

Lesson Plan for Even semester

Name of the Faculty:

Discipline: Computer Engg.

Semester: 4th

Subject: DATA STRUCTURES USING 'C'

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

Work Load (Lecture/ Practical) per week (in hours):Lectures- 03, Practicals-06

Week	Theory		Practical	
	Lecture day	Topic (including assignment/ test)	Practical day	Topic
1 st	1	1.1 Problem solving concept, top down and bottom up design, structured programming	1 st	Introduction to „C“ language and data structures for practical exercises
	2	1.2 Concept of data types, variables and constants 1.3 Concept of pointer variables and constants		
	3	Introduction to data Structure(Linear, Non Linear, Primitive, Non Primitive)	2 nd	Input /Output statements in C, Various Header Files in C
2 nd	4	Concepts of Data Structure(Array, Linked List, Stack, Queue, Trees, graphs)	3 rd	The addition of two matrices using functions
	5	Revision of previous chapter, Assignment and class test.		
	6	Concept of Arrays 2.2 Single dimensional array 2.3 Two dimensional	4 th	Checking and Testing of Syllabus Program No 1

		array: Representation of Two dimensional Array(Base Address, LB, UB)		
3 rd	7	Operations on arrays with Algorithms for searching	5 th	The multiplication of two matrices using functions
	8	Operations on arrays with Algorithms for traversing		
	9	Operations on arrays with Algorithms for inserting	6 th	Checking and Testing of Syllabus Program No 2.
4 th	10	Operations on arrays with Algorithms for deleting	7 th	Push and pop operation in stack
	11	Revision of previous chapter, Assignment and class test		
	12	Introduction to linked list and double linked list	8 th	Checking and Testing of Syllabus Program No 3
5 th	13	Representation of linked lists in Memory, Comparison between Linked List and Array	9 th	Conversion from in-fix notation
	14	Traversing a linked list 3.4 Searching linked list		
	15	Insertion and deletion into linked list (At first Node, Specified Position, Last node 3.6 Application of linked lists	10 th	Checking and Testing of Syllabus Program No 4
6 th	16	Doubly linked lists 3.8 Traversing a doubly linked lists	11 th	The factorial of a given number using recursion
	17	Insertion and deletion into doubly linked lists		
	18	Revision of previous	12 th	Checking and

		chapter, Assignment and class test		Testing of Syllabus Program No 5.
7 th	19	Introduction to stacks 4.2 Representation of stacks with array and Linked List	13 th	Insertion and Deletion of elements in queue using pointers
	20	Implementation of stacks	14 th	Checking and Testing of Syllabus Program No 6.
	21	Application of stacks - Polish Notations		
8 th	22	- Converting Infix to Post Fix Notation - Evaluation of Post Fix Notation - Tower of Hanoi	15 th	Insertion and Deletion of elements in circular queue using pointers
	23	Recursion: Concept and Comparison between recursion and Iteration 4.6 Introduction to queues	16 th	Checking and Testing of Syllabus Program No 7.
	24	Implementation of queues (array and Linked List with algorithm)		
9 th	25	Circular Queues	17 th	Insertion and Deletion of elements in linked list
	26	De-queues		
	27	Revision of previous chapter, Assignment and class test	18 th	Checking and Testing of Syllabus Program No 8.
10 th	28	Concept of Binary Trees (Complete, Extended Binary Tree)	19 th	Insertion and Deletion of elements in doubly linked list
	29			
	30	Concept of representation of Binary Tree	20 th	Checking and Testing of Syllabus Program No 9.
11 th	31	Concept of balanced Binary Tree	21 th	The linear search procedures to search an element in a given list
	32	Traversing Binary		

	33	Trees (Pre order, Post order and In order)	22 th	Checking and Testing of Syllabus Program No 10.
12 th	34	Searching, inserting and deleting in binary search trees	23 th	The binary search procedures to search an element in a given list
	35			
	36		24 th	Checking and Testing of Syllabus Program No 11.
13 th	37	Revision of previous chapter, Assignment and class test	25 th	The bubble sort techniques
	38	Introduction of Sorting and Searching	26 th	Checking and Testing of Syllabus Program No 12.
	39	Search algorithm (Linear and Binary)		
14 th	40	Concept of sorting	27 th	The selection sort techniques
	41	Bubble Sort, Insertion Sort		
	42		28 th	Checking and Testing of Syllabus Program No 13.
15 th	43	Selection Sort, Merge Sort	29 th	Revision and test of practicals.
	44	Radix Sort, Heap Sort		
	45	Revision of previous chapter, Assignment and class test	30 th	Revision and test of practicals.

