

J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)



ACADEMIC YEAR

2013-14

	COURSE PLAN	2013-14
		Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI
 Designation: ASSISTANT PROFESSOR
 Department:: CSE

1. TARGET

- a) Percentage Pass 90
- b) Percentage I class 60

2. COURSE PLAN

(Please write how you intend to cover the contents: i.e., coverage of Units by lectures, guest lectures, design exercises, solving numerical problems, demonstration of models, model preparation, or by assignments, etc.)

- A. COVERAGE OF UNITS BY LECTURES B. Solving numerical problems
- C. ASSIGNMENTS D. DESIGN EXERCISES

3. METHOD OF EVALUATION

- 3.1. Continuous Assessment Examinations (CAE 1, CAE 2)
- 3.2. Assignments / Seminars
- 3.3. Mini Projects
- 3.4. Quiz
- 3.5. Term End Examination
- 3.6. Others

4. List out any new topic(s) or any innovation you would like to introduce in teaching the subject in this Semester.

Graphics programming, Mouse programming.

Signature of HOD
Date:

Signature of Faculty
Date:



GUIDELINES TO STUDY THE SUBJECT

2013-14

Regulation: R11

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Guidelines for Preparing the Course:

Course Description:

A program is a set of step-by-step instructions that directs the computer to do the tasks you want it to do and produce the results you want.

A set of rules that provides a way of telling a computer what operations to perform is called a programming language. There is not, however, just one programming language; there are many.

Data structure:

- how to store a collection of objects in memory,
- what operations we can perform on that data,
- the algorithms for those operations, and how time and space efficient those algorithms are.

A data structure is an arrangement of data in a computer's memory or even disk storage. An example of several common data structures are arrays, linked lists, queues, stacks, binary trees, and hash tables.

Course Objectives:

- Continue developing a disciplined approach to problem solving methods and algorithm development. Provide a clear understanding of the concepts of abstract data types.
- To teach a number of the basic algorithms and data structures used in computer science.
- On completion of this course, students must have a basic understanding of the concepts of abstract data types and object oriented programming methods. Data structures such as lists, stacks, queues, strings, and trees must be understood. The student will have working knowledge of the concepts of classes and objects, operator overloading, constructors, destructors, and generics. The concepts of dynamic data structures and recursion must be well understood.

Learning Outcomes:

Students will be able to apply and compare the basic abstract data structures used in computer science. These include strings, sets, stacks, queues, lists, and binary trees. Students will understand and demonstrate their ability to construct abstract data types and solve problems using an object oriented programming language. This will include demonstrated understanding of recursion, dynamic memory management, generics, and operator overloading.



COURSE OBJECTIVES

2013-14

Regulation: R11

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On completion of this Subject / Course the student shall be able to:

S.No.	Objectives	Outcomes
1.	To understand the various steps in Program development.	A,E
2.	To understand the basic concepts in C Programming Language.	A,B,E
3.	To learn how to write modular and readable C Programs	A,C,D,E
4.	To learn to write programs (using structured programming approach) in C to solve problems.	E,F,G,H
5.	To learn to write programs (using structured programming approach) in C to solve problems.	G,I,J
6.	To learn to write programs (using files programming approach) in C to solve problems.	C,E,G,K
7.	To introduce the students to basic data structures such as lists, stacks and queues	I,J,K
8.	To make the student understand simple sorting and searching methods.	D,G,J,K

Signature of Faculty

X

Note: For each of the OBJECTIVE indicate the appropriate OUTCOMES to be achieved.
Kindly refer Page 16, to know the illustrative verbs that can be used to state the objectives.



COURSE OUTCOMES

2013-14

Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI
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The expected outcomes of the Course / Subject are:

The expected outcomes of the Course / Subject are:

S.No.	General Categories of Outcomes	Specific Outcomes of the Course
A.	An ability to apply knowledge of mathematics, science, and engineering	Identify and describe the major literary movements of the 20th century
B.	An ability to design and conduct experiments, as well as to analyze and interpret data	perform close readings of literary texts
C.	An ability to design a system, component, or process to meet desired needs within realistic Constraints such as economic, environmental, social, political, ethical, health and safety, Manufacturability and sustainability	evaluate a literary work based on selected and articulated standards
D.	An ability to function on multi-disciplinary teams	Identify key measurement problems involved in the design and evaluation of social interventions and suggest appropriate solutions
E.	An ability to identify, formulate, and solve engineering problems	assess the strengths and weaknesses of alternative strategies for collecting, analyzing and interpreting data from needs analyses and evaluations in direct practice, program and policy interventions
F.	An understanding of professional and ethical responsibility	analyze qualitative data systematically by selecting appropriate interpretive or quantified content analysis strategies
G.	An ability to communicate effectively	articulate implications of research findings for explanatory and practice theory development and for practice/program implementation
H.	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	the impact of research and other accomplishments in space technology on our understanding of scientific theories and principles and on other fields of endeavour
I.	A recognition of the need for, and an ability to engage in life-long learning	plan ways to model and/or simulate an answer to the questions chosen
J.	A knowledge of contemporary issues	predict the appearance and motion of visible celestial objects
K.	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	communicate scientific ideas, procedures, results, and conclusions using appropriate SI units, language, and formats

The Schedule for the whole Course / Subject is:: C Programming and Data Structures

Objectives – Outcome Relationship Matrix (Indicate the relationships by ☒ mark).

