

B.Sc. (Computer Science) I Year, I Semester (CBCS)
CS125: Programming in C
Academic Organizer 2016-17

Unit no/month	Sub Unit	Details	Periods	Total
JUNE UNIT I	a)	Unit-1: Introduction to Computers: Introduction, Characteristics of computers, Evolution of computers, Computer generations.	5	15
	b)	Basic Computer Organization: Block diagram of computer, Input unit, Output unit, Storage unit, ALU, Control unit, CPU.	5	
	c)	Number system: Conversion from Binary to Decimal and Decimal to Binary.	3	
	d)	Types of Software's (Operating Systems, Utility Programs and Application Programs).	2	
JULY UNIT-II	e)	Planning the computer program: Algorithms, Flow charts. Computer Languages: Machine language, Assembly language and High-level language: Compiler, Interpreter, Examples for High-level languages.	3	15
	f)	Operating systems: Main functions of an Operating system, Some popular Operating Systems.	2	
	g)	C Fundamentals: Introduction, Integrated Development Environment, Basic structure of C programs, Executing a C program,	3	
	h)	Character Set, C-Tokens, Keywords & Identifiers, Constants, Variables, Data Types.	2	
	i)	Unit- 2:Control, Decision Making Statements and Looping statements Operators, Arithmetic Expressions, type casting, Operator precedence and Associativity, Formatted Input (scanf), Formatted Output (printf).	5	
AUGUST UNIT-II III	j)	The simple if statement, if..else statement, Nesting if..else statements, The else if ladder, switch statement, conditional operator (? :).	2	15
	k)	Looping Statements: The while statement, do statement, for statement, Nesting of for loops, break statement, continue statement.	3	
	l)	Unit -3: Arrays, Strings and Functions Arrays: Introduction, One-Dimensional Arrays: Declaration of Arrays, Initialization of Array Two-Dimensional Arrays:	2	
	m)	Handling of Character strings: Introduction, Declaring and Initializing String variables, String Handling functions.	3	
	n)	User-Defined Functions: Introduction, Need for User-defined Functions, The form of C functions, Category of Functions:	2	
	o)	No arguments and no return values, Arguments but no return values, Arguments with return values. Recursion.	3	
SEP UNIT-IV	p)	Unit-4:Storage Classes, Structures, Unions, Pointers, Preprocessors Storage Classes: Storage Classes (Auto, static, register, extern).	3	15
	q)	Working with Structures: Structure Definition, Structure Initialization, Arrays of structures, Arrays within Structure	3	
	r)	Nested Structures (Structures within Structures), Unions, Enumerated Data types, The typedef statement.	3	

s)	Pointers: Understanding pointers, Accessing the address of a Variable, Declaring and Initializing pointers.	3
t)	Pointers Expressions, Dynamic Memory Allocation (Pointers with Memory allocation). The preprocessors: Macro Substitution (The # define statement), File Inclusion (# include - user defined header files).	3
TOTAL NO OF PERIODS		60

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BHAVAN'S VIVEKANANDA COLLEGE

OF SCIENCE, HUMANITIES AND COMMERCE

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Autonomous College

Affiliated to Osmania University

B.Sc.(Computer Science) -I Year, II Semester (CBCS) 2016-2017

CS 225:Programming in C++

Work Load: 60 Hrs.

Credits: 4

Unit	Topic	Periods per Subunit	Total Periods
I	Beginning with C++: Output operator, Input operator.	1	15
	Structure of C++ program.	1	
	Tokens and Expressions: Tokens – Keywords, Identifiers, Constants.	1	
	Basic data types, Derived data types and User defined data types, Declaration of variables, Dynamic initialization of variables,	1	
	Types of Operators,	2	
	Manipulators, Type Cast Operator,	1	
	Expressions and their types and Operator precedence.		
	Control Flow: Introduction, Statements and Block, Branching statements (if, if...else statement, nested if, switch),	2	
	Looping statements (while, do-while and for), break, continue statement.	2	
	Arrays and Strings: Introduction, Operations on Arrays:		
	Array definition, Accessing Array elements,	1	
	Accessing two-dimensional Array elements,	1	
	Strings, String Manipulations.	1	