Lesson Plan of Even Semester

Name of the Faculty:

Discipline: Computer Engg.

Semester: 4th

Subject: Object Oriented Programming using C++

Lesson Plan Duration: 16 Weeks (From January, 2018 to April, 2018)

Work Load (Lecture/Practical) per week (In Hours): Lectures-03, Practicals - 06)

Week	Theory		Practical	
	Lecture Day	Topic(Including assignment/test)	Practical Day	Topic
1 st	1	Fundamentals of object oriented programming – procedure oriented programming Vs. object oriented programming (OOP)	1 st	Basics of programming with C++
	2	Object oriented programming concepts – Classes	2 nd	Input /Output statements in C++
	3	reusability, encapsulation, inheritance, polymorphism		
2 nd	4	dynamic binding, message passing, Data Hiding	3 rd	Header Files in C++
	5	Benefits of OOPs and its Application	4 th	Program to Print “Hello” in C++
	6	Review of constructs of C used in C++: variables, types and type declarations		
3 rd	7	user defined data types	5 th	Program No. 1 of Syllabus
	8	increment and decrement operators, relational and logical operators	6 th	Checking and testing of the above program
	9	if then else clause; conditional expressions		
4 th	10	input and output statement, Assignment-1	7 th	Program to Print days of week using if then else clause
	11	Loops	8 th	Checking and testing of the above program
	12	Switch case, arrays		
5 th	13	Structure, unions	9 th	Program to Print

				days of week using switch case
	14	functions	10 th	Checking and testing of the above program
	15	pointers; preprocessor directives and Header Files		
6 th	16	Scope Resolution Operator Managing Console I/O Operations	11 th	Program No. 2 of Syllabus
	17	C++ Stream	12 th	Checking and testing of the above program
	18	Unformatted and Formatted Console I/O		
7 th	19	Creation, accessing class members	13 th	Program No. 3 of Syllabus
	20	Private Vs Public	14 th	Checking and testing of the above program
	21	Constructor and Destructor with and without Arguments		
8 th	22	Objects	15 th	Program No. 4 of Syllabus
	23	Objects, Assignment-2	16 th	Checking and testing of the above program
	24	Dynamic memory Allocation with new and Delete Operator		
9 th	25	Method definition	17 th	Program No. 5 of Syllabus
	26	Inline Implementation, Constant member functions	18 th	Checking and testing of the above program
	27	Static Function, This Pointer		
10 th	28	Friend Function and its Characteristics	19 th	Program No. 6 of Syllabus
	29	Introduction to Operator Overloading, Need of operator overloading	20 th	Checking and testing of the above program
	30	prefix and postfix, overloading binary operators instream /ostream operator overloading		
11 th	31	Constructor Overloading, Type Conversion	21 th	Program No. 7 of Syllabus
	32	Rules of Operator Overloading, Comparison between Function Overloading and overriding	22 th	Checking and testing of the above program
	33	Definition of inheritance, Types of inheritance		
12 th	34	Single inheritance, hierarchical inheritance, multiple inheritance, hybrid inheritance	23 th	Program No. 8 of Syllabus
	35	protected data, private data, public/data	24 th	Checking and testing of the above program
	36	inheriting constructors and destructors, constructor for virtual base classes		
13 th	37	constructors and destructors of derived classes, and virtual functions	25 th	Program No. 9 of Syllabus
	38	size of a derived	26 th	Checking and

		class, order of invocation,		testing of the above program
	39	Importance of virtual function, function call binding		
14 th	40	virtual functions, implementing late binding	27 th	Program No. 10 of Syllabus
	41	need for virtual functions	28 th	Checking and testing of the above program
	42	abstract base classes and pure virtual functions		
15 th	43	virtual destructors, Assignment-3	29 th	Program No. 11 of Syllabus
	44	Components of a file, different operation of the file	30 th	Checking and testing of the above program
	45	communication in files, creation of file streams		
16 th	46	stream classes, header files, updating of file, opening and closing a file	31 th	Program No. 12 & 13 of Syllabus
	47	file modes and file pointers and their manipulations	32 th	Checking and testing of the above programs
	48	functions manipulation of file pointers, Detecting end-of-file.		