Objectives \ Outcomes	A	B	C	D	E	F	G	H	I	J	K
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



COURSE SCHEDULE

2013-14

Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI
Designation: ASSISTANT PROFESSOR
Department: CSE

The Schedule for the whole Course / Subject is: COMPUTER PROGRAMMING & DATA STRUCTURES

S. No.	Description	Duration (Date)		Total No. of Periods
		From	To	
1.	Introduction to computers	1.10.13	18.10.13	12
2.	Introduction to C Language	19.10.13	30.10.13	24
3.	Designing structured programs, Arrays	1.11.13	14.12.13	21
4.	Pointers, Strings	18.12.13	29.12.13	19
5.	Derived types – structures,	2.1.14	31.1.14	12
6.	Input and output -Concept of a file	3.2.14	21.2.14	13
7	Searching and sorting	3.3.14	25.3.14	10
8	Data structures	1.4.14	25.4.14	21

Hours / Periods

Total No. of Instructional periods available for the course:

Text Books:

1. B. A. Fouruzan and R. F. Gilberg (2006), Computer Science: A structured programming approach using C, 3rd Edition, Thomson Publications, New Delhi.
2. Yashawanth Kanethkar (2008), Let us C, 8th Edition, Jones & Bartlett Publishers, India.


Text Books:

1. Horowitz, Ellis, Sahni, Sartaj, Anderson-Freed, Susan (2008), Fundamentals of Data Structure in C, 2nd Edition, University Press, India.

- Richard F. Gilberg, Behrouz A. Forouzan (2005), Data Structures: A Pseudo code approach with C, 2 Edition, Thomson, India.

Reference Books:

- Herbert Schildt (2000), C: The Complete Reference, 4th Edition, New Delhi, Osborne Mc Graw Hill.
- B. W. Kernighan and Dennis M. Ritchie (1988), The C Programming Language, 2nd Edition, Prentice Hall Software Series, India.
- Stephen G.Kochan (2004), Programming in C, 3rd Edition, Pearson Education Private Limited.

	SCHEDULE OF INSTRUCTIONS	2013-14
	UNIT - I	Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI
 Designation: ASSISTANT PROFESSOR
 Department: CSE

The Schedule for the whole Course / Subject is:: COMPUTER PROGRAMMING & DATA STRUCTURES

Sl. No.		No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	1.10.13	3	Introduction to Computers, computer systems	1	T1:1
2	4.10.13	1	Computing Environments,	2	T1:1
3	5.10.13	1	Computer languages	3	T1:1.1
4	7.10.13	2	Creating and running programmes	4	T1:1.1
5	8.10.13	1	Software Development Method	5	T1:1.2
6	11.10.13	1	Algorithms	1	T1:1.3
7	12.10.13	2	Pseudo code, flowcharts	1	T1:1.3
8	18.10.13	1	Applying the software	1	T1:1.2

Signature of Faculty
Date

- Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED BOLDLY.
3. MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.



SCHEDULE OF INSTRUCTIONS

2013-14

UNIT - II

Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI
 Designation: ASSISTANT PROFESSOR
 Department:: CSE


The Schedule for the whole Course / Subject is:: COMPUTER PROGRAMMING & DATA STRUCTURES

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No to
1	19.10.13	2	Introduction to C language-Background	1	T1:1.4
2	21.10.13	1	Simple C programme, identifiers	2	T1:1.4
3	22.10.13	2	Basic data types, Variable, Constants	2	T1:1.5
4	22.10.13	4	Input/Output, Operators, Expression Evaluation	2	T1:1.6 T1:2.1,
5	23.10.13	1	Type conversions, Bit wise operators	2	T1:2.1, T1:2.2
6	24.10.13	2	Statements, Simple C Programming Examples	2	T1:2.3
7	25.10.13	2	Selection statement- If and Switch Statements	2	T1: 3.1.1-3.1.3
8	28.10.13	1	Simple C Programming Examples	3	T1:3.2.1-3.2.2
9	30.10.13	2	Selection statement- If and Switch Statements	2	T1: 3.1.1-3.1.3
10	29.10.13	3	Repetition Statement-while, For, do-while statements, Loop examples	3	T1: 3.4

11	30.10.1 3	2	Other Statements related to loopind-break	3	T1: 3.4
12	30.10.1 3	2	Continue,goto, Simple C Programming examples	4	T1:3.2.1-3.2.2

Signature of Faculty
Date

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MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - III	2013-14
		Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI

Designation: ASSISTANT PROFESSOR

Department:: CSE


The Schedule for the whole Course / Subject is:: COMPUTER PROGRAMMING & DATA STRUCTURES

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	1.11.13	2	Designing structured Programmers, Functions, basics	1	T1:3.2.3
2	1.11.13	2	User defined functions,inter function communication	3	T1.3.2.4
3	4.11.13	1	Standard functions ,Scope	3	T1:3.2.4
4	5.11.13	2	Storage classes-auto, register, Static,extern,scope rules	3	T1.3.2.5
5	7.11.13	3	Type qualifiers. recursion-recursive functions	3	T1.3.2.5
6	7.11.13	3	Preprocessor commands, Example C programmers	4	T1:5.2
7	8.11.13	2	Arrays –Concept, Using arrays in C,inter function communication	1	T1: 4.1
8	11.12.13	2	Array applications	2	T1:4.2
9	12.11.13	1	Two-Dimensional arrays	3	T1:5.1
10	12.11.13	1	Multidimensional arrays	3	T1:5.1
11	14.11.13	1	C Programme example	5	T1:5.1

12	14.12.1 3	1	Assignment	5	T1:5.2
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Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED BOLDLY.
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS	2013-14
	UNIT - IV	Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI
 Designation: ASSISTANT PROFESSOR
 Department: CSE

The Schedule for the whole Course / Subject is:: COMPUTER PROGRAMMING & DATA STRUCTURES

