MAJOR and MINOR	Month	Number of	of Lectures	Торіс	
		Theory	Practical	Theory	Practical
SEMESTER I CMSACOR01T CMSACOR01P Computer Fundamentals and programming with C MAJOR	July	15	16	Overview of C History, Basic Structure, Algorithms, Structured programming constructs. Character sets, Tokens, Keywords, Constants, Variables, Data Types, Declaration of storage classes.	SOFTWARE LABORATORY
				Operators, Expressions and Preprocessor (8 Lectures) Arithmetic, Relational, Logical and Assignment; Increment and Decrement and Conditional, Bitwise, Special operator, Operator Precedence and Associativity; Arithmetic Expressions, Evaluation of expression, type casting. Comments, Input and output operations. Understanding the	
	August	10	12	Decision and Loop Control Structure If-else statements, Nested if-else, switch, Conditional operator. While, do-While, for loop, break statements, continue statements, goto statements.	SOFTWARE LABORATORY
	September	08	08	unctions and Arrays Utility of functions, Call by Value, Call by Reference, Functions returning value, Void functions, Inline Functions, Return data type of functions, Functions parameters, Differentiating between Declaration and	SOFTWARE LABORATORY

			Definition of Functions, Command Line Arguments/Parameters in Functions, Functions with variable number of Arguments.	
			Creating and Using One Dimensional Arrays (Declaring and Defining an Array, Initializing an Array, Accessing individual elements in an Array, Manipulating array elements using loops), Use Various types of arrays (integer, float and character arrays / Strings) Two-dimensional Arrays (Declaring, Defining and Initializing Two Dimensional Array, Working with Rows and Columns), Introduction to Multi-dimensional arrays, return statement, return values and their types, String handling with arrays, String	
October	05	06	Pointers Definition and	SOFTWARE LABORATORY
			Pointers and arrays, String functions and manipulation, Dynamic storage allocation.	
November	05	10	User defined Datatypes and Memory Allocation Enumerated datatypes, Structures. Structure arrays, Pointers to Functions and Structures, Unions. Differentiating between static and dynamic memory allocation, use of malloc, calloc and free functions, use of new and delete operators, storage of variables in	SOFTWARE LABORATORY

				static and dynamic memory	
	December	02	08	File Access Opening and closing a	SOFTWARF LABORATORY
	December	02	00	file (use of fstream header file	
				ifstream, ofstream). Reading and	
				writing Text Files. Using put(), get().	
				read() and write() functions. Random	
				access in files	
SEMESTER I	July	15	16	Overview of C History, Basic	SOFTWARE LABORATORY
Computer Fundamentals				Structure, Algorithms, Structured	
and programming with C				programming constructs. Character	
MINOR				sets, Tokens, Keywords, Constants,	
				Variables, Data Types, Declaration of	
				storage classes.	
				Operators, Expressions and	
				Preprocessor (8 Lectures) Arithmetic.	
				Relational, Logical and Assignment:	
				Increment and Decrement and	
				Conditional, Bitwise, Special	
				operator, Operator Precedence and	
				Associativity: Arithmetic	
				Expressions, Evaluation of	
				expression, type casting. Comments,	
				Input and output operations.	
				Understanding the	
	August	10	12	Decision and Loop Control Structure	SOFTWARE LABORATORY
				If-else statements, Nested if-else,	
				switch, Conditional operator. While,	
				do-While, for loop, break statements,	
				continue statements, goto statements.	
	September	08	08	unctions and Arrays Utility of functions,	SOFTWARE LABORATORY
				Call by Value, Call by Reference,	
				Functions returning value, Void	
				functions, Inline Functions, Return data	