Lesson Plan for Even semester

Name of the Faculty:

Discipline: Computer Engineering

Semester: 4nd

Subject: COMPUTER ORGANIZATION

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

Work Load (Lecture/ Practical) per week (in hours): Lectures- 04

Week	Theory		Practical	
	Lecture day	Topic (including assignment/ test)	Practical day	Topic
1 st	1 st	Introduction to basic Hardware organization of computer system		
	2 nd	CPU organization : general register organization		
	3 rd	CPU organisation: stack organization		
	4 th	Introduction to instruction and their formats		
2 nd	5 th	Types of instructions like three address, two address, one address, zero address		
	6 th	Introduction to CPU Addressing		
	7 th	Introduction to different types of Addressing modes		
	8 th	Immediate, register, direct, in direct, relative, indexed addressing modes.		
3 rd	9 th	CPU Design : Micro programmed vs hard wired control		

	10 th	Introduction to different instruction set computers		
	11 th	CISC characteristics, RISC characteristics, and their comparison.		
	12 th	Assignment & revision of 1 st Chapter		
4 th	13 th	Introduction to different types of memory and Memory organization		
	14 th	Memory Hierarchy		
	15 th	RAM and ROM chips,		
	16 th	Memory address map and mapping schemes		
5 th	17 th	Memory connections to CPU		
	18 th	Brief about Auxiliary memory		
	19 th	Introduction to Magnetic disks		
	20 th	Brief about Magnetic tapes		
6 th	21 st	Introduction to Associative memory		
	22 nd	Brief about Associative memory		
	23 th	Introduction to Cache memory		
	24 th	Brief about Cache memory		
7 th	25 th	Introduction to Virtual memory		
	26 th	Brief about Virtual memory		
	27 th	Revision of All types of memory in detail		
	28 th	Basics Memory management hardware		
8 th	29 th	Brief about Memory management		

		hardware		
	30 th	Assignment & revision of 2nd Chapter		
	31 st	Test Chapter 1 and revision		
	32 nd	Test Chapter 2 and revision		
	33 rd	I/O organization of a computer		
9 th	34 th	Basis Input output system(BIOS)		
	35 th	Function of BIOS		
	36 th	Testing and initialization of BIOS		
	37 th	Configuring the system with BIOS		
10 th	38 th	Different Modes of Data Transfer		
	39 th	Brief about Programmed I/O Data Transfer		
	40 th	Brief about Synchronous		
	41 st	Brief about asynchronous Data Transfer		
11 th	42 nd	Brief about interrupt initiated Data Transfer		
	43 rd	Brief about DMA data transfer		
	44 th	Difference between the different types of data transfer		
	45 th	Assignment & revision of 3rd Chapter		
12 th	46 th	Introduction to Architecture of multiprocessor systems		
	47 th	Different forms of parallel processing		
	48 th	Introduction to Parallel processing and pipelines		
13 th	49 th	Basic characteristics		

		of multiprocessor		
	50 th	Brief about General purpose multiprocessors		
	51 st	Introduction to Interconnection networks		
	52 nd	Brief about time shared common bus		
	53 rd	Brief about Multi port memory		
14 th	54 th	cross bar switch		
	55 th	Introduction to multi stage switching networks		
	56 th	hyper cube structures		
	57 th	Assignment & revision of 4h Chapter		
15 th	58 th	Test of unit 4th		
	59 th	Revision of ALL chapters		
	60 th	Revision along with problem solving session		

Lesson Plan for Even Semester

Name of the Faculty:

Discipline: Computer Engg.