Sl. No	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No__ to __
1	18.12.13	1	Pointer-Introduction (Basic concepts)	1	T1:7.1.6
2	19.12.13	1	Ponters for inter function communication	2	T1:7.1.6
3	21.12.13	2	Pointer to pointers, Compatibility	2	T1:7.2
4	22.12.13	3	Memory allocation functions, Array of Pointers, Programming applications	3	T1:7.3
5	25.12.13	3	Pointers to void,Pointers to functions, Command – line argument,	2	T1:5.4
6	26.12.13	4	Stings- Concepts, C strings, String Input/output functions,	1	T1:7.1.1-7.1.2
7	28.12.13	4	Arrays of Strings, Strings manipulation functions, String/data conversion	2	T1:7.1.3-7.1.4
8	29.12.13	1	C Programme example, Assignment	4	T1:7.1.5

Signature of Faculty
Date

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SCHEDULE OF INSTRUCTIONS

2013-14

UNIT - V

Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI

Designation: ASSISTANT PROFESSOR

Department: CSE

The Schedule for the whole Course / Subject is::
COMPUTER PROGRAMMING & DATA STRUCTURES

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	2.1. .14	1	Derived types-Structures-Declaration	1	T1:7.4
2	6.1. .14	1	Definition and initialization of Structures	2	T1:7.4
3	7.1. .14	1	Accessing structures	2	T1:6.1
4	9.1. .14	1	Nested structures	2	T1:6.1
5	21.1 .14	1	Arrays of Structures	2	T1:6.2
6	23.1 .14	1	Structures and functions	3	T1:6.2
7	24.1 .14	1	Pointers to structures	2	T1:6.3
8	27.1 .14	1	Self referential structures	3	T1:6.3
9	28.1 .14	2	Unions, Types def, bit fields	1	T1:6.3
10	31.1 .14	1	Enumerated types	2	T1:6.3
11	31.1 .14	1	C Programming examples, Assignment	4	T1:6.3


Signature of Faculty

Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

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MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - VI	2013-14
		Regulation: R11

FACULTY DETAILS:


Name of the Faculty:: V.SUBHASHINI
 Designation: ASSISTANT PROFESSOR
 Department:: CSE

The Schedule for the whole Course / Subject is:: COMPUTER PROGRAMMING & DATA STRUCTURES

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No __ to __
1	3.2.14	1	Input and output –Concepts of a file	1	T2:6.4
2	4.2.14	1	Streams	1	T2:6.4
3	6.2.14	2	Standard input/output functions	2	T1:8.2
4	7.2.14	2	Formatted input/out functions	2	T1:8.2
5	11.2.14	2	Text files and a binary files	3	T1: 8.6
6	13.2.14	1	File input/out operations	3	T1:8.4
7	14.2.14	1	File status functions(error handling)	3	T1:8.5
8	18.2.14	1	C Programme examples	4	T1:8.6
9	20.2.14	1	Example	4	T1:8.6
10	21.2.14	1	Assignment	5	T1:8.6

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
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	SCHEDULE OF INSTRUCTIONS	2013-14
	UNIT - VII	Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI
 Designation: ASSISTANT PROFESSOR
 Department:: CSE

The Schedule for the whole Course / Subject is:: COMPUTER PROGRAMMING & DATA STRUCTURES

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No__ to __
1	3.3.14	1	Searching and sorting –Sorting selection sort	1	T2:13.1,13.2
2	4.3.14	1	Bubble sort	4	T2: 12.2-12.4
3	6.3.14	1	Insertion sort	4	T2: 12.2-12.4
4	7.3.14,1 0.3.14	2	Quick sort	5	T2: 12.2-12.4
5	14.3.14	1	Merge sort	4	T2: 12.2-12.4
6	21.3.14, 23.3.14	2	Searching –Liner Search	4	T2:13.1,13.2
7	24.3.14 25.3.14	2	Binary search method	5	T2:13.1,13.2

Signature of Faculty
Date

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SCHEDULE OF INSTRUCTIONS

2013-14

UNIT - VIII

Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI
Designation: ASSISTANT PROFESSOR
Department:: CSE

The Schedule for the whole Course / Subject is:: COMPUTER PROGRAMMING & DATA STRUCTURES

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No to
1	1.4.14	1	Data structure-Introduction to data structures,	1	T2: 1.1
2	4.4.14	1	Abstract data types	1	T2: 1.1
3	7.4.14	2	Linear list –Singly linked list implementation	2	T2: 2.1
4	8.4.14	2	Insert, deletion and searching operation on liner list	2	T2: 5.1,5.2
5	11.4.14	2	Stacks-Operations	2	T2:3.1,3.2
6	14.4.14	3	Array and Linked representations of stacks	3	T2: 5.1,5.2
7	15.4.14	3	Stack application –infix to postfix conversion	3	T2:3.5
8	18.4.14	2	Postfix expression evaluation	2	T2:3.5
9	21.4.14	2	Recursion implementation	3	T2: 2.1-2.2
10	22.4.14	2	Queues –Operations	4	T2: 4.1,4.2
11	25.4.14	1	Array and linked representation	5	T2: 5.1,5.2

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
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**COURSE COMPLETION STATUS****2013-14****Regulation: R11**

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI

Subject:: COMPUTER PROGRAMMING
& DATA STRUCTURES

Subject Code


Department:: CSE

Actual Date of Completion & Remarks, if any

Units	Remarks	Nos. of Objectives Achieved
Unit 1	Completed as per the course plan prepared	1,2
Unit 2	Completed as per the course plan prepared	2,3
Unit 3	Completed as per the course plan prepared	4,5
Unit 4	Completed as per the course plan prepared	4,5,6
Unit 5	Completed as per the course plan prepared	5,6
Unit 6	It's being continued.	4,5,6
Unit 7	It has to be completed	6,7,8
Unit 8	It has to be completed	7,8

Signature of Dean of School
Date:Signature of Faculty
Date:

NOTE: AFTER THE COMPLETION OF EACH UNIT MENTION THE NUMBER OF OBJECTIVES ACHIEVED.