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II	Modular programming with Functions:		
	Introduction, Function components		
	Library functions		1
			2
	Parameter passing (Pass by Value, Pass by Address and Pass by Reference)		
	Recursive functions		1
	Principles of OOP:		
	Basic concepts of OOP		2
	Benefits and applications of OOP		1
	Classes and Objects: Introduction, Specifying a class		1
	Creating objects, Accessing class members		1
	Defining member functions, Inline functions, Nesting of member functions		2
	Constructors and Destructors: Introduction, Constructors		1
	Parameterized constructors		1
	Constructors with default arguments		
	Copy constructors.		1
	Destructors		1
			15
III	Inheritance: Introduction, Defining derived class		2
	Single inheritance		1
	Multilevel inheritance		1
	Multiple inheritance		1
	Hierarchical inheritance		1
	Polymorphism: Function overloading (4 Ch)		2
	Defining Operator Overloading		1
	Overloading with Unary Operator		2
	Pointers(declaring and initializing pointers)		2
	virtual functions		2
	Ch-8, Ch-4, Ch-7, Ch-9 Refer Book 1		
IV	Templates: Introduction, Function Templates		2
	Class Templates		2
	Exception Handling: Introduction, Basics of Exception Handling,		2
	Throwing Mechanism,		2
	Catching Mechanism		2
	Multiple Catch Statements.		2
	Revision		3
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Department of Computer Science

B.Sc (Computer Science) II Year, Ist Semester

CS325: Object Oriented Programming with Java

Academic Organizer for 2016 - 2017(Non-CBCS)

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I(JUNE/JUL Y)-2016	a)	Java Evolution: Java Features – How Java differs from C - Java and Internet – Java and World Wide Web – Web Browsers – Hardware and Software Requirements.	4	15
	b)	Overview of Java Language: Simple Java Program – Java Program Structure – Java Statements – Implementing a Java Program – Java Virtual Machine – Command Line Arguments.	4	
	c)	Java Tokens- Keywords, Constants , Variables – Data types – Declaration of Variables-Giving Values to Variables- Scope of Variables-Symbolic Constants-Type Casting-Operators	4	
	d)	Operators-Arithmetic Operators – Relational Operators-Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operators – Bitwise Operators – Special Operators –Separators. Expressions -Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – Operator Precedence and Associativity.	3	
II(AUG)-2016	a)	Decision Making and Branching: Decision Making with If statement – Simple If Statement-If else Statement-Nesting If Else Statement- the Else If Ladder-The Switch Statement – The ?: operator. Looping: The while statement – The do statement – The for statement – Jumps	4	15
	b)	Fundamentals of Object Oriented programming: Object Oriented paradigm – Basic concepts of Object Oriented Programming – Benefits of OOP – Applications of OOP. Class, Objects and Methods: Defining a Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing class members – Constructors – Methods Overloading – Static Members – Nesting of Methods – Inheritance – Overriding Methods – Final Variables and Methods – Final Classes – Abstract Methods and Classes – Visibility Control.	4	