			 type of functions, Functions parameters, Differentiating between Declaration and Definition of Functions, Command Line Arguments/Parameters in Functions, Functions with variable number of Arguments. Creating and Using One Dimensional Arrays (Declaring and Defining an Array, Initializing an Array, Accessing individual elements in an Array, Manipulating array elements using loops), Use Various types of arrays (integer, float and character arrays / Strings) Two-dimensional Arrays (Declaring, Defining and Initializing Two Dimensional Array, Working with Rows and Columns), Introduction to Multi-dimensional arrays, return statement, return values and their types, String handling with arrays, String 	
			handling functions, recursion	
October	05	06	Pointers Definition and initialization, Pointer arithmetic, Pointers and arrays, String functions and manipulation, Dynamic storage allocation.	SOFTWARE LABORATORY
November	05	10	User defined Datatypes and Memory Allocation Enumerated datatypes, Structures. Structure arrays, Pointers to Functions and Structures, Unions. Differentiating between static and dynamic memory allocation, use of malloc, calloc and	SOFTWARE LABORATORY

			free functions, use of new and delete operators, storage of variables in static and dynamic memory allocation	
December	02	08	File Access Opening and closing a file (use of fstream header file, ifstream, ofstream), Reading and writing Text Files, Using put(), get(), read() and write() functions, Random access in files	SOFTWARE LABORATORY

MDC	Month	Number o	f Lectures	Торіс	
		Theory	Practical	Theory	Practical
SEMESTER I	July	15		Introduction to Computer	
COMPUTER	August	10		Operating System	
FUNDAMENTALS	September	08		Networking	
MDC	October	05		Networking	
				Computer Security	
	November	05		Brief understanding of the following emerging	
				trends	
	December	02		Brief understanding of the following emerging	
				trends	

Honours	Month	Number o	f Lectures	Торіс		
		Theory	Practical	Theory	Practical	
SEMESTER I	July	2	6	PLANNING THE COMPUTER PROGRAM OVERVIEW OF PROGRAMMING,	SOFTWARE LABORATORY	
SEC				INTRODUCTION TO PYTHON		
(THEORY)	August	4	6	TECHNIQUES OF PROBLEM SOLVING	SOFTWARE LABORATORY	
	September	4	6	OVERVIEW OF PROGRAMMING, INTRODUCTION TO PYTHON	SOFTWARE LABORATORY	
(PRACTICAL)						
	October	2	4	CREATING PYTHON PROGRAMS	SOFTWARE LABORATORY	
	November	2	4	CREATING PYTHON PROGRAMS	SOFTWARE LABORATORY	
	December	1	4	CREATING PYTHON PROGRAMS	SOFTWARE LABORATORY	

Honours and General	Month	Number o	of Lectures	Topic	
		Theory	Practical	Theory	Practical
SEMESTER II CMSACOR02T CMSACOR02P	January	05	06	Introduction Data Object, Abstract Data Type, Data Structures and Data Types, Types of Data	SOFTWARE LABORATORY
Data Structures using				Structures – Linear and non-linear Data	
MAJOR				Arrays, Address Calculations, Sparse Matrices	
	February	07	14	Linked Lists Singly, Doubly and Circular Lists (Array and Linked representation); Operations on Lists. Sparse Matrices (Linked Representation).	SOFTWARE LABORATORY
	March	09	08	Stacks and Queues Implementing single / multiple stack/s in an Array; Prefix, Infix and Postfix expressions, Utility and conversion of these expressions from one to another; Applications of stack; Limitations of Array representation of stack. Array and Linked representation of Queue, De- queue, Priority Queues	SOFTWARE LABORATORY
	April	15	16	Recursion Developing Recursive Definition of Simple Problems and their implementation; Advantages and Limitations of Recursion; Understanding what goes behind Recursion (Internal Stack Implementation)	SOFTWARE LABORATORY
				Introduction; Properties, Binary Trees Traversals (Recursive and Non-Recursive),	