	TUTORIAL SHEETS - I	2013-14
		Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI
 Designation: ASSISTANT PROFESSOR
 Department:: CSE

The Schedule for the whole Course / Subject is:: COMPUTER PROGRAMMING & DATA STRUCTURES

Date:

This Tutorial corresponds to Unit Nos.1,2


Time:

- Q1. Define algorithm and flowchart. Write an algorithm and flowchart for finding argest among the three given numbers.
- Q2. Write about creating and running of a program with a neat diagram.
- Q3. Explain in detail the Structure of a C program with the help of a neat diagram
- Q4. Write various operators and write a C program using switch case statement for bit wise operators.
- Q5. Explain while and do...while statements syntax and a simple example. Write e program to print Prime number using for loop.

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School
Date:

Signature of Faculty
Date:

	<h2>TUTORIAL SHEETS - II</h2>	2013-14
		Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI
 Designation: ASSISTANT PROFESSOR
 Department:: CSE

The Schedule for the whole Course / Subject is:: COMPUTER PROGRAMMING & DATA STRUCTURES

Date:

This Tutorial corresponds to Unit Nos.3,4,5

Time:

Q1. 1. (a) What is inter function communication?

(b) Explain different methods for transferring data between calling and called function.

2. How to Pass Array Individual Elements to Functions? Explain with example program.

How can we pass the Whole Array to Functions? Explain with example program.

3. How to use pointers as arguments in a function? Write a program that uses a function pointer as a function argument.

4. (a) Write the syntax and representations for the conversion of String to Data.

(b) Write a program for conversion of string to data.

5. a) Explain about typedef with syntax and examples.

b) Write a program using *typedef* definition.


Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School

Date:

Signature of Faculty

Date:

	TUTORIAL SHEETS - III	2013-14
		Regulation: R11

FACULTY DETAILS:

Name of the Faculty:: V.SUBHASHINI
Designation: ASSISTANT PROFESSOR
Department:: CSE

Date:

This Tutorial corresponds to Unit Nos.6,7,8

Time:

1. Q1. A) What is the syntax of fgetc() and fputc() functions and write examples for each.
B) Write C-Program to copy the contents of one file into another file.
2. A) Explain bubble sort procedure with an algorithm.
B) Illustrate the results of bubble sort for each pass, for the following array elements.

23 78 45 8 32 56
3. A) What is a data structure? Explain the various types of data structures with suitable example.
4. Define sorting? Mention the different types of sorting techniques?
5. What is the difference between linked list and an array?

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School
Date:

Signature of Faculty
Date:



ILLUSTRATIVE VERBS FOR STATING INSTRUCTIONAL OBJECTIVES

2013-14

Regulation: R11

These verbs can also be used while framing questions for Continuous Assessment Examinations as well as for End – Semester (final) Examinations.

ILLUSTRATIVE VERBS FOR STATING GENERAL OBJECTIVES

Know

Comprehend

Understand

Apply

Analyze

Design

Generate

Evaluate

ILLUSTRATIVE VERBS FOR STATING SPECIFIC OBJECTIVES:

A. Cognitive Domain

1	2	3	4	5	6
Knowledge	Comprehension Understanding	Application of knowledge & comprehension	Analysis of whole w.r.t. its constituents	Synthesis combination of ideas/constituents	Evaluation judgement

Define	Convert	Change	Breakdown	Categorize	Appraise
Identify	Defend	Compute	Differentiate	Combine	Compare
Label	Describe (a procedure)	Demonstrate	Discriminate	Compile	Conclude
List	Distinguish	Deduce	Distinguish	Compose	Contrast
Match	Distinguish	Manipulate	Separate	Create	Criticize
Reproduce	Estimate	Modify	Subdivide	Devise	Justify
Select	Explain why/how	Predict		Design	Interpret
State	Extend	Prepare		Generate	Support
	Generalize	Relate		Organize	
	Give examples	Show		Plan	
	Illustrate	Solve		Rearrange	
	Infer			Reconstruct	
	Summarize			Reorganize	
				Revise	

B. Affective Domain

Adhere
Assist
Attend
Change
Develop
Help
Influence
Initiate

Resolve
Select
Serve
Share

C. Psychomotor Domain (skill development)


Bend
Calibrate
Compress
Conduct
Connect
Convert
Decrease
Demonstrate

Dissect
Draw
Extend
Feed
File
Grow
Handle
Increase

Insert
Keep
Elongate
Limit
Manipulate
Move precisely
Operate
Paint

Perform
Prepare
Remove
Replace
Report
Reset
Run
Set

Straighten
Strengthen
Time
Transfer
Type
Weigh

	LESSON PLAN Unit-1	2013-14
		Regulation: R11

Name of the Faculty: V.SUBHASHINI

Subject: COMPUTER PROGRAMMING & DATA STRUCTURES Subject Code


Unit: I

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to computers	50min	Fourozan	Chalk&board
2	COMPUTER SYSTEMS	50min	Fourozan	Chalk&board
3	COMPUTING ENVIRONMENT	50min	Fourozan	Chalk&board
4	Computer languages	50min	Fourozan	Chalk&board
5	Creating and running programs	50min	Fourozan	Chalk&board
6	Software development method	50min	Fourozan	Chalk&board
7	Algorithms	50min	Fourozan	Chalk&board
8	Pseudo code	50min	Fourozan	Chalk&board
9	flowcharts	50min	Fourozan	Chalk&board
10	Applying Software development method	50min	Fourozan	Chalk&board

On completion of this lesson the student shall be able to(Outcomes)

1. define program and programming.
- 2 briefly understand compiler, interpreter, linkers and loader functions.
3. Learning different place of stating algorithms-step-form, flowchart, etc.
4. Knowing software applications.

