. Write algorithm and flow charts for simple programs</p> <p>19. Define basic terminology of C language.</p> <p>20. Write small program using C language.</p> <p>21. Write diversified solutions using C language.</p> <p>22. Differentiate between IF..Else and Switch statement.</p>	15
	Internal Assessment		3

10: Distribution of Marks:

Unit	Topic	Type of Question			Total Marks
		Objective	Short	Descriptive	
1	Computer Architecture	6	5	5	16
2	Number System and codes	4	2	8	14
3	Introduction to Operating System	4	2	4	10
4	Computer Network and the Internet	5	3	6	14
5	Introduction to C programming	6	3	7	16
		25	15	30	70

11: Table of specification :

Unit	Topics (a)	Time allotted in hours (b)	Percentage Weightage (c)	K	C	A	HA
1	Computer Architecture	8	19	✓			
2	Number Systems & Codes	8	19	✓		✓	
3	Introduction to Operating Systems	5	12	✓			
4	Computer Network & the Internet	6	15	✓		✓	
5	Introduction to C Programming	15	35	✓		✓	
Total		Σ b=42	100				

K = Knowledge C =Comprehension A =Application HA =Higher Than

Application (Analysis, Synthesis, Evaluation)

$$c = \frac{b}{\Sigma b} * 100$$

Detailed Table of Specifications

Unit	Topics	Objective				Short					Descriptive				
		K	C	A	T	K	C	A	HA	T	K	C	A	HA	T
1	Computer Architecture	7			7	5				5	4				4
2	Number Systems & Codes	4			4	2				2	4		4		8

3	Introduction to Operating Systems	4		4	2			2	4			4
4	Computer Network & the Internet	5		5	3			3	3		4	7
5	Introduction to C Programming	5		5	3			3	3		4	7
Total		25		25	15			15	18		12	30

K = Knowledge C = Comprehension A = Application HA = Higher Than Application T = Total

10. Intellectual Skills :

- Logical reasoning
- Relating programming concepts in problem solving

11. Motor Skills :

- Learn to use and handle a computer and its peripherals.

List of Lab Exercises :

I. Basic commands for computer system maintenance.

II. Preparation of Documents

Introduction to Word processing, Opening a document, preparing documents, inserting diagrams and tables, Editing document- (a) Character, word and line editing, (b) Margin Setting, Paragraph alignment, (c) Block Operations, (d) Spell Checker, (e) Saving a document, (f) Mailmerge.

III. Information Presentation through Spread Sheet

Application of Spread Sheet, Structure of spreadsheets, preparing table for simple data and numeric operations, using formulae and functions in excel operations, Creation of graphs, Pie charts, bar charts.

IV. Preparation of presentation

Creation of electronic slides on any topic, Practice of animation effect, presentation of slides.

V. Programming in C

Editing a C program, defining variables and assigning values to variables Arithmetic and relational operators, arithmetic expressions and their evaluation Practice on in iput/output function like getch, putchar, gets, puts, scanf, printf etc. Programming exercise on simple if statement, If..else statement, switch statement Programming exercise on looping with do-while, while, for loop and array.
