

<b>Semester</b>	<b>4th</b>				
<b>Subject</b>	<b>Data Structure using C</b>				
<b>Duration</b>	<b>16 WEEKS(January 2020 -April 2020)</b>				
<b>Work Load</b>	<b>Lecture</b>	<b>3 Lecture per week (1 hour /day)</b>			
	<b>Practical</b>	<b>6 hours Lab per week (3 hours/day)</b>			
<b>Week</b>	<b>Theory</b>			<b>Practical</b>	
	<b>Day</b>	<b>Topic</b>		<b>Day</b>	<b>Topic</b>
1st					
	1st	Fundamental Notations -Problem solving concept, top down and bottom up design, structured		1st	Introduction to the students 'C'-Concept of data types, variables and constants,Concept of pointer variables and constants
	2nd	Concept of data types, variables ,constants,Concept of pointer variables and constants			
3rd	Introduction to Algorithm: how to write and practice using simple algorithms		2nd	Practice of the basic programs of 'C' language	
2nd	4th	Introduction to data Structure( Linear, Non Linear, Primitive, Non Primitive)		3rd	Practice of the basic programs of 'C' language
	5th	Concepts of Data Structure Array, Linked List, Stack, Queue, Trees,graphs			
	6th	Operation on different data structures		4th	Practice of the basic programs of 'C' language
3rd	7th	Arrays-Concept of Arrays, Single dimensional array, Row Major order and column major order		5th	The addition of two matrices using functions
	8th	Two dimensional array and multidimensional arrays			
	9th	Storage representation of multi-dimensional arrays.		6th	The multiplication of two matrices
4th	10th	Representation of Two dimensional Array(Base Address, LB, UB)		7th	Practice of the basic programs of 'C' language with arrays
	11th	Operations on arrays with Algorithms Algorithm for (searching, traversing,			
	12th	Algorithm for inserting, deleting)		8th	programs of 'C' language for serchning an element in array
5th	13th	Linked Lists -Introduction to linked list		9th	programs of 'C' language for serchning an element in array
	14th	double linked list,			
	15th	Representation of linked lists in Memory,		10th	programs of 'C' language for traversing a linked list
6th	16th	Comparison between Linked List and Array		11th	

	17th	Traversing a linked list, Searching linked list		programs of 'C' language for searching an element in Linked list
	18th	Insertion into linked list (At first Node, Specified Position, Last node)	12th	Insertion and deletion of elements in linked list
7th	19th	Deletion into linked list (From first Node, Specified Position, Last node)	13th	Revision of the Practical covered in Last Hour and Checking of Parctical Files.
	20th	Application of linked lists		
	21st	Doubly linked lists-Traversing a doubly linked lists	14th	programs of 'C' language for traversing a doubly linked list
8th	22nd	Insertion and deletion into doubly linked lists	15th	Insertion and deletion of elements in doubly linked list
	23rd	Introduction to stacks		
	24th	Representation of stacks with array and Linked List	16th	Revision of the Practical covered in Last Hour and Checking of Parctical Files.
9th	25th	Implementation of stacks	17th	Push and pop operation in stack
	26th	Application of stacks-Polish Notations, Converting Infix to Post Fix Notation		
	27th	Application of stacks-Evaluation of Post Fix Notation, Tower of Hanoi Fix Notation, Tower of Hanoi	18th	Inserting and deleting elements in queue
10th	28th	Introduction to queues, Implementation of queues (array and Linked List withalgorithm)	19th	Inserting and deleting elements in circular queue
	29th	Circular Queues, De-queues		
	30th	Application of Queues, Recursion	20th	The Factorial of a given number with recursion and without recursion
11th	31st	<b>Class test of unit 4</b>	21st	Fibonacii series with recursion and without recursion
	32nd	Trees: Introduction ,Concept of Binary Trees		
	33rd	Complete, Extended Binary Tree	22nd	Revision of the Practical covered in Last Hour and Checking of Parctical Files.
12th	34th	Concept of representation of Binary tree	23rd	Revision of the Practical covered in Last Hour and
	35th	Traversing Binary Trees Preorder		