	ASSIGNMENT Unit-I	2013-14
		Regulation: R11

Assignment / Questions

1. Explain the stages by which the program written in a high level language is converted to an executable file.
2. What is an Algorithm? Write an Algorithm and draw a flowchart for printing fibno. Series .
3. A)Write an Algorithm to check if a given number is Prime or not.
4. b) Use Program Development Methodology for converting temperature in Fahrenheit to Centigrade.
5. a)Expalin the basic structure of a C Program.
b)Explain the process of creating and running programs.
6. What are the Basic (H/W) components of a computer? And explain each one with an

Example

7. Write a program to accept the basic pay = Rs 10000/- of an employee and display the gross pay using the following formula

Gross pay = Basic pay +DA+ HRA+ TA


DA= 32% of the Basic pay

HRA = 18 % the Basic pay

TA = 10 % of the Basic pay

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

	LESSON PLAN Unit-II	2013-14
		Regulation: R11

Name of the Faculty: V.SUBHASHINI

Subject: COMPUTER PROGRAMMING & DATA STRUCTURES Subject Code


Unit: II

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to C language-Background, simple C language	50min	Fourozan	Chalk&board
2	Basic data types , identifiers	50min	Fourozan	Chalk&board
3	Variables, Constants	50min	Fourozan	Chalk&board
4	Input/output, Operators	50min	Fourozan	Chalk&board
5	Expressions, precedence and order of evaluation.	50min	Fourozan	Chalk&board
6	Type conversions	50min	Fourozan	Chalk&board
7	bit-wise operators, statements	50min	Fourozan	Chalk&board
8	Selection statements- if and switch statements	50min	Fourozan	Chalk&board
9	Repetition statements- while, do-while and for statements	50min	Fourozan	Chalk&board
10	Other statements related to looping-break, goto, continue	50min	Fourozan	Chalk&board

On completion of this lesson the student shall be able to(Outcomes)

1. The basic structure of a program in C.
2. Use of header files.
3. Why data type is specified for a variable declaration.
4. What is associative? When should a type cast be used or not used.

	ASSIGNMENT Unit-II	2013-14
		Regulation: R11

Assignment / Questions

1. Write a program to print the following pattern.


```

      *****
      *****
      *****
      *****
      
```
2. Write a program to display the square and cube of first n natural numbers (1,2,3...) using do.... while() loop. The output should be displayed as follows. n to be taken as input from user.

Number	Square	Cube
--------	--------	------
3. a) What is Ternary operator? Write a program using ternary operator to find the largest of 10 user given numbers.
 b) Write a program to find the sum of $x-x^2+x^3-x^4+\dots-x^{10}$
4. a) Explain Bitwise operators in C with examples.
 b) Explain 'break' and 'continue' statements with examples.
5. Explain the following with general form and flow chart?
 - a) Simple if statement
 - b) If ...Else statement
 - c) Nested if statement
 - d) If else , if... else ladder

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.



LESSON PLAN
Unit-III

2013-14

Regulation: R11

Name of the Faculty: V.SUBHASHINI

Subject ASSISTANT PROFESSOR

Subject Code

Unit III

INSTRUCTIONAL OBJECTIVES: COMPUTER PROGRAMMING & DATA STRUCTURES

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Designing structured Programmers	50min	Fourozan	Chalk&board
2	Functions, basics	50min	Fourozan	Chalk&board
3	User defined functions, inter function communication	50min	Fourozan	Chalk&board
4	Standard functions ,Scope	50min	Fourozan	Chalk&board
5	Storage classes-auto, register	50min	Fourozan	Chalk&board
6	Static, extern, scope rules	50min	Fourozan	Chalk&board
7	Type qualifiers. recursion-recursive functions	50min	Fourozan	Chalk&board
8	Pre-processor commands,	50min	Fourozan	Chalk&board
9	Example C programmers	50min	Fourozan	Chalk&board
10	Arrays –Concept	50min	Fourozan	Chalk&board
11	Using arrays in C, inter function communication	50min	Fourozan	Chalk&board
12	Array applications	50min	Fourozan	Chalk&board
13	Two-Dimensional arrays	50min	Fourozan	Chalk&board
14	Multi dimensional arrays ,C Programme example	50min	Fourozan	Chalk&board

On completion of this lesson the student shall be able to(Outcomes)

1. Why do we use functions?
2. What is the use of recursive and non recursive functions
3. Accessing array elements.
4. How to pass individual elements and then how to pass the hole array.



**ASSIGNMENT
Unit-III**

2013-14

Regulation: R11

Assignment / Questions

1. (a) What is a function? Why we use functions in C language? Give an example
(b) Distinguish between Library functions and User defined functions in C and Explain with examples.
2. (a) Write some properties and advantages of user defined functions in C?
(b) Explain the various categories of user defined functions in C with examples?
3. (a) What is inter function communication?
(b) Explain different methods for transferring data between calling and called function.
4. Explain the Parameter Passing Mechanisms in C-Language with examples.
5. (a) Differentiate actual parameters and formal parameters.
(b) Write a C program for exchanging of two numbers using call by reference mechanism.
6. (a) Discuss the Standard library functions in 'C' language.
(b) Define scope? Explain local and global variable with examples?
7. (a) What are different types of storage classes in 'C'?
(b) Explain briefly auto and static storage classes with examples?
8. (a) Enumerate the scope rules in C .
(b) Explain extern and register storage classes with example programs.
9. Explain the preprocessor commands in C language with examples?
10. (a) What is recursive function? Write syntax for recursive functions.
(b) Write a program to find factorial of a number using recursion
11. (a) Differentiate between recursion and non-recursion.
(b) Write a program to calculate GCD of two numbers using recursion
12. Write a program to generate Fibonacci series using recursive and non-recursive functions.
13. What is an array? How to declare and initialize arrays? Explain with examples
14. What is single dimensional array? Write a program to find the sum of 10 different natural

numbers using arrays?