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	c)	Arrays, Strings and Vectors: One-dimensional Arrays-creating an Array, Two Dimensional Arrays.	3	
	d)	Strings – Vectors – Wrapper Classes – Enumerated Types.	4	
III(SEP)-2016	a)	Interfaces: Multiple Inheritance: Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables.	3	15
	b)	Packages: Java API Packages – Using System Packages – Naming Conventions – Creating Packages – Accessing a Package – Using a Package – Adding a Class to a Package – Hiding Classes – Static Import	4	
	c)	Exception handling: Managing Errors and Exceptions: Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple Catch Statements – Using Finally Statement – Throwing our own Exceptions – Using Exceptions for debugging.	5	
	d)	Throwing our own Exceptions – Using Exceptions for debugging.	3	
IV(SEP)/OCT)-2016	a)	Multithreaded Programming: Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods – Thread Exceptions	4	15
	b)	Thread Priority – Synchronization. Applet Programming: How Applets differ from Applications – Preparing to write Applets –	4	
	c)	– Building Applet Code – Applet Life Cycle – Creating an executable Applet – Designing a Web Page – Applet Tag – Adding Applet to HTML file – Running the Applet – More about Applet Tag –	4	
	d)	– Passing parameters to Applets – Aligning the display – More about HTML tags – Displaying Numerical Values – Getting Input from the user. Event delegation model(event handling).	3	
		TOTAL NO OF PERIODS		60



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Department of Computer Science

B.Sc (Computer Science) II Year, II Semester

CS425: Data Structures using Java

Academic Organizer for 2016 - 2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Sorting: Simple Sorting- Bubble Sort, Selection Sort	5	15
	b)	Insertion Sort, Quick Sort, Merge Sort	10	
II	a)	Linear Data Structures - Stacks , Queues	5	15
	b)	Circular Queues, Dequeues, Priority Queues	5	
	c)	Parsing Arithmetic Expressions(Infix, Prefix,Postfix)	5	
III	a)	Linked List-Single Linked List, Finding and Deleting Specified Links	6	15
	b)	Double Ended Lists, Abstract Data Types	4	
	c)	Sorted List,Doubly Linked List	5	
IV	a)	Binary Trees: Tree Terminology, Finding a node,inserting a node, Traversing the tree	5	15
	b)	Finding Maximum and Minimum values, Deleting a node, Efficiency of binary trees	5	
	c)	Trees reepresented as arrays, Graphs-DFS, BFS, Minimum Spanning Tree	5	
TOTAL NO OF PERIODS				60

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Department of Computer Science Academic Organizer for 2016-2017
B.Sc(Computers) III Year DBMS
Year Wise Lesson Plan

Month	Unit	Topic	Periods per Subunit	Total Periods
June(18)		Database Systems Introduction and Fundamentals.		18
	I	Database Systems: Introducing the database and DBMS, Why the database is important, Historical Roots: Files and File Systems, Problems with File System Data Management, Database Systems.	6	
	I	Data Models: The importance of Data models, Data Model Basic Building Blocks, Business Rules, The evaluation of Data Models, Degree of Data Abstraction.	6	
	I	The Relational Database Model: A logical view of Data, Keys, Integrity Rules, Relational Set Operators, The Data Dictionary and the system catalog, Relationships with in the Relational Database, Data Redundancy revisited, Indexes, Codd's relational database rules.	3	
	III	Introduction to SQL: Data Definition Commands, Data Manipulation Commands	3	
July(12)		Data Modeling and Normalization		12
	II	Entity Relationship Model: The ER Model, Developing ER Diagram, Database Design Challenges: Conflicting Goals.	5	
	II	Advanced Data Modeling: The Extended Entity Relationship Model, Entity clustering, Entity integrity: Selecting Primary keys, Design Cases: Learning Flexible Database Design.	5	
	III	Select queries, Advanced Data Definition Commands,	2	
Aug(10)		Data Modeling and Normalization		10
	II	Normalization of database tables: Database Tables and Normalization, The need for Normalization, The Normalization Process, Improving the design, Surrogate Key Considerations, High level Normal Forms, Normalization and database design, denormalization.	6	
	III	Advanced Select queries, Virtual Tables, Joining Database Tables.	4	
sept(10)		Interaction with Databases and Construction of Information System		10
	III	Database Design: The Information System, The Systems Development Life Cycle, The Database Life Cycle, Database Design Strategies, Centralized Vs Decentralized design.	5	
		Advanced SQL: Relational Set Operators, SQL Join Operators, Subqueries and correlated queries.,SQL Functions	5	
Oct(4)	III	Procedure SQL	4	4
		Transaction Management in DBMS Environment		
	IV	Transaction Management and Concurrency Control: What is transaction, Concurrency control, Concurrency control with locking Methods, Concurrency control with time stamping methods, concurrency control with optimistic methods, database recovery management.	6	