				Binary Search Trees (Insertion, Deletion),	
				Recursive and Iterative Traversals on Binary	
				Search Trees; Threaded Binary Trees (Concept only): Height Balanced Trees (Concept only)	
	Moy	07	08	Sourching Sorting and Hashing	SOFTWARE LARODATORY
	Iviay	07	08	Linear Search Binary Search Comparison of	SOFT WARE LABORATOR I
				Linear and Binary Search, Selection Sort	
				Insertion Sort, Bubble Sort, Comparison of	
				Sorting Techniques.	
	June	02	08	Introduction to Hashing, Resolving collusion	SOFTWARE LABORATORY
				by Open Addressing, Coalesced Hashing,	
				Separate Chaining and simple examples.	
SEMESTER II	January	05	06	Introduction	SOFTWARE LABORATORY
Data Structures using				Data Object, Abstract Data Type, Data	
C++				Structures and Data Types. Types of Data	
MINOR				Structures – Linear and non-linear Data	
				Structures.Single and Multi-dimensional	
				Arrays, Address Calculations, Sparse Matrices	
				(Array Representation).	
	February	07	14	Linked Lists	SOFTWARE LABORATORY
				Singly, Doubly and Circular Lists (Array and	
				Linked representation); Operations on Lists.	
				Sparse Matrices (Linked Representation).	
	March	09	08	Stacks and Queues	SOFTWARE LABORATORY
				Implementing single / multiple stack/s in an	
				Array; Prefix, Infix and Postfix expressions,	
				Utility and conversion of these expressions	
				from one to another; Applications of stack;	
				Limitations of Array representation of stack.	
				Array and Linked representation of Queue, De-	
	1	1.5	1.6	queue, Priority Queues	
	Aprıl	15	16	Recursion	SOFTWARE LABORATORY
				Developing Recursive Definition of Simple	
				Problems and their implementation;	
				Advantages and Limitations of Recursion;	

			Understanding what goes behind Recursion (Internal Stack Implementation)	
			Binary Trees Introduction; Properties, Binary Trees Traversals (Recursive and Non-Recursive), Binary Search Trees (Insertion, Deletion), Recursive and Iterative Traversals on Binary Search Trees; Threaded Binary Trees (Concept	
			only); Height-Balanced Trees (Concept only).	
May	07	08	Searching, Sorting and Hashing	SOFTWARE LABORATORY
			Linear Search, Binary Search, Comparison of	
			Linear and Binary Search, Selection Sort,	
			Insertion Sort, Bubble Sort, Comparison of	
June	02	08	Introduction to Hashing Resolving collusion	SOFTWARE LABORATORY
Julie	02	00	by Open Addressing, Coalesced Hashing, Separate Chaining and simple examples.	SOLIWARE LADORATORI

Honours	Month	Number o	of Lectures	Торіс	
		Theory	Practical	Theory	Practical
SEMESTER II	January	01	4	INTRODUCTION,OVERVIEW AND HISTORY OF R GETTING HELP, DATA	SOFTWARE LABORATORY
SEC				TYPES, SUBSETTING, ,	
R Programming (THEORY)	February	03	4	VECTORIZED OPERATIONS, READING AND WRITING DATA, CONTROL	SOFTWARE LABORATORY
(PRACTICAL)				STRUCTURE, FUNCTIONS	
	March	03	4	LAPPLY, TAPPLY, SPLIT, MAPPLY, APPLY, CODING STANDARDS	SOFTWARE LABORATORY
	April	04	10	SCOPING RULES, SIMULATION,	SOFTWARE LABORATORY
	May	02	04	DEBUGGING TOOLS	SOFTWARE LABORATORY
	June	02	04	R PROFILER	SOFTWARE LABORATORY

Honours and General	Month	Number o	of Lectures	Topic	
		Theory	Practical	Theory	Practical
SEMESTER III	July	15	16	Arrays	SOFTWARE LABORATORY
CMSACOR05T				Stacks	
CMSACOR05P	August	14	12	Linked Lists	SOFTWARE LABORATORY
				Queues	
	September	08	08	Recursion	SOFTWARE LABORATORY
				Trees	
	October	07	06	Trees	SOFTWARE LABORATORY
	November	10	10	Searching and Sorting	SOFTWARE LABORATORY
	December	06	08	Hashing	SOFTWARE LABORATORY
SEMESTER III	July	15	16	Introduction	SOFTWARE LABORATORY
CMSACOR06T				Operating System Organization	
CMSACOR06P	August	14	12	Operating System Organization	SOFTWARE LABORATORY
				Process Management	
	September	08	08	Memory Management	SOFTWARE LABORATORY
	October	07	06	Memory Management	SOFTWARE LABORATORY
	November	10	10	File and I/O Management	SOFTWARE LABORATORY
	December	06	08	Protection and Security	SOFTWARE LABORATORY
SEMESTER III	July	15	16	Introduction to Computer Networks	SOFTWARE LABORATORY
CMSACOR07T				Data Communication Fundamentals and	
CMSACOR07P				Techniques	
	August	14	12	Networks Switching Techniques and Access	SOFTWARE LABORATORY
				mechanisms	
	September	08	08	Data Link Layer Functions and Protocol	SOFTWARE LABORATORY
	October	07	06	Multiple Access Protocol and Networks	SOFTWARE LABORATORY
	November	10	10	Networks Layer Functions and Protocols	SOFTWARE LABORATORY
				Transport Layer Functions and Protocols	
	December	06	08	Overview of Application layer protocol	SOFTWARE LABORATORY

Honours and General	Month	Number of Lectures		Торіс		
		Theory	Practical	Theory	Practical	
SEMESTER III	July	2	6	PLANNING THE COMPUTER PROGRAM	SOFTWARE LABORATORY	
CMSSSEC01M				OVERVIEW OF PROGRAMMING,		
CMSSSEC01M				INTRODUCTION TO PYTHON		
(PRACTICAL)	August	4	6	TECHNIQUES OF PROBLEM SOLVING	SOFTWARE LABORATORY	
	September	4	6	OVERVIEW OF PROGRAMMING,	SOFTWARE LABORATORY	
				INTRODUCTION TO PYTHON		
	October	2	4	CREATING PYTHON PROGRAMS	SOFTWARE LABORATORY	
	November	2	4	CREATING PYTHON PROGRAMS	SOFTWARE LABORATORY	
	December	1	4	CREATING PYTHON PROGRAMS	SOFTWARE LABORATORY	
SEMESTER III	July	15	16	INTRODUCTION, TYPES OF OPERATING	SOFTWARE LABORATORY	
CMSGCOR03T				SYSTEMS, OPERATING SYSTEM		
CMSGCOR03P				ORGANIZATION		
	August	14	12	PROCESS MANAGEMENT	SOFTWARE LABORATORY	
	September	08	08	PROCESS MANAGEMENT, SCHEDULING	SOFTWARE LABORATORY	
	October	07	06	MEMORY MANAGEMENT	SOFTWARE LABORATORY	
	November	10	10	SHELL INTRODUCTION AND SHELL	SOFTWARE LABORATORY	
				SCRIPTING		
	December	06	08	SHELL INTRODUCTION AND SHELL	SOFTWARE LABORATORY	
				SCRIPTING		

Honours and General	Month	Number of Lectures		Торіс	
		Theory	Practical	Theory	Practical
SEMESTER IV	January	08	06	Introduction	SOFTWARE LABORATORY
CMSACOR08T	February	10	14	Algorithm Design Techniques	SOFTWARE LABORATORY
CMSACOR08P	March	08	08	Algorithm Design Techniques	SOFTWARE LABORATORY
	April	16	16	Sorting and Searching Techniques	SOFTWARE LABORATORY
				Lower Bounding Techniques	
				Balanced Trees	
	May	10	08	Advanced Analysis Technique	SOFTWARE LABORATORY
				Graphs	
	June	08	08	String Processing	SOFTWARE LABORATORY
SEMESTER IV	January	08	06	Introduction	SOFTWARE LABORATORY
CMSACOR09T	February	10	14	Requirement Analysis	SOFTWARE LABORATORY
CMSACOR09P				Software Project Management	
	March	08	08	Software Project Management	SOFTWARE LABORATORY
	April	16	16	Risk Management	SOFTWARE LABORATORY
				Quality Management	
	May	10	08	Design Engineering	SOFTWARE LABORATORY
	June	08	08	Testing Strategies & Tactics	SOFTWARE LABORATORY
SEMESTER IV	January	08	06	Introduction	SOFTWARE LABORATORY
CMSACOR10T	February	10	14	Entity Relationship(ER) Modeling	SOFTWARE LABORATORY
CMSACOR10P	March	08	08	Relation data model	SOFTWARE LABORATORY
	April	16	16	Database design	SOFTWARE LABORATORY
	May	10	08	Transaction Processing	SOFTWARE LABORATORY
	June	08	08	File Structure and Indexing	SOFTWARE LABORATORY

Honours and General	Month	Number o	of Lectures	Торіс		
		Theory	Practical	Theory	Practical	
SEMESTER IV	January	01	4	INTRODUCTION, OVERVIEW AND	SOFTWARE LABORATORY	
CMSSSEC02M				HISTORY OF R GETTING HELP, DATA		
CMSSSEC02M				TYPES, SUBSETTING, ,		
(PRACTICAL)	February	03	4	VECTORIZED OPERATIONS, READING	SOFTWARE LABORATORY	
				AND WRITING DATA, CONTROL		
				STRUCTURE, FUNCTIONS		
	March	03	4	LAPPLY, TAPPLY, SPLIT, MAPPLY,	SOFTWARE LABORATORY	
				APPLY, CODING STANDARDS		
	April	04	10	SCOPING RULES, SIMULATION,	SOFTWARE LABORATORY	
	May	02	04	DEBUGGING TOOLS	SOFTWARE LABORATORY	
	June	02	04	R PROFILER	SOFTWARE LABORATORY	
SEMESTER IV	January	08	06	INTRODUCTION, DATA	SOFTWARE LABORATORY	
CMSGCOR04T				REPRESENTATION AND		
CMSGCOR04P				BASIC COMPUTER ARITHMETIC		
	February	10	14	DATA REPRESENTATION AND BASIC	SOFTWARE LABORATORY	
				COMPUTER ARITHMETIC		
	March	08	08	BASIC COMPUTER ORGANIZATION AND	SOFTWARE LABORATORY	
				DESIGN		
	April	16	16	BASIC COMPUTER ORGANIZATION AND	SOFTWARE LABORATORY	
				DESIGN, CENTRAL PROCESSING UNIT		
	May	10	08	PROGRAMMING THE BASIC COMPUTER	SOFTWARE LABORATORY	
	June	08	08	INPUT-OUTPUT ORGANIZATION	SOFTWARE LABORATORY	

Honours and General	Month	Number of Lectures		Topic	
		Theory	Practical	Theory	Practical
SEMESTER V	July	15	16	JAVA	SOFTWARE LABORATORY
CMSACOR11T	August	14	12	JAVASCRIPT	SOFTWARE LABORATORY
CMSACOR11P	September	08	08	JDBC	SOFTWARE LABORATORY
	October	07	06	JSP	SOFTWARE LABORATORY
	November	10	10	JSP	SOFTWARE LABORATORY
	December	06	08	JAVA BEANS	SOFTWARE LABORATORY
SEMESTER V	July	20(17L+3T)		Languages	
CMSACOR12T	August	20(17L+3T)		Finite Automata and Regular Languages	
	September	20(16L+4T)		Context free languages	
	October	10(8L+2T)		Context free languages	
	November	10(8L+2T)		Turing Machines and Models of Computations	
	December	10(9L+1T)		Turing Machines and Models of Computations	
SEMESTER V	July	15	16	MICROPROCESSOR ARCHITECTURE	MICROPROCESSOR
CMSADSE01T					LABORATORY
CMSADSE01P	August	14	12	MICROPROCESSOR ARCHITECTURE	MICROPROCESSOR
					LABORATORY
	September	08	08	MICROPROCESSOR PROGRAMMING	MICROPROCESSOR
					LABORATORY
	October	07	06	MICROPROCESSOR PROGRAMMING	MICROPROCESSOR
					LABORATORY
	November	10	10	MICROPROCESSOR PROGRAMMING	MICROPROCESSOR
					LABORATORY
	December	06	08	INTERFACING	MICROPROCESSOR
					LABORATORY
SEMESTER V	July	15	16	OVERVIEW	SOFTWARE LABORATORY