15. How to Pass Array Individual Elements to Functions? Explain with example program.
16. How can we pass the Whole Array to Functions? Explain with example program.
17. (a) Define multi-dimensional arrays? How to declare multi-dimensional arrays?
(b) Write a program for addition of two matrices.
18. Explain how two dimensional arrays can be used to represent matrices. Write C code to perform transpose of given matrix.
19. (a) How to initialize two-dimensional arrays of fixed length?
(b) Write a program for multiplication of two matrices.
20. (a) How to initialize two-dimensional arrays of variable length?
(b) Write a program to find transpose of given matrix.
21. Write a program to find sum of elements in a given matrix. Take elements for this matrix using variable length initialization.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.



LESSON PLAN
Unit-IV

2013-14

Regulation: R11

Name of the Faculty: V.SUBHASHINI

Subject: COMPUTER PROGRAMMING & DATA STRUCTURES Subject Code

Unit: IV

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Pointer-Introduction (Basic concepts)	50min	Fourozan	Chalk&board
2	Pointers for inter function communication	50min	Fourozan	Chalk&board
3	Pointer to pointers, Compatibility	50min	Fourozan	Chalk&board
4	Memory allocation functions	50min	Fourozan	Chalk&board
5	Array of Pointers	50min	Fourozan	Chalk&board
6	Programming applications	50min	Fourozan	Chalk&board
7	Pointers to void, Pointers to functions	50min	Fourozan	Chalk&board
8	Command –line argument,	50min	Fourozan	Chalk&board
9	Strings- Concepts, C strings	50min	Fourozan	Chalk&board
10	String Input/output functions, Arrays of Strings	50min	Fourozan	Chalk&board
11	Strings manipulation functions	50min	Fourozan	Chalk&board
12	String/data conversion	50min	Fourozan	Chalk&board
13	C Programme example	50min	Fourozan	Chalk&board

On completion of this lesson the student shall be able to (Outcomes)

1. Different types of compatibility.
2. Arithmetic operations on pointers
3. Usage of memory allocation functions.
4. Reading and writing strings, string input and output functions.



**ASSIGNMENT
Unit-IV**

2013-14

Regulation: R11

Assignment / Questions

1 a) What is a pointer? Explain the process of declaring and initializing pointers. Give an example.
b) Explain the features of pointers?

2 a) Write a program to show pointer of any data type that occupies same space?

b) Write a program to display the value of variable and its location-using pointer.

c) Write a program to add two numbers through variables and their pointers

3 (a) Describe pointers to void with example.

(b) Write a 'C' function using pointers to exchange the values stored in two locations in the memory.

4 How to use pointers as arguments in a function? Write a program that uses a function pointer as a function argument.

5 What is a pointer to pointer? Write syntax and explain with example program.

6 Explain the size compatibility in 'C' language with an example.

7 What is static and dynamic memory allocation? Differentiate between static and dynamic memory allocation?

8. a) Write a program for pointers to void? b) Write a program for array of pointers

9 (a) Write the syntax and representations for the conversion of String to Data

(b) Write a program for conversion of string to data.

10. Explain about the following string handling functions with example programs.

(i) strlen ()

(ii) strcpy ()

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.



LESSON PLAN
Unit-V

2013-14

Regulation: R11

Name of the Faculty: V.SUBHASHINI

Subject: COMPUTER PROGRAMMING & DATA STRUCTURES Subject Code


Unit: V

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Derived types-Structures-Declaration	50min	Fourozan	Chalk&board
2	Definition and initialization of Structures	50min	Fourozan	Chalk&board
3	Accessing structures	50min	Fourozan	Chalk&board
4	Nested structures	50min	Fourozan	Chalk&board
5	Arrays of Structures	50min	Fourozan	Chalk&board
6	Structures and functions	50min	Fourozan	Chalk&board
7	Pointers to structures	50min	Fourozan	Chalk&board
8	Self referential structures	50min	Fourozan	Chalk&board
9	Unions	50min	Fourozan	Chalk&board
10	Types def, bit fields	50min	Fourozan	Chalk&board
11	Enumerated types	50min	Fourozan	Chalk&board
12	C Programming examples	50min	Fourozan	Chalk&board

On completion of this lesson the student shall be able to (Outcomes)

1. passing structure through pointers
2. accessing structures
3. operations on structures.
4. diffent between structure and union.

