BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI - 620 024.
CENTRE FOR DISTANCE AND ONLINE EDUCATION

ALLIED COMPUTER SCIENCE FOR B.Sc. PROGRAMMES

(For the candidates admitted from the academic year 2026-27 onwards)

ALLIED COURSE I
PROGRAMMING IN C
(Theory)

COURSE OBJECTIVES:

- To express algorithms and draw flowcharts in a language independent manner.
- To teach how to write modular, efficient and readable C programs
- To impart knowledge in creating and using Arrays of the C data types.

UNIT - I:

Algorithms – Flow charts – Developing algorithms and flowcharts for solving simple problems using sequential, selection and iterative programming Structures.

UNIT - II:

History of C and its importance – Structure of a C program – Data Types – Constants and Variables – Operators and Expressions – Control structures – Looping structures.

UNIT - III:

Arrays – Character Arrays and Strings – User defined functions.

UNIT - IV:

Pointers: Introduction – Pointer Expressions – Chain of Pointers –Pointers and Arrays – Array of Pointers – Pointers as function arguments – Functions returning Pointers – Pointers to Functions – Function pointer – Pointers and Structures

UNIT - V:

Structures: Introduction – Defining a structure – Declaration of structure – Accessing Structures members – Array of Structures – Structures within structures – Structures and functions – Structures and Pointers – Union. Files: Opening and closing files – Operations on files.

UNIT – VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned.

REFERENCES:

1. S. Jaiswal, “Information Technology Today”, Galgotia Publications, New Delhi, Fourth Edition, 2009.
2. E. Balagurusamy, “Programming in ANSI C”, Tata McGraw Hill, New Delhi, Seventh Edition, 2016.
3. E.Horowitz, S.Sahni and Susan Anderson Freed, “Fundamental Data Structures in C”, 2ed, Orient BlackSwan Publisher, 2009.
4. Byron S. Gottfried, “Programming with C”, Schaum’s Outline Series, Tata-McGraw Hill Edition, New Delhi, 1991.
5. E. Karthikeyan, “A Textbook on C Fundamentals, Data Structures and Problem Solving”,Prentice-Hall of India Private Limited, New Delhi, 2008.
6. YashavantKanetkar, “Let us C”, BPB Publications, Tenth Edition, New Delhi, 2010.
7. Szuhay, Jeff, and Szuhay, Jeff, “Learn C Programming: A Beginner's Guide to Learning C Programming the Easy and Disciplined Way”, Packt Publishing, 2020.
8. Jena, Sisir Kumar, and Jena, Sisir Kumar, “C Programming: Learn to Code”, CRC Press, 2021.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Recall algorithms and flowcharts for computing logic
- Summarize the basic knowledge to develop C programs
- Apply and implement programs for solving real world problems
- Examine and explore the use of memory allocation for application programs
- Design and develop alternate methods of solving variety of problems

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ALLIED PRACTICAL I
PROGRAMMING IN C LAB
(practical)

COURSE OBJECTIVES:

- To introduce students to the basic knowledge of programming fundamentals of C language.
- To impart writing skill of C programming to the students and solving problems.
- To impart the concepts like looping, array, functions, pointers, file, structure.

1. Write a Program to convert temperature from degree Centigrade to Fahrenheit.
2. Write a Program to find whether the given number is Even or Odd.
3. Write a Program to find the greatest of Three numbers.
4. Write a Program to use the switch statement to display Monday to Sunday.
5. Write a Program to display first Ten Natural Numbers and their sum.
6. Write a Program to find Multiplication of Two Matrices.
7. Write a Program to find the maximum number in Array using pointer.
8. Write a Program to reverse a number using pointer.
9. Write a Program to solve Quadratic Equation using functions.
10. Write a Program to find factorial of a number using Recursion.
11. Write a Program to show Call by Value and Call by Reference.
12. Write a Program to add two numbers using pointer.
13. Write a Program to create a file containing Student Details.
14. Write a Program to update the details of student's information using various file modes.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Relate the ways to solve simple programs
- Understand and trace the execution of programs using arrays
- Develop programs with functions and pointers
- Compare and contrast structures and unions
- Solve data handling problems using files

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ALLIED COURSE II
PRINCIPLES OF INFORMATION TECHNOLOGY
(Theory)

COURSE OBJECTIVES:

- To Provide the Basic Concepts in Information Technology
- To adapt to emerging technologies used in the global marketplace.
- To implement personal and interpersonal skills

UNIT - I:

Introduction to Computer – Classification of Digital Computer System – Computer Architecture – Memory Units – Auxiliary Storage Devices – Input and Output Devices.

UNIT - II:

Introduction to Computer Software – Operating System – Programming Languages – General Software Features and trends.

UNIT - III:

Database Management Systems – Data Processing – Introduction to Database Management System – database design.

UNIT - IV:

Introduction to Telecommunication – Networking – Communication System – Distributed System – Internet – Intranet.

UNIT - V:

Multimedia tools – Virtual Reality – E-Commerce – Data warehousing – Data Mining – Applications; Geographical Information System – Computer in Business, Industry, Home, Education and Training.

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned.

REFERENCES:

1. Fundamentals of Information Technology, Alexis Leon And Mathews Leon, Vikas Publishing House Pvt. Ltd, 2009
2. Henry C.Lucas, Jr., Information Technology for Management – McGraw Hill (Part – III).c,1999
3. Williams, Sawyer, Hutchinson, Using Information Technology – McGraw Hill.1999

4. Stephen Doyle, "Understanding Information Technology", Stanley Thornes, 2000
5. Kathleen M. Austin, Lorraine N. Bergkvist, "Principles of Information Technology", Good heart-Willcox Company, 2015
6. V. Rajaraman, "Introduction To Information Technology", PHI Learning Pvt. Ltd, 2018

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Explore careers in information technology
- Work with the Internet and other technologies for information exchange
- Handle online security and privacy issues
- Analyze the different types of application software, such as word processing, desktop publishing, spreadsheet, and presentation software
- construct the basics of database technology