				Checking of Parctical Files.
	36th	Post order, Inorder Traversal	24th	Program for binary search tree operation:Traversing
13th	37th	Searching binary search trees	25th	Program for inserting an element in a binary search tree
	38th	inserting and deleting in binary tree		
	39th	Introduction to Heap	26th	Program for searching an element in a binary search tree
14th	40th	Sorting and Searching -Introduction,	27th	The binary search procedures to search an element in a given list
	41st	Search algorithm (Linear Search and binary search)		
	42nd	Sorting algorithms :Bubble sort,Insertion Sort,	28th	The bubble sort technique and The merge sort technique
15th	43rd	Merge Sort,	29th	The quick sort technique
	44th	Quick Sort		
	45th	Heap Sort, Radix Sort	30th	The linear search procedures to search an element in a given list
16th	46th	Selection Sort	31st	The selection sort technique
	47th	Complexity of searching and sorting		
	48th	Revision of topics covered, Class test of unit 6	32nd	Revision of the Practical covered in Last Hour and Checking of Parctical Files.

<b>LESSON PLAN</b>					
<b>Discipline</b>	<b>Computer Engineering</b>				
<b>Semester</b>	<b>4th</b>				
<b>Subject</b>	<b>Object Oriented Programming using Java</b>				
<b>Duration</b>	<b>16 WEEKS(January 2020 -April 2020)</b>				
<b>Work Load</b>	<b>Lecture</b>	<b>3 Lecture per week (1 hour /day)</b>			
	<b>Practical</b>	<b>6 hours Lab per week (3 hours/day)</b>			
<b>Week</b>	<b>Theory</b>			<b>Practical</b>	
	<b>Day</b>	<b>Topic</b>		<b>Day</b>	<b>Topic</b>
1st	1st	Fundamentals of object oriented programming :procedure oriented programming Vs. object oriented programming (OOP)		1st	Creating Classes and Objects
	2nd	Object oriented programming concepts – Classes, object		2nd	Practice Classes and Objects
	3rd	object reference, abstraction, encapsulation, inheritance, polymorphism			
2nd	4th	Introduction of eclipse (IDE) for developing programs in Java		1st	Practice Classes and Objects
	5th	Review of constructs of C used in JAVA : variables, types and type declarations		2nd	Practice Classes and Objects
	6th	data types, pointers			
3rd	7th	Functions, structure and unions		1st	Practice Classes and Objects
	8th	increment and decrement operators,		2nd	Practice Classes and Objects
	9th	relational and logical operators			
4th	10th	if then else clause, conditional expressions		1st	Practice Classes and Objects
	11th	input using scanner class and output statement		2nd	Practice Classes and Objects
	12th	input using scanner class and output statement			
5th	13th	loops, switch case,		1st	Experiment 1 of Practical List
	14th	arrays, methods		2nd	Continue Previous Experiment
	15th	Creation of class and objects, accessing class members			
6th	16th	Private data members and functions		1st	Continue Previous Experiment
	17th	Public data members and functions		2nd	Practice Classes and Objects
	18th	Protected data members and functions ,Default data members and functions			

7th	19th	Comparison: Private Vs Public Vs Protected Vs Default	1st	Practice Classes and Objects
	20th	Constructors, Destructors	2nd	Experiment 2 of Practical List
	21st	Object & Object Reference		
8th	22nd	Definition of inheritance and its types	1st	Experiment 3 of Practical List
	23rd	protected data, private data, public data	2nd	Continue Previous Experiment
	24th	constructor chaining, order of invocation of constructors and destructors		
9th	25th	Class test of Inheritance of constructors and destructors	1st	Practice Inheritance examples
	26th	types of inheritance	2nd	Experiment 4
	27th	single inheritance, multilevel inheritance		
10th	28th	hierarchical inheritance	1st	Practice Inheritance examples
	29th	hybrid inheritance	2nd	Experiment 6
	30th	Class test of Inheritance		
11th	31st	Introduction to polymorphism and its types: Run-time and Compile Time	1st	Experiment 7
	32nd	Uses of Polymorphism	2nd	Experiment 8
	33rd	Method & constructor overloading, method overriding		
12th	34th	up-casting and down-casting	1st	Experiment 8
	35th	practicing polymorphsim examples	2nd	Practice Inheritance examples
	36th	Revision and problem		
13th	37th	Key points of Abstract class	1st	Practice abstract Class
	38th	Key points of Interface	2nd	Practice Interface
	39th	difference between an abstract class & interface		
14th	40th	Multiple inheritance in Java	1st	Experiment 9
	41st	Need of Interface	2nd	Experiment 9
	42nd	implementation of multiple inheritance through interface		
15th	43rd	Definition of exception handling	1st	Experiment 10
	44th	Why Exception handling needed?Introduction to try & catch	2nd	Experiment 10
	45th	implementation of keywords like try, catch		
16th	46th	implementation of finally, throw & throws	1st	Practice Exception handling programs
	47th	Revision of Try , Catch , Finally, Throw and throws	2nd	Practice Exception handling programs
	48th	importance of exception handling in practical implementation of live projects		