Semester: 4th

Subject: Data Base Management System

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

Work Load (Lecture/ Practical) per week (in hours) : (Lectures- 03, Practical-03)

Week	Theory		Practical	
	Lecture day	Topic (including assignment/ test)	Practical day	Topic
1 st	1 st	Introduction to Database and its purpose and Introduction to Database system	1 st	Introduction to Database and overview of the different database available and brief about MS-Access
	2 nd	Why Database and History of Database System		
	3 rd	Characteristics of the database approach And Advantages and disadvantages of database systems		
2 nd	4 th	Introduction to Conventional File System, Concept of files, record, data, information retrieval ,Comparison between Conventional System and Database System	2 nd	Overview, Features and functionality, Application development in MS-Access
	5 th	Actors on the scene Like Database Administrators, Database Designers,		

		End Users, System Analysts and Application Programmers		
	6 th	Workers behind the scene (DBMS system designers and implementers, tool developers, operator and maintenance personnel and History of data base System		
3 rd	7 th	Revision and Assignment along with problem solving	3 rd	Overview, Features and functionality, Application development in MS-Access- Continues
	8 th	Data architecture and models: (Physical Model, Object based Model, Record based Model Network Model, Hierarchical Model)		
	9 th	schemas, sub schemas instances, data base State. Case Study of models and schemas (examples student information System)		
4 th	10 th	DBMS Architecture: Three Level of Architectures	4 th	Exercises on different forms of select statement, altering and dropping of tables
	11 th	The External level , the conceptual level and The internal level		
	12 th	Mappings and types of mappings		
5 th	13 th	Data base Administrator and Administration	5 th	Exercises on different forms of select statement, altering and dropping of tables-continues
	14 th	Database Management System – Advantage and Disadvantage		

	15 th	Classification of DBMS, DBMS Interfaces		
6 th	16 th	Concept of centralized and Client /Server Architecture for DBMS	6 th	Exercises on creation of tables
	17 th	Single Tier, Two Tier and Three Tier architecture		
	18 th	Data Independence		
7 th	19 th	Logical data Independence And Physical data Independence	7 th	Exercises on creation of tables- continues
	20 th	Database Languages and Interfaces		
	21 th			
8 th	22 th	Classification of Database Management Systems: Centralized, Distributed, parallel and Object based	8 th	Exercises on insertion of data into tables
	23 th	Data Models Classification : File based or primitive models, traditional data Models, semantic data models.		
	24 th	Entities and Attributes , Entity types and Entity sets		
9 th	25 th	Key attribute and domain of attributes 3.5 Relationship among entities	9 th	Exercises on insertion of data into tables- continues
	26 th	Database design with E/R model		
	27 th	ER Design Issues And Mapping Constraints		
10 th	28 th	Revision and Assignment along	10 th	Exercises on deletion of data using different

		with problem solving		conditions
	29 ^h	Relational Model Concepts		
	30 th	Domain, Attributes, Tuples, Cardinality		
11 th	31 th	Keys(Primary, Secondary, foreign, Alternative Keys etc)and Relations	11 th	Exercises on deletion of data using different conditions- continues
	32 th			
	33 st	Revision and Assignment along with problem solving		
12 th	34 rd	Introduction to Structured Query Language	12 th	Exercises on UPDATE statement
	35 th	Data definition language : Create, Alter, Drop commands		
	36 th	Data Manipulation Language (DML) like select, delete, update and insert command.		
13 th	37 th	Select command with where clause	13 th	Exercises on UPDATE statement- continues
	38 th	Select command with where clause using conditional expressions and Boolean operators		
	39 th	Select command with group by clause		
14 th	40 th	Select command with like operator	14 th	Revision of all the commands already done in the practical/labs.
	41 th	Insert, Update and Delete commands		
	42 th			
15 th	43 th	Revision and Assignment on all the SQL commands	15 th	Test of different commands and with problem solving session.
	44 th	Test of Chapter 5 th		
	45 th	Revision of all the syllabus with problem solving		

Lesson Plan for Even semester

Name of the Faculty:

Discipline: Computer Engineering

Semester: 4th

Subject: Microprocessors and Peripheral Devices

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

Work Load (Lecture/ Practical) per week (in hours): Lectures- 04

Week	Theory		Practical	
	Lecture day	Topic (including assignment/ test)	Practical day	Topic
1 st	1 st	Typical organization of a microcomputer system.	1 st	A brief history of Microprocessor. How Microprocessor works and its various features.
	2 nd	Functions of its various blocks.		
	3 rd	Microprocessor and its evolution.		
	4 th	Function and impact of microprocessor on modern society.		
2 nd	5 th	Concept of Bus.	2 nd	Familiarization of different keys of 8085 microprocessor kit.
	6 th	Bus organization of 8085.		
	7 th	Functional block diagram of 8085 and function of each block.		
	8 th	Pin details of 8085 and related signals.		
3 rd	9 th	Demultiplexing of address/data bus generation of read/write control signals.	3 rd	Familiarization of memory map of 8085.
	10 th	Steps to execute a stored Programme.		

	11 th	Instruction cycle, machine cycle and T-states.		
	12 th	Fetch and execute cycle.		
4 th	13 th	Revision and assignments	4 th	Steps to enter data/program on 8085 kit.
	14 th	TEST		
	15 th	Brief idea of machine and assembly languages, Machines and Mnemonic codes, Instruction format and Addressing mode.		
	16 th	Identification of instructions as to which addressing mode they belong.		
5 th	17 th	Concept of Instruction set and Explanation of the instructions of the following groups of instruction set.	5 th	Steps to modify data/program on 8085 kit
	18 th	Data transfer group		
	19 th	Revision and assignments		
	20 th	TEST		
6 th	21 st	Arithmetic Group, Logic Group	6 th	Steps to execute a programme on 8085 kit.
	22 nd	Stack, I/O and Machine Control Group		
	23 th	Revision and assignments		
	24 th	TEST		
7 th	25 th	Programming exercises in assembly language	7 th	Writing and execution of ALP for addition of two 8 bit numbers.
	26 th	Concept of memory		

		mapping		
	27 th	Partitioning of total memory space		
	28 th	Revision and assignments		
8 th	29 th	Revision and assignments	8 th	Writing and execution of ALP for subtraction of two 8 bit numbers.
	30 th	TEST		
	31 st	Address decoding		
	32 nd	Concept of peripheral mapped I/O		
9 th	33 rd	Concept of memory mapped I/O	9 th	Writing and execution of ALP for multiplication and division of two 8 bit numbers.
	34 th	Interfacing of memory mapped I/O devices		
	35 th	Revision and assignments		
	36 th	TEST		
10 th	37 th	Concept of interrupt	10 th	Writing and execution of ALP for arranging 10 numbers in ascending/descending order.
	38 th	Maskable and non-maskable		
	39 th	Edge triggered and level triggered interrupts		
	40 th	Software interrupt		
11 th	41 st	Restart interrupts and its use	11 th	Writing and execution of ALP for 0 to 9 BCD counters (up/down counter according to choice stored in memory).
	42 nd	Various hardware interrupts of 8085		
	43 rd	Servicing interrupts		
	44 th	Revision and assignments		
12 th	45 th	extending interrupt system	12 th	Interfacing exercise on 8255 like LED display control and 8253 programmable interval timer.
	46 th	Concept of programmed I/O operations		
	47 th	synchronous data transfer, asynchronous data		

		transfer (hand shaking)		
	48 th	Interrupt driven data transfer		
13 th	49 th	DMA	13 th	Interfacing exercise on 8279 programmable KB/display interface like to display the hex code of key pressed on display.
	50 th	Serial output data, Serial input data		
	51 st	8255 PPI		
	52 nd	8253 PIT		
14 th	53 rd	8257 / 8237 DMA controller,	14 th	Use of 8085 emulator for hardware testing.
	54 th	Programmable KB/Display Interface,		
	55 th	8251 Communication Interface Adapter.		
	56 th	Revision and assignments		
15 th	57 th	Revision and assignments	15 th	Revision and Problem Solving.
	58 th	Revision and assignments		
	59 th	Revision and assignments		
	60 th	Revision and assignments		