	ASSIGNMENT Unit-V	2013-14
		Regulation: R11

Assignment / Questions

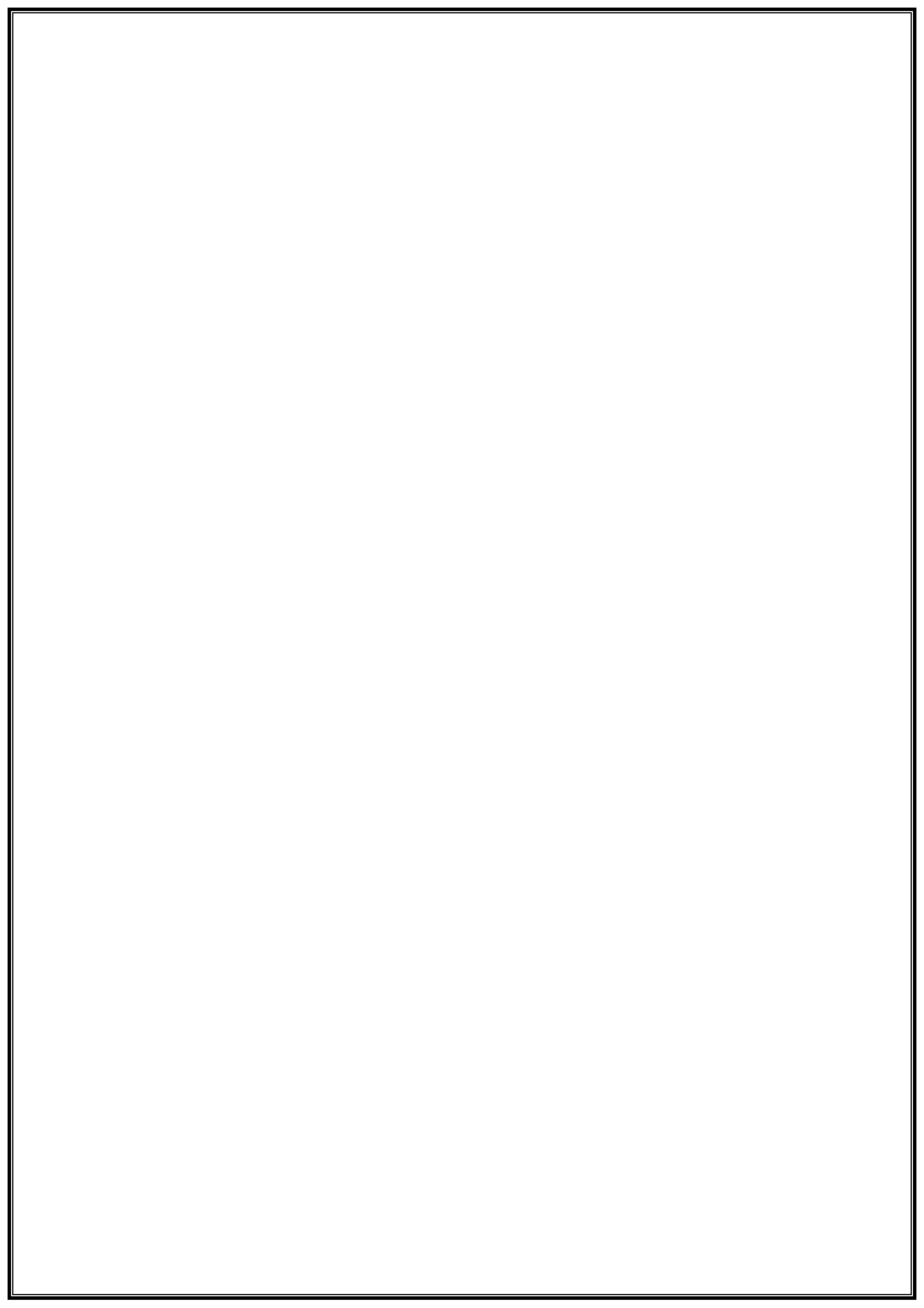
1. a) How to initialize structures in 'C'? Write example.
 - b) Define a structure type *personal*, that would contain person name, date of joining and salary. Write a program to initialize one person data and display the same.
2. a) How to access the data for structure variables using member ('.') operator?


Explain with an example.

 - b) Define a structure type *book*, that would contain book name, author, pages and price. Write a program to read this data using member operator ('.') and display the same.
3. a) What is structure within structure? Give an example for it.
 - b) Write a C program to illustrate the concept of structure within structure.
4. a) What is an array of structure? Declare a variable as array of structure and initialize it?
 - b) Write a C program to calculate student-wise total marks for three students using array of structure.
5. Write a C program using nested structures to read 3 employees details with the Following fields; emp-id, name, designation, address, da , hra and calculate gross salary of each employee.
6. What is a pointer to structure? Write a program to read and display student details using pointer to structures.
7. How to pass a structure member as an argument of a function? Write a program to explain it.
8. a) What is self referential structure? Explain through example.
 - b) Write a C program using structure to create a library catalogue with the following fields: Access number, author's name, Title of the book, year of publication, publisher's name, and price.
9. Explain unions in C language? Differentiate structures and unions.
10. a) Explain about typedef with syntax and examples.
 - b) Write a program using *typedef* definition.
11. What is enumerated type? Write syntax for declaration of enumerated types and write a program using enumerated types.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.



	LESSON PLAN Unit-VI	2013-14
		Regulation: R11

Name of the Faculty: V.SUBHASHINI

Subject: COMPUTER PROGRAMMING & DATA STRUCTURES Subject Code


Unit: VI

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Input and output –Concepts of a file	50min	Fourozan	Chalk&board
2	Streams	50min	Fourozan	Chalk&board
3	Standard input/output functions	50min	Fourozan	Chalk&board
4	Formatted input/out functions	50min	Fourozan	Chalk&board
5	Text files and a binary files	50min	Fourozan	Chalk&board
6	File input/out operations	50min	Fourozan	Chalk&board
7	File status functions(error handling)	50min	Fourozan	Chalk&board
8	C Programme examples	50min	Fourozan	Chalk&board

On completion of this lesson the student shall be able to (Outcomes)

1. Knowing the differences between Text and Binary files.
2. How to merge Files
3. knowing about System File Operations
4. converting file type.


