

## Basic Information

Faculty							
Office Hour							
Contact Details							
Course Pre-requisites	CSE 103, CSE 201						
Department offering the course	Computer Science and Engineering						
Course Title	Data Structure Lab						
Course Code	CSE208	Credit	3	Term	Fall 2019		
Number of Lectures	0	Number of Tutorials	0	Number of Practical	24	Total	24

## Course Details

### 1. Course Description

This is a laboratory course where students do practical exercise on the principles of programming languages with an emphasis on programming language implementation for various applications considering data structures. The purpose of this Laboratory course is to provide the students with solid foundations in the basic concepts of data structures with the practical works.

### 2. Course Objective (COs)

1. To **emphasis** on the practical understanding of logical structures of data, their physical representation, design and analysis of algorithms operating on the structures, and techniques for program development and debugging;
2. To **demonstrate** the understanding and appropriate use of the data structures (e.g. arrays, linked lists, stack, queue, graph, and trees).

### 3. Intended learning outcomes of the course (ILOs)

SKILLS	<b>Solving practical problems using Data Structures in various applications</b>											
	<b>1. Critical analysis of situation and good programing knowledge and skills</b>											
	<b>2. Design and develop solutions to real world problems</b>											

### 4. Mapping of Course LO and PLO:

Learning Outcome (LO) of the Course	Program Learning Outcome (PLO)											
	1	2	3	4	5	6	7	8	9	10	11	12
<b>ILO 1</b>	MJ				MN				MN	MN		
<b>ILO 2</b>	MJ				MN				MN	MN		

## 5. Contents

ILO	Topic	Teaching Strategy	Assessment Strategy	Number of Sessions
1	Array and Pointers	Exercise	Q/A Test Presentation	4
1, 2	Linked List	Exercise	Q/A Test Presentation	4
1, 2	Sorting and Searching	Exercise	Q/A Test Presentation	4
1, 2	Stack	Exercise	Q/A Test Presentation	3
1, 2	Queue	Exercise	Q/A Test Presentation	3
1, 2	Graph	Exercise	Q/A Test Presentation	3
1, 2	Tree	Exercise	Q/A Test Presentation	3
			<b>Total</b>	24

## 6. A. Assessment Schedule

Assessment 1	Weekly Lab Assessment	Session	Weekly Basis
Assessment 2	Attendance and Class Participation	Session	
Assessment 3	Lab Viva	Session	Week 6, 12
Assessment 4	Mid and Final Lab Final	Session	As per ULAB schedule
Assessment 5	Final Project	Session	Week 11

## B. Weights of Assessments

Assessments	%
Attendance and Class Participation	10

Weekly Lab Assessment	20
Mid Examination	20
Final	30
FINAL Project (Presentation + Interview)	20
Total	100

### C. Grading Policy

Policy	Letter Grade	Grade Point
95% and above	A+	4.00
85% to below 94%	A	4.00
80% to below 84%	A-	3.80
75% to below 79%	B+	3.30
70% to below 74%	B	3.00
65% to below 69%	B-	2.80
60% to below 64%	C+	2.50
55% to below 59%	C	2.20
50% to below 54%	D	1.50
below 50%	F	0.00
--	I	0.00
--	W	0.00
--	AW	0.00

### 7. List of References

Course Notes	Will be provided during class
Essential Books (Text Books)	Schaum's Outline Of Theory and Problems of Data Structures, Latest Edition, Seymour Lipchutz.
Online Resources	Will be suggested during lecture

### Facilities Required for Teaching and Learning

Multimedia projector, white board and marker, internet connection, a computer with MS office suites

### Course Policies and Procedures

- Failing to attend more than 5 classes will result in an automatic fail
- Students are advised to keep the cell phones into silent mode
- Cheating and plagiarism are strictly prohibited
- There will be No makeup exam/quiz
- ULAB regulations will be followed in conducting exams and evaluating answer scripts and grading

### Appendix-1: Program Learning Outcome (PLO)/ Generic Skills

No.	Skills
1.	Engineering Knowledge
2.	Problem Analysis
3.	Design/Development of Solutions

4.	<b>Investigation</b>
5.	<b>Modern Tool Usage</b>
6.	<b>The Engineer and Society</b>
7.	<b>Environment and Sustainability</b>
8.	<b>Ethics</b>
9.	<b>Communication</b>
10.	<b>Individual and Team Work</b>
11.	<b>Life Long Learning</b>
12.	<b>Project Management and Finance</b>

**PLO/ Generic Skills (Detailed):**

1. **Engineering Knowledge (T)** -Apply knowledge of mathematics, sciences, engineering fundamentals and manufacturing engineering to the solution of complex engineering problems;
2. **Problem Analysis (T)** – Identify, formulate, research relevant literature and analyze complex engineering problems, and reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences;
3. **Design/Development of Solutions (A)** –Design solutions, exhibiting innovativeness, for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, economical, ethical, environmental and sustainability issues.
4. **Investigation (D)** Conduct investigation into complex problems, displaying creativeness, using research-based knowledge, and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions;
5. **Modern Tool Usage (A & D)** -Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations;
6. **The Engineer and Society (ESSE)** -Apply reasoning based on contextual knowledge to assess societal, health, safety, legal, cultural, contemporary issues, and the consequent responsibilities relevant to professional engineering practices.
7. **Environment and Sustainability (ESSE)** -Understand the impact of professional engineering solutions in societal, global, and environmental contexts and demonstrate knowledge of and need for sustainable development;
8. **Ethics (ESSE)** –Apply professional ethics with Islamic values and commit to responsibilities and norms of professional engineering code of practices.
9. **Communication (S)** -Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions;
10. **Individual and Team Work (S)** -Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
11. **Life Long Learning (S)** -Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
12. **Project Management and Finance (S)** -Demonstrate knowledge and understanding of engineering management and financial principles and apply these to one's own work, as a member and/or leader in a team, to manage projects in multidisciplinary settings, and identify opportunities of entrepreneurship.

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Course Coordinator/ Teacher

Date:

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Head of the Department

Date: