



UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A' GRADE UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section

Email: academicsectionju14@gmail.com

NOTIFICATION **(23/July/Adp./59)**

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the revised Syllabus and Courses of Study for **Two Year Master of Computer Application (MCA) Programme for Semester IVth, Open Course- PSCSATO452 (Problem Solving and Programming in C)** under the **Choice Based Credit System** for the examination to be held in the years **May 2024, 2025 and 2026.**

The Syllabi of the courses is available on the University website: www.jammuuniversity.in

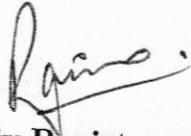
Sd/-
DEAN ACADEMIC AFFAIRS


No. F. Acd/II/23/6319-6329

Dated: 11-7-2023.

Copy for information and necessary action to:

- 1 Dean, Faculty of Mathematical Sciences
- 2 HOD/Convener, Board of Studies in **Computer Science & IT**
- 3 Sr. P.A. to the Controller of Examinations
- 4 All members of the Board of Studies
- 5 Confidential Assistant to the Controller of Examinations
- 6 I/C Director, Computer Centre, University of Jammu
- 7 Deputy Registrar/Asst. Registrar (Conf. /Exams. P.G)
- ✓ 8 Incharge, University Website for Uploading of the notification.


Deputy Registrar (Academic)


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10/7/23

OPEN COURSE SYLLABUS

Course title: **Problem Solving & Programming in C**
Course no: **PSCSATO452**
No. of credits: **04**
Total marks: **100**

Minor Test 1: **20 Marks of 1.5 hours duration**
Minor Test 2: **20 Marks of 1.5 hours duration**
Major Test: **60 Marks of 3.0 hours duration**

For examinations to be held in May- 2024, 2025 and 2026

Course Objectives & Learning Outcomes:

- The course aims to provide exposure to problem-solving through programming.
- To train the student to the basic concepts of the C-programming language.
- Student can write program on a computer, compile, debug and execute it, and hence use computers effectively to solve the task.
- Students will be able to choose the right programming constructs & data representation formats based on the requirements of the programming task in hand.
- The programming knowledge & skills developed will enable them to apply computer technology to develop algorithms and applications in other disciplines.

UNIT-I Problem Solving & C Basics

Steps for problem solving, Computer as a tool for problem solving. Program Design tools: Algorithm, Pseudocode and Flowchart Designing.

History of C, Characteristics of C, Compiling, linking and running a C-program.

C Program Structure, Data Types, Variables and Constants, Input Output statements, Variables, Constants, Type-Casting, Operators and Expressions, Operator Precedence & associativity.

10 HOURS

UNIT-II Control Statements & Functions

Selection statements, Repetitive statements, Syntax, Semantic, Linker, Logical and Runtime errors.

Functions, Passing Parameters, Library functions, Recursion, Storage classes.

10 HOURS

UNIT-III Arrays & Preprocessor Directives

Single and Multi-Dimensional Arrays, Passing array elements to functions, Strings, Basic String Handling Functions.

Standard C Preprocessor Directives. Standard Formatted & unformatted I/O Functions.

10 HOURS

UNIT-IV Pointers & User-defined data types

Pointers: Pointers arithmetic, Dynamic Memory Allocation, Pointers to Pointers, Pointer to an array, Passing arrays to functions, Array of pointers, Command line arguments.

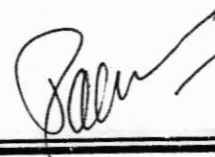
Structures, Nested Structures, Array of structures, Unions, Enumerated Types, Typedef.

10 HOURS

UNIT-V File Handling

Concepts of File Management, Working with text files and Binary Files, Character and Line Based I/O, Formatted I/O, Block I/O, File Positioning, Random Access Files.

10 HOURS



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SUGGESTED READINGS/ REFERENCES:

1. B. Kernighan and D. Ritchie, "The ANSI C Programming Language", 2nd Edition, Pearson, 2015.
2. Yashwant Kanetkar, "Let us C", 17th Edition, BPB Publications, 2020.
3. R.G. Dromey, "How to solve it by Computer", Pearson Education, 2008.
4. E. Balagurusamy, "Programming with ANSI-C", Sixth Edition, 2012, Tata McGraw Hill.
5. Jeri R. Hanly and Elliot B. Koffman, "Problem Solving and Programming in C", Pearson, 8th Edition 2015.
6. H. M. Deitel, P. J. Deitel, "How to program", 7th edition, Pearson Education, 2010.
7. Behrouz A. Forouzan and Richard F. Gilberg, "Computer Science: A Structured Programming Approach Using C", PHI, 3rd Edition, 2007.

NOTE FOR PAPER SETTERS FOR MAJOR EXAMINATIONS -

The question paper shall be divided into sections A & B as below. No question shall be repeated in the question paper.

Section A - There shall be FIVE short answer type questions of THREE mark each. In this section, questions shall be covered from each unit and the candidates shall be required to answer all the questions. **(3 x 5 = 15 marks)**

Section B - There shall be THREE long answer type questions each set from Unit -III, IV and V with internal choice. Each question shall carry FIFTEEN marks. **(3 x 15 = 45 marks)**