

# National Institute of Technology Jamshedpur – 831 014

## Department of Computer Applications

Autumn Semester ( Session 2020 – 21)

### Course Handout

<b>Batch</b>	:	<b>M. Sc. (Maths) (1st Semester)</b>
<b>Course No.</b>	:	<b>MA3105</b>
<b>Course Title</b>	:	<b>C Programming</b>
<b>Instructor In-Charge</b>	:	<b>Prof. D. A. Khan</b>

### Course Description

#### Computer Programming and Problem Solving:-

This course provides introductory background in computer Programming and Problem solving for graduate students. Students must understand how a computer functions in addition to knowing how to program it. C is a popular programming language, which is commonly used by scientists and engineers to write programs for any specific applications. C is also a widely accepted programming language in the software industry. It has emerged as the language of choice for most application due to its speed, portability, and compactness of code.

### Scope

- To provide a good fundamental concept about various role of To develop excellent understanding about Computer Programming and it's coding or Programming strategic.
- To make Excellent Programming Skill.

### Objectives

- At the end of this course, the student will able to understand the importance of Computer Programming.
- At the end of this course, the student will able to apply their Programming skills for key programming and design techniques making process for overall growth of an organization.

### Text Books :

1. Problem Solving and Program Design in C, by Jeri R. Hanly, Elliot B. Koffman, Pearson, Addison-Wesley, 2006.
2. Computer Science- A Structured Programming Approach Using C, by Behrouz A. Forouzan, Richard F. Gilberg, Thomson, Third Edition [India Edition], 2007.
3. Computer fundamentals and C programming, Dr.Amiya Kumar Rath, SCITECH.

### Course Plan

<b>Lec. No.</b>	<b>Learning Objectives</b>	<b>Topics to be covered</b>	<b>Refer to chapter see (text book)</b>
1-2	Programming language, introduction to Operating System, Write and Execute the first program	<b>Introduction</b>	T1 CH 1,2 T3 ch1
3-5	<i>Introduction:</i> Algorithms, Flow charts, Problem solving methods, Need for computer languages, Structure of a C program.	<b>Fundamentals</b>	T1 T2(ch2,3) T3 ch 7
6-9	, Data type, Constants, Variables, Identifiers, Key words, Declarations, Expressions, Statements and Symbolic constants.	<b>Algorithms</b>	T1(ch 3) T3 ch 7
10-15	<i>Input and Output:</i> getchar, putchar, scanf, printf, gets, puts functions, Pre-processor commands, Preparing and running a	<b>Input and Output C</b>	T1(ch 4,5,6) and T2 (3 to

	complete C program. Operators and expressions: Arithmetic, unary, logical, bit-wise, assignment and conditional operators, Library functions. <i>Control statements:</i> While, do-while, for statements, nested loops, if-else, switch, break, continue and goto statements, comma operator.	<b>Programmin g</b>	7) T3 (ch:- 8 ,9, 10,11)
15-20	<i>Functions:</i> Defining and accessing function, passing arguments, function prototypes, recursion, use of library functions, storage classes. <i>Arrays:</i> Defining and processing an array, Passing array to a function, Multi dimensional arrays, String handling, Operations on strings.	<b>Functions of C Programming</b>	T1(ch 8,9) and T2 (ch 9) T3 (ch:- 12)
21-35	<i>Pointers:</i> Declarations, Passing pointer to a function, Operations on pointers, Pointers and arrays, Arrays of pointers. <i>Structures and unions:</i> Defining and processing a structure, Passing structure to a function, Pointers and structures, Unions, Dynamic memory allocation, defining and using stacks and linked lists.	<b>Pointers and Structure &amp; Union</b>	T1(ch 10,11) T3 (ch:- 13, 14,15, 16)
36-42	<i>File handling: Open, Close, Create, File operations, Unformatted data files, Command line arguments.</i>	<b>File Processing</b>	T1 (ch 1, 12) T3 (ch:- 17)

### Evaluation Scheme (EC)

EC No.	Evaluation Component	Duration	Weightage	Date & Time	Nature of Component
1.	Mid Term Examination	02 Hours	30%	Academic Calendar	
2.	End Term Examination	03 Hours	50%	Academic Calendar	
3.	Internal Assessment	--	20%	TBA	(Class Test, Attendance, Assignments/Reports/Projects/Seminars)
Class Test/Reports/Projects/Seminars - 10 Marks, Assignment- 05 Marks, Attendance & Punctuality in class- 05 Marks					

Chamber consultation hour: Thursday, 5.00 Pm - 6.00 Pm, Chamber

Notices: All notices regarding the course will be displayed only on the Department of Computer Applications notice board.

Instructor In-Charge  
**MA3105**