UNITED INTERNATIONAL UNIVERSITY
Department of Computer Science and Engineering (CSE)
Course Syllabus

1	**Course Title**	Data Structure and Algorithm Laboratory II
2	**Course Code**	CSE 2218
3	**Trimester and Year**	Spring 2022
4	**Pre-requisites**	CSI 217: Data Structure, CSI 219: Discrete Mathematics
5	**Credit Hours**	1.00
6	**Section**	E
7	**Class Hours**	Weekly Sunday 0200 pm to 0430 pm
8	**Class Room**	522
9	**Instructor's Name**	Akib Zaman, Lecturer, Dept. of CSE, UIU
10	**Email**	akib@cse.uiu.ac.bd
11	**Office**	319(D)
12	**Counselling Hours**	See table below
13	**Text Book**	Introduction to Algorithms (3rd edition) by Cormen, Leiserson, Rivest and Stein
14	**Reference**	Data Structure Visualization (usfca.edu) শাফায়েতের ব্লগ	প্রোগ্রামিং এবং অ্যালগরিদম টিউটোরিয়াল (shafaetsplanet.com) To Revise C++ (Bangla Tutorial): https://youtu.be/0T4mPpbNs_8 To Revise C++ Detailed Tutorial (English): https://www.youtube.com/watch?v=_bYFu9mBnr4 To Revise C++ (English Tutorial / 40 minutes): https://www.youtube.com/watch?v=raZSmcariyU *More Reference will be provided in the Class

Day	Time [CNH]
Saturday	(0300 pm – 0500 pm)
Sunday	(1100 am – 0200 pm)
Monday	(0900 am – 0300 pm)
Tuesday	(0300 pm – 0500 pm)
Wednesday	(0800 am – 1100 am)

Appointment Form Link:
https://docs.google.com/forms/d/e/1FAIpQLSfnpsEtOBVBjmLuINS38ouUbB_mS7l_OIbjyUAWbJe5OZXceg/viewform

15	**Course Contents (approved by UGC)**	Laboratory works based on CSI 227, CSE 2217
16	**Course Outcomes (COs)**	

COs	Description
CO1	Implement correct algorithms to handle large datasets efficiently.
CO2	Analyze worst-case running times of algorithms using asymptotic analysis.
CO3	Describe different algorithm paradigms and explain when algorithmic design situations call for them. Recite algorithms that employ these paradigms. Synthesize such algorithms. Derive and solve problems describing the performance of the algorithms.

17	**Teaching Methods**	Lecture, Lab Practice, Lab Evaluation.
18	**CO with Assessment Methods**	

CO	Assessment Method	(%)
-	Attendance	10%
CO1, CO2, CO3	Class Performance	35%
CO3	Presentation	10%
CO1, CO2, CO3	Assignment	25%
CO2, CO3	Final Exam	20%

19 Mapping of COs and Program Outcomes

COs	Program Outcomes (POs)											
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1			X									
CO2		X										
CO3		X										

20 Lab Outline

Class	Topics/Assignments	COs	Lecture Outcomes/Activities
1	Review of Basic Concepts: For Loop, Nested For Loop, Structure, Function, String	1	Lecture, Lab Practice
2	Review of Vector, Stack, Queue, Map, Set; Review of Recursive Function	1	Lecture, Lab Practice
3	Divide and Conquer Technique: Merge Sort, Quick Sort and Maximum Subarray.	2	Lecture, Lab Practice
4	**Class Evaluation**	2,3	Lecture, Lab Practice, **Class Evaluation 01, Assignment 01 Declaration**

		5	Greedy Algorithm : Fractional Knapsack & Activity Selection	2	Lecture, Lab Practice	
		6	Greedy Algorithm : Prim's, Kruskal	2	Lecture, Lab Practice	
		7	Greedy Algorithm : Dijsktra , Summary of Greedy Approach	2,3	Lecture, Lab Practice, **Assignment 02 Declaration**	
		8	**Class Evaluation 02,** Dynamic Programming : Bellman Ford, 0-1 Knapsack	3	Lecture, Lab Practice **Class Evaluation 02**	
		9	Dynamic Programming : LCS, MCM	3	Lecture, Lab Practice,	
		10	Dynamic Programming : Knuth-Morris-Pratt Algorithm, Travelling Salesman Problem (TSP)	3	Lecture, Lab Practice, Group Presentation, **Assignment – 03 Declaration**	
		11	**Class Evaluation**, **Presentation**	3	Lecture, Lab Practice, Group Presentation, **Class Evaluation - 03**	
		12	**Final Evaluation**	2,3	Final Exam	

Appendix 1: Assessment Methods

No.	Criteria	Marks	Remarks
1.	Attendance	10%	-
2.	Class Evaluation	35%	03 out of 03
3.	Assignment	25%	03 out of 03
4.	Presentation	10%	03-04 Persons in a Group
5.	Final Evaluation	20%	-

Appendix 2: Grading Policy

Letter Grade	Marks %	Grade Point	Letter Grade	Marks%	Grade Point
A (Plain)	90-100	4.00	C+ (Plus)	70-73	2.33
A- (Minus)	86-89	3.67	C (Plain)	66-69	2.00
B+ (Plus)	82-85	3.33	C- (Minus)	62-65	1.67
B (Plain)	78-81	3.00	D+ (Plus)	58-61	1.33
B- (Minus)	74-77	2.67	D (Plain)	55-57	1.00
			F (Fail)	<55	0.00

Appendix-3: Program outcomes

POs	Program Outcomes
PO1	An ability to apply knowledge of mathematics, science, and engineering
PO2	An ability to identify, formulate, and solve engineering problems
PO3	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
PO4	An ability to design and conduct experiments, as well as to analyze and interpret data
PO5	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
PO6	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
PO7	A knowledge of contemporary issues
PO8	An understanding of professional and ethical responsibility
PO9	An ability to function on multidisciplinary teams
PO10	An ability to communicate effectively
PO11	Project Management, risk management concepts and Finance
PO12	A recognition of the need for, and an ability to engage in life-long learning