**LESSON PLAN**

<b>Discipline</b>	<b>Computer Engineering</b>	
<b>Semester</b>	<b>4th</b>	
<b>Subject</b>	<b>Computer Organisation</b>	
<b>Duration</b>	<b>16 WEEKS(January 2020 -April 2020)</b>	
<b>Work Load</b>	<b>Lecture</b>	<b>3 Lecture per week (1 hour /day)</b>
<b>Week</b>	<b>Theory</b>	
	<b>Day</b>	<b>Topic</b>
1st	1st	A brief over view of the subject “Computer organization “ and relevance of the studying the subject in Diploma level Program.
	2nd	CPU Organization : Concept of Registers and General Register Organization
	3rd	Concept of Stack Organization
2nd	4th	Concept of Instruction Format and types of instructions, Three, Two, One , Zero Address instruction
	5th	Addressing modes: Immediate, register, direct, in direct,
	6th	Addressing modes: relative, indexed.
3rd	7th	Concept of CPU Design
	8th	Concept of Micro programmed controlled
	9th	Concept of Hard wired controlled
4th	10th	Class Test of CPU Design
	11th	Concept of Reduced instruction Set Computer
	12th	Concept of Complex instruction Set Computer
5th	13th	CISC Characteristics, RICS Characteristics
	14th	Comparision of RISC & CISC
	15th	Seminar on Topics , Instruction formats and Addressing modes , CICS, RICS
6th	16th	Concept of Memory Organization, Memory types
	17th	Memory Hierarchy
	18th	ROM and RAM Chips,Concept of Memory Address Map
7th	19th	Connections of Memory Chips with the CPU
	20th	Concept and usage of Auxiliary Memories and types
	21st	Study of Magnetic Disks
8th	22nd	Study of Magnetic Tapes.
	23rd	Associative and Cache memory
	24th	Concept of Virtual Memory
9th	25th	Concept of Memory Management
	26th	Memory Management Hardware.
	27th	Revision of Associative, Cache , Virtual memory

10th	28th	Read and Write operation of memory
	29th	Concept of Input/output Organization
	30th	Basic Input out put System BIOS and its Function
11th	31st	Testing and Initialization by BIOS, Configuring the System
	32nd	Concept of Data transfer in Computer System
	33rd	Different modes of Data Transfer : Programmed and DMA
12th	34th	Programmed I/O : Synchronous, asynchronous
	35th	Interrupt initiated I/O
	36th	DMA data transfer
13th	37th	<b>Class Test od I/O Organisation</b>
	38th	Concept of Multi Processor Systems
	39th	Different forms of Parallel Processing
14th	40th	Different forms of Parallel Processing ...continued
	41st	Concept of Parallel processing and Pipe Lines
	42nd	Basic Characteristics of Multiprocessor, General purpose multiprocessors.
15th	43rd	Concept of Interconnection Networks
	44th	, Concept of Time Shared Common Bus
	45th	Concept of Multiport Memory, Cross Bar Switch
16th	46th	Multistage Switching networks and hyper cube structures
	47th	Revision of Previous lectures
	48th	<b>Class Test of unit 4</b>