CMSADSE02T	August	14	12	OVERVIEW	SOFTWARE LABORATORY
CMSADSE02P	September	08	08	DATA MINING TECHNIQUES	SOFTWARE LABORATORY
	October	07	06	DATA MINING TECHNIQUES	SOFTWARE LABORATORY
	November	10	10	DATA MINING TECHNIQUES	SOFTWARE LABORATORY
	December	06	08	DATA MINING TECHNIQUES	SOFTWARE LABORATORY

Honours and General	Month	Number of Lectures		Торіс	
		Theory	Practical	Theory	Practical
SEMESTER V	July	20(17L+3T)		INTRODUCTION TO JAVA, OBJECT	
CMSGDSE01T				ORIENTED PROGRAMMING CONCEPT,	
				JAVA PROGRAMMING FUNDAMENTAL	
	August	20(17L+3T)		CLASSES AND OBJECTS, ARRAYS AND	
				STRINGS	
	September	20(16L+4T)		ABSTRUCT CLASS, INTERFACE AND	
				PACKAGES	
	October	10(8L+2T)		ABSTRUCT CLASS, INTERFACE AND	
				PACKAGES	
	November	10(8L+2T)		EXCEPTION HANDLING, FILE	
				HANDLING,	
	December	10(9L+1T)		APPLET PROGRAMMING	

Honours and General	Month	Number of Lectures		Торіс	
		Theory	Practical	Theory	Practical
SEMESTER VI	January	10	10	Introduction	SOFTWARE LABORATORY
CMSACOR13T	February	10	12	Problem Solving and Searching Techniques	SOFTWARE LABORATORY
CMSACOR13P	March	06	06	Knowledge Representation	SOFTWARE LABORATORY
	April	18	16	Knowledge Representation	SOFTWARE LABORATORY
	May	10	10	Dealing with Uncertainty and Inconsistencies	SOFTWARE LABORATORY
	June	06	06	Understanding Natural Languages	SOFTWARE LABORATORY
SEMESTER VI	January	10	10	Introduction	SOFTWARE LABORATORY
CMSACOR14T	February	10	12	Graphics Hardware	SOFTWARE LABORATORY
CMSACOR14P	March	06	06	Fundamental Techniques in Graphics	SOFTWARE LABORATORY
	April	18	16	Geometric Modeling	SOFTWARE LABORATORY
	May	10	10	Visible Surface determination	SOFTWARE LABORATORY
	June	06	06	Surface rendering	SOFTWARE LABORATORY
SEMESTER VI	January	15	16	UNDERSTANDING BIG DATA	SOFTWARE LABORATORY
CMSADSE04T				NOSQL DATA MANAGEMENT	
CMSADSE04P	February	14	12	NOSQL DATA MANAGEMENT	SOFTWARE LABORATORY
				BASICS OF HADOOP	
	March	08	08	BASICS OF HADOOP	SOFTWARE LABORATORY

	April	07	06	MAPREDUCE APPLICATIONS,	SOFTWARE LABORATORY
	May	10	10	HADOOP RELATED TOOLS	SOFTWARE LABORATORY
	June	06	08	HADOOP RELATED TOOLS	SOFTWARE LABORATORY
SEMESTER VI	January		20		
CMSADSE06P	February		20		
Dissertation / Project	March		20		
work	April		10		
	May		10		
	June		10		

Honours and General	Month	Number of Lectures		Topic	
		Theory	Practical	Theory	Practical
SEMESTER VI	January	10(7L+3T)		BASIC CONCEPTS, PHYSICAL LAYER,	
CMSGDSE01T	February	20(17L+3T)		DATA LINK LAYER,	
	March	20(16L+2T)		NETWORK LAYER	
	April	20(17L+3T)		NETWORK LAYER, TRANSPORT LAYER	
	May	10(7L+3T)		APPLICATION LAYER	
	June	10(9L+1T)		, NETWORK SECURITY	