Program Name: Integrated M.Sc. (IT)
Level: Post Graduate
Branch: Information Technology
Subject Code : 1BS104
Subject Name : Introduction to Programming

w. e. f. Academic Year:	2024
Semester:	1
Category of the Course:	Major Course

Prerequisite:	**NIL**
Rationale:	This course covers basic knowledge of C programming

Course Outcome:

After Completion of the Course, the Student will able to:

No	Course Outcomes
01	Understand basic concepts of Programming.
02	Understand and apply concepts of control structure statements.
03	Understand and apply concepts of array and string.
04	Understand and apply concepts of functions.
05	Understand and apply concepts of Pointer, Structure & Union.

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			C Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	**T**	**PR**	**C**	Theory		Tutorial / Practical		
				SEE (TH)	IAT	CCE	SEE (P)	
2	0	4	4	70	30	20	30	150

Where SEE: Semester End Examination, IAT: Internal Assessment Test, CCE: Continuous and Comprehensive Evaluation

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	**UNIT 1: Introduction to Programming & Fundamentals of 'C':** 1.1 What is Programming? Concepts of Programming Language 　1.1.1 Source Code, Object Code, and Executable Code 　1.1.2 Flow Charts and Algorithms 　1.1.2 Concepts of Machine level, Assembly level, and High-level Language 1.2 Features of C language 1.3 Concepts of Editor, Compiler and Interpreter 1.4 Structure of C program, comments, header files 1.5 Data Types, Variables 1.6 Tokens 　1.6.1 Identifier 　1.6.2 Keywords 　1.6.3 Constants 　1.6.4 Strings 　1.6.5. Operators, Precedence and Associativity 　1.6.6. Special Characters 1.7 Expressions, Evaluation of Expressions 1.8 Type Conversion, 1.9 Basic I/O functions	**5**	**15**

2.	**UNIT 2: Control Structures in 'C':** 2.1 Simple statements 2.2 Decision-making statements 2.3 Looping statements 2.4 Nesting of control structures 2.5 Switch… case 2.6 Break and Continue Statement 2.7 Goto statement	5	15

3.	**UNIT 3: Array, String and Pointer**
	3.1 Concept of the array, One and Two-dimensional arrays
	3.2 Declaration and initialization of arrays
	3.3 String, String storage
	   3.3.1 Built-in string functions
	   (strcat(),strncat(),strlen(),strcmp(),strcpy(),strstr())
	3.4 Basics of pointers, pointer to pointer, pointer to the array, pointer to structure, array of pointer
	3.5 function returning a pointer
	3.6 Basics of structure, structure members, accessing structure members
	3.7 Nested structures, an array of structures
	3.8 Union
		7	25

4.	**UNIT 4: Functions** 4.1 Functions: Definition of a function, 4.2 Concept of user-defined functions, prototype 4.3 Parameters, Parameter Passing 4.4 Calling a function	7	25
5.	**UNIT 5: File Handling with C** 5.1 Defining and Opening a File- Closing File 5.2 I/O Operations on Files 5.3 Error Handling during I/O Operations	6	20
	Total	30	100

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks(%)					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
30	**40**	**30**	-	-	-

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:
(a) Books:
1. Programming In ANSI C by E. Balagurusamy published by Tata Mc Graw Hill
2. Let Us C: Authentic Guide to C Programming Language by Yashwant Kanetkar published by BPB Publications
3. C: How to Program, Deitel & Deitel - PHI
4. Programming in C, Pradip Dey & Manas Ghosh – Oxford
5. Programming for Problem Solving by Dr. S M. Shah and Dr. P. P. Kotak Mahajan Publishing House

(b) Open source software and website:
1. Learn C (learn-c.org)
2. spoken-tutorial.org

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Teaching Scheme (in Hours)			C Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
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				SEE (TH)	IAT	CCE	SEE (P)	
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Course Content:

Unit No.	Content	No. of Hours	% of Weightage

1.	**UNIT 1: Introduction to Programming & Fundamentals of 'C':**
	 1.2 What is Programming? Concepts of Programming Language
	   1.2.1 Source Code, Object Code, and Executable Code
	   1.2.2 Flow Charts and Algorithms
	   1.1.2 Concepts of Machine level, Assembly level, and High-level Language
	 1.7 Features of C language
	 1.8 Concepts of Editor, Compiler and Interpreter
	 1.9 Structure of C program, comments, header files
	 1.10 Data Types, Variables
	 1.11 Tokens
	   1.11.1 Identifier
	   1.11.2 Keywords
	   1.11.3 Constants
	   1.11.4 Strings
	   1.6.7. Operators, Precedence and Associativity
	   1.6.8. Special Characters
	 1.10 Expressions, Evaluation of Expressions
	 1.11 Type Conversion,
	 1.12 Basic I/O functions
		5	15

2.	**UNIT 2: Control Structures in 'C':** 2.8 Simple statements 2.9 Decision-making statements 2.10 Looping statements 2.11 Nesting of control structures 2.12 Switch… case 2.13 Break and Continue Statement 2.14 Goto statement	5	15

3.	**UNIT 3: Array, String and Pointer**
	3.9 Concept of the array, One and Two-dimensional arrays
	3.10 Declaration and initialization of arrays
	3.11 String, String storage
	    3.11.1 Built-in string functions
	    (strcat(),strncat(),strlen(),strcmp(),strcpy(),strstr())
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4. Programming in C, Pradip Dey & Manas Ghosh – Oxford
5. Programming for Problem Solving by Dr. S M. Shah and Dr. P. P. Kotak MahajanPublishing House

(d) Open source software and website:
1. Learn C (learn-c.org)
2. spoken-tutorial.org