LESSON PLAN				
Discipline		COMPUTER ENGG.		
Semester		4th		
Subject		MPD		
Lesson Plan Duration :		15 Weeks ( From January 2020 to April 2020 )		
Work Load (Lecture/Practical) per Week (in Hours) : <b>Lecture – 03 , Practical - 03</b>				
Week		Theory	Practical	
	Lecture	Topic	Practical	Topic
	Day	(including assignment/test )	Day	
1st	1	<b>1.Evolution of Microprocessor</b> : Typical organization of a microcomputer system and functions of its various blocks	1	Familiarization of different keys of 8085 microprocessor kit and its memory map
	2	Microprocessor its evolution, function	2	
	3	Impact on modern society	3	
	4	<b>2. Architecture of a Microprocessor</b>	4	
2nd	5	Concept of Bus, bus organization of 8085	5	Familiarization of different keys of 8085 microprocessor kit and its memory map
	6	Functional block diagram of 8085	6	
	7	Pin details of 8085 and related signals	7	
	8	Demultiplexing of address / data bus	8	
3rd	9	Generation of read/ write control signals	9	Steps to enter modify data/ program and to execute a programme on 8085 kit
	10	Steps to execute a stored programme	10	
	11	<b>3. Instruction Timing and Cycles :</b>	11	
	12	Instruction cycle	12	
4th	13	Machine cycle and T-states	13	Writing and execution of ALP for addition and subtraction of two 8 bit numbers.
		Fetch and execute cycle		
	14	Brief idea of machine and assembly languages	14	
	15	Machines and Mnemonic codes.	15	
5th	16	Addressing mode	16	Writing and execution of ALP for addition and subtraction of two 8 bit numbers.
	17	Identification of instructions as to which addressing mode they belong	17	
	18	Concept of Instruction set	18	
	19	Explanation of the instructions of the following group of instruction set.	19	
6th	20	Data transfer group	20	Writing and execution of ALP for multiplication and division of two 8 bit Number
	21	Logic group	21	
	22	I/O Control Group	22	
	23	Machine Control Group	23	
7th	24	Programming exercises in assembly language	24	Writing and execution of ALP for multiplication and division of two 8 bit Number
	25	Programming exercises in assembly language	25	
	26	Programming exercises in assembly language	26	

	27	Programming exercises in assembly language	27	
	28	Programming exercises in assembly language	28	
8th	29	<b>5. Memories and I/O Interfacing:</b> Address decoding,	29	Writing and execution of ALP for arranging 10 number in ascending/ descending order
	30	Address decoding	30	
	31	Address decoding	31	
	32	Concept of peripheral mapped I/O and memory mapped I/O	32	
9th	33	Concept of peripheral mapped I/O and memory mapped I/O	33	Writing and execution of ALP for arranging 10 number in ascending/ descending order
	34	Concept of peripheral mapped I/O and memory mapped I/O	34	
	35	Concept of peripheral mapped I/O and memory mapped I/O	35	
	36	Interfacing of memory mapped I/O devices	36	
10th	37	Interfacing of memory mapped I/O devices	37	Writing and execution of ALP for 0 to 9 BCD counters ( up/down counter according to choice stored in memory )
	38	<b>6. Interrupts : Maskable and non-maskable</b>	38	
	39	Maskable and non-maskable	39	
	40	Maskable and non-maskable	40	
11th	41	Software Interrupt	41	Writing and execution of ALP for 0 to 9 BCD counters ( up/down counter according to choice stored in memory )
	42	Software Interrupt	42	
	43	Various hardware interrupts	43	
	44	Various hardware interrupts	44	
12th	45	Various hardware interrupts	45	Interfacing exercise on 8255 like LED display control
	46	Servicing interrupts	46	
	47	Servicing interrupts	47	
	48	<b>7. Data Transfer Techniques :</b> Concept of Programmed I/O operations	48	
13th	49	Concept of Programmed I/O operations	49	Interfacing exercise on 8253 programmable interval timer
	50	Concept of Programmed I/O operations	50	
	51	Sync Data Transfer	51	
	52	Async data transfer( hand shaking )	52	
14th	53	DMA	53	interfacing exercise on 8279 programmable KB/ display interface like to display the hex code of key pressed on display
	54	DMA	54	
	55	<b>8. Peripheral devices:</b> 8255 PPI	55	
	56	8257 DMA	56	
15th	57	Controller	57	Use of 8085 emulator for hardware testing
	58	<b>9. Architecture of 8086 Microprocessor :</b> Block diagram	58	
	59	Minimum and maximum mode	59	
	60	Pin and Signals	60	