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Nov(14)	IV	Distributed Database Management Systems: The evolution of Distributed Database Management Systems, DDBMS advantages and Disadvantages, Distribution Processing and Distribution Databases, Characteristics of Distributed database management systems, DDBMS Components, Levels of Data and Process distribution.	6	14
	III	Procedure SQL	2	
Dec(10)	IV	Distributed database Transparency Features, Distributed Transparency, Transaction Transparency, Performance Transparency and Query Optimization, Distributed Database Design, Client Server VS DDBMS	5	10
	III	Procedure SQL	5	
Jan(12)	V	Data Warehouse Concepts and Database Administration		12
		The Data Warehouse: The need for data analysis, Decision support systems, The data warehouse, Online analytical processing, Star schemas, Data mining, SQL extension for OLAP.	6	
		Database Administration: Data as a Corporate asset, The need for and role of databases in an organization, The evolution of the database administration function, The database environment's Human Component, Database administration Tools, The DBA at work.	6	
TOTAL				90

Department of Computer Science Academic Organizer for 2016-2017
B.Sc(Computer Science) III Year: Web Technologies
Year - Wise Lesson Plan

Month	Unit	Topic	Periods per Subunit	Total Periods
June(18)	I	HTML Basics	1	18
		Introduction: HTML, XML, and the World Wide Web.	2	
		HTML: Basic HTML, The Document body, Text, Hyperlinks, Adding more formatting, Lists, Tables, Using colors and images, Images.	3	
		More HTML: Multimedia objects, Frames	12	
July (12)	I	More HTML: Frames, Forms-towards interactivity, The HTML document Head in detail, XHTML- An evolutionary markup.	3	12
		Introduction to the Style Sheets and Java Scripts.		
	II	Cascading Style Sheets: Introduction, Using styles: Simple examples, Defining your own styles, Properties and values in styles, Style sheets- A worked example, Formatting blocks of information, Layers.	6	
		An introduction to Java Script: What is dynamic html, Java Script, Javascript—The basics, Variables	3	
Aug(12)	II	Javascript—String manipulation, Mathematical functions, Statements, Operators, Arrays	12	12
Sept(9)	II	Javascript—Functions.	1	9
	III	Objects in Java Script and DHTML.		
		Objects in Java Script: Data and objects in java script, Regular expressions, Exception Handling, Built in objects, Events.	6	
		Dynamic HTML with Java Script: Data validation, Opening a new window	2	
Oct(4)	III	Dynamic HTML with Java Script: Messages and Confirmations	4	4
Nov(14)	III	The status bar, Writing to a different frames, Rollover buttons, Moving images, Multiple pages in a single download, A text-only menu system, Floating logos.	7	14
		ASP and XML.		
	IV	Active Server Pages and Java: Active Server Pages, Java. XML: Defining Data for Web applications: Basic XML	7	
Dec(10)	IV	Document type definition, XML schema, Document Object Model, Presenting XML. Good Design: Structure, Tables versus Frames, Accessibility, Internationalization, Exercises.	7	10
	V	Web Based Softwares and Protocols. Useful Software: Web browsers, Perl, Web servers, mod_perl, Databases, Accessing your ISP, Exercises Protocols: Protocols, IP	3	
Jan(11)	V	Protocols: Protocols, IP and TCP, Hyper Text Transfer Protocol, Common Gateway Interface, The Document Object Model, introducing the Document Object Model, Exercises. Case Study: The plan, The data	11	11
TOTAL				90

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