	ASSIGNMENT Unit-VI	2013-14
		Regulation: R11

Assignment / Questions

1. a) Define a file and what are the advantages of using files?
b) Define a buffer and a stream? Describe various types of streams in C.
2. How to open a file? Write syntax and explain about various file opening modes with example.
- 3.(a) Explain the way of defining, opening and closing a file.
b) Write a C program to read data from the keyboard, write it to a file called INPUT, again read the same data from the INPUT file, and display it on the screen.
4. Distinguish between the following functions.
 - a) fgetc() and fscanf()
 - b) fprintf and fputs()
5. Describe the file positioning functions ftell(), rewind() and fseek() in C language.
Write examples for each.
6. Explain about error handling functions for files in C language.
7. (a) Differentiate text files and binary files
b) Explain various file opening modes for binary files?
8. Write a C program to merge the contents of two different files in to the third file.
9. Write a C program that illustrates ftell(), rewind() and fseek() functions.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

	LESSON PLAN Unit-VII	2013-14
		Regulation: R11

Name of the Faculty: V.SUBHASHINI

Subject: COMPUTER PROGRAMMING & DATA STRUCTURES Subject Code

Unit: VII

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Searching and sorting –Sorting selection sort	50min	Fourozan	Chalk&board
2	Bubble sort	50min	Fourozan	Chalk&board
3	Insertion sort	50min	Fourozan	Chalk&board
4	Quick sort	50min	Fourozan	Chalk&board
5	Merge sort	50min	Fourozan	Chalk&board
6	Searching –Liner Search	50min	Fourozan	Chalk&board
7	Binary search method	50min	Fourozan	Chalk&board

On completion of this lesson the student shall be able to

1. What is sorting
2. Arranging the elements in order using different sorting methods.
3. What is searching
4. Different types of searching the element in a given list.



**ASSIGNMENT
Unit-VII**

2013-14

Regulation: R11

Assignment / Questions

1. a) Explain bubble sort procedure with an algorithm.
b) Illustrate the results of bubble sort for each pass, for the following array elements.

23 78 45 8 32 56

2. Both the selection and bubble sorts exchange elements. The insertion sort does not.
Describe how the insertion sort sorted the data without exchanges. And write a program for insertion sort.

3. a) Write a program for sorting integers in descending order using selection sort.
b) Illustrate the results of selection sort for each pass, for the following

array elements. 78 23 45 8 32 36

4. We have the following array elements; 23 78 45 8 32 56

After 2 passes of a sorting algorithm, the array has been rearranged as shown below.

8 23 45 78 32 56

Which sorting algorithm is being used (selection, bubble and insertion)? Defend your answer.

5. a) Define sorting? Mention the different types of sorting techniques?
b) Write a program for Bubble sort and give a suitable example?
6. Write a program for quick sort and explain the same with an example?
7. a) What is Quick sort? What are the advantages and drawbacks of quick sort? Write an algorithm for quick sort ?
b) An array contains 2, 17, 30, 35, 46, 58, 60, 70 and 85. Trace the steps using binary search to find value 35
8. What is divide and conquer concept? Write a 'C' program for merge sort and explain merge sort with an example?
9. a) Write an algorithm and program for linear search
b) What are the advantages and disadvantages of linear search?

10. What is binary search? And write recursive algorithm and program for binary Search

11. a) An array contains 2, 17, 30, 35, 46, 58, 60, 70 and 85. Write a recursive program

to search key value 58 in the given array using Linear Search.

b) Write a non-recursive program for Binary Search

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

	LESSON PLAN Unit-VIII	2013-14
		Regulation: R11

Name of the Faculty: V.SUBHASHINI

Subject: COMPUTER PROGRAMMING & DATA STRUCTURES Subject Code


Unit: VIII

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Data structure-Introduction to data structures,	50min	Fourozan	Chalk&board
2	Abstract data types	50min	Fourozan	Chalk&board
3	Linear list –Singly linked list implementation	50min	Fourozan	Chalk&board
4	Insert, deletion and searching operation on liner list	50min	Fourozan	Chalk&board
5	Stacks-Operations	50min	Fourozan	Chalk&board
6	Array and Linked representations of stacks	50min	Fourozan	Chalk&board
7	Stack application –infix to postfix conversion	50min	Fourozan	Chalk&board
8	Postfix expression evaluation	50min	Fourozan	Chalk&board
9	Recursion implementation	50min	Fourozan	Chalk&board
10	Queues –Operations	50min	Fourozan	Chalk&board
11	Array and linked representation	50min	Fourozan	Chalk&board

On completion of this lesson the student shall be able to

1. Various types of data structures
2. Operations on to the stack using arrays
3. Operations on to the singly linked List
4. Queues and its various operations.

	ASSIGNMENT Unit-VIII	2013-14
		Regulation: R11

Assignment / Questions

- 1.a) What is a data structure? Explain the various types of data structures with suitable example.
 - b) What is the difference between linked list and an array?
2. What is singly linked list? Explain the stepwise procedure to perform various insertion operations on to the singly linked List with example.
3. What is Dynamic Data structure? Explain the stepwise procedure to perform various deletion operations on to the singly linked List with example.
4. Write a C program to delete end of the element from a singly linked list and append an element to the end of the list.
5. Write C program to
 - (a) Insert element at nth position
 - (b) Delete element at nth position from the singly linked list.
6. (a) What is a stack? What are the applications of stack?
 - (b) Write a program to perform various operations on to the stack using arrays.
7. What is a Queue? Explain the various operations to be performed on Queues with suitable algorithms using arrays.
8. Declare a queue of integers. Write a C program,
 - (a) To insert an element in to queue
 - (b) To delete an element from queue
 - (c) To display the list of elements in queue using Linked list representation.
9. Write a procedure to convert a given infix expression to postfix expression using stacks.
10. Write a procedure to evaluate given postfix expression.
11. What is meant by linear list? Explain the searching operation on linear list.

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.