Lesson Plan (Even Semester)				
Discipline		: Computer Engg.		
Department		: Computer Engg.		
Semester		: 4th		
Subject		: DataBase Management System		
Lesson Plan Duration		: 15 weeks ( from january, 2020 to April, 2020)		
<b>**Work load (Lecture / Practical) per week(in hours): Lectures-03, practicals -03</b>				
Week	Theory		Practical	
	Lecture day	Topic (Including assignment / test)	Practical Day	Topic
1st	1st	<b>1. Introduction:</b> Database Systems; Database and its purpose, Characteristics of the database approach, Advantages and disadvantages of database systems	1st	Exercises on creation and modification of structure of tables.
	2nd	Classification of DBMS Users; Actors on the scene, Database Administrators, Database Designers, End Users, System Analysts and Application Programmers,		
	3rd	Workers behind the scene (DBMS system designers and implementers, tool developers, operator and maintenance personnel)		
2nd	4th	<b>2. Database System Concepts and Architecture :</b> Data models, schemas, instances, data base state. DBMS Architecture; The External level, The conceptual level, The internal level, Mappings.	2nd	Exercises on creation and modification of structure of tables.
	5th	Data Independence; Logical data Independence, Physical data Independence. Database Languages and Interfaces; DBMS Language, DBMS Interfaces.		
	6th	Classification of Database Management Systems- Centralized, Distributed, parallel and object based.		
3rd	7th	<b>3. Data Modeling using E.R. Model (Entity Relationship Model)</b> Data Models Classification; File based or primitive models	3rd	Exercises on inserting and deleting values from tables.
	8th	Traditional data models, semantic data models		
	9th	Entities and Attributes, Entity types and Entity sets, Key attribute and domain of attributes,		
4th	10th	Relationship among entities, Database design with E/R model.	4th	Exercises on inserting and deleting values from tables.

	11th	<b>4. Relational Model:</b> Relational Model Concepts: Domain, Attributes, Tuples cardinality,		
	12th	Keys(Primary, Secondary, foreign, alternative keys) and Relations.		
5th	13th	Relational constraints and relational database schemes; Domain constraints,	5th	Exercises on querying the table (using select command).
	14th	Key constraints and constraints on Null.		
	15th	Relational databases and relational database schemes,		
6th	16th	Entity integrity, referential integrity and foreign key.	6th	Exercises on querying the table (using select command).
	17th	Comparison b/w E/R model and Relational model.		
	18th	<b>5. Normalization</b> :Trivial and non-trivial dependencies.		
7th	19th	Non-loss decomposition and functional dependencies	7th	Exercises on using various types of joins.
	20th	First, Second normal form		
	21st	Third normal forms, Boyce/Codd normal form, denormalization		
8th	22nd	<b>6. Database Access and Security:</b> Creating and using indexes	8th	Exercises on using various types of joins.
	23rd	Creating and using indexes		
	24th	Creating and using views.		
9th	25th	Creating and using views.	9th	Exercises on using functions provided by database package.
	26th	Database security, process controls, database protection		
	27th	Grant and revoke		
10th	28th	<b>7. MYSQL/SQL (Structured Query Language)</b> SQL* DDL (Data Definition Languages): Creating Tables	10th	Exercises on using functions provided by database package.
	29th	Creating a table with data from another table		
	30th	Creating a table with data from another table		
11th	31st	Inserting values into a table,	11th	Exercises on commands like Grant, Revoke, Commit and Rollback etc.
	32nd	Updating columns of a Table,		

	33rd	Deleting Rows, Dropping a Table		
12th	34th	DML (Data Manipulation Language): Database Security and Privileges,	12th	Exercises on commands like Grant, Revoke, Commit and Rollback etc.
	35th	Grant and Revoke Command, Maintaining Database Objects,		
	36th	Commit and Rollback		
13th	37th	Various types of select commands	13th	Design of database for any application.
	38th	Various types of select commands		
	39th	Various types of joins		
14th	40th	Various types of joins	14th	Design of database for any application.
	41st	Sub query		
	42nd	Aggregate functions		
15th	43rd	Aggregate functions, Challenges of My SQL.	15th	Design of database for any application.
	44th	Introduction to Big Data.		
	45th	Understanding Big Data with samples.		