UNITED INTERNATIONAL UNIVERSITY

Department of Computer Science and Engineering (CSE)

Course Syllabus

1	**Course Title**	Algorithms Laboratory
2	**Course Code**	CSI 228
3	**Trimester and Year**	Spring 2018
4	**Pre-requisites**	CSI 217: Data Structure, CSI 219: Discrete Mathematics
5	**Credit Hours**	1.00
6	**Section**	B
7	**Class Hours**	Sunday: 01:40 PM – 03:50 PM
8	**Class Room**	PC Computer Lab 5
9	**Instructor's Name**	Arif Arman
10	**Email**	arman@cse.uiu.ac.bd
11	**Office**	####
12	**Counselling Hours**	Monday: 10:20 AM – 11:50 AM Wednesday: 10:20 AM – 11:50 AM
13	**Text Book**	Introduction to Algorithms (3rd edition) by Cormen, Leiserson, Rivest and Stein
14	**Reference**	http://www.shafaetsplanet.com/ [For Bengali resources] https://www.geeksforgeeks.org/ [Implementation resources]
15	**Course Contents (approved by UGC)**	Laboratory works based on CSI 227.
16	**Course Outcomes (COs)**	
17	**Teaching Methods**	Lecture, Case Studies.

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.

18 CO with Assessment Methods

CO	Assessment Method	(%)
-	Attendance	05%
CO1, CO3	Class Performance	25%
CO1, CO3	Exams	30%
CO1	Assignments	25%
CO2, CO3	Final Quiz	15%

19 Mapping of COs and Program outcomes

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

20 Lab Outline

Class	Topics/Assignments	COs	Lab Outcomes/Activities
Lab1	Practice 1: Review of Recursive Functions	CO1	Lecture, Graded practice
Lab2	Exam 1: Review of Recursive Functions	CO1	Exam
Lab3	Practice 2: Divide-and-Conquer	CO1, CO3	Lecture, Graded practice
Lab4	Exam 2: Divide-and-Conquer Assignment 1	CO1, CO3	Exam; Lecture
Lab5	Practice 3: Greedy Algorithms	CO1, CO3	Lecture, Graded practice
Lab6	Assignment 2: Greedy Algorithms; Practice 4: Dynamic Programming	CO1, CO3	Lecture, Graded practice
MIDTERM WEEK			
Lab7	Exam 3: Dynamic Programming	CO1, CO3	Exam
Lab8	Practice 5: Disjoint-Sets Forests	CO1, CO3	Lecture, Graded practice
Lab9	Exam 4: Disjoint-Sets Forests; Minimum Spanning Trees	CO1, CO3	Exam
Lab10	Practice 6: Single-Source Shortest Paths	CO1, CO3	Lecture, Graded practice
Lab11	Exam 5: Single-Source Shortest Paths Assignment 3	CO1, CO3	Exam

		Lab12	Practice 7: String Matching	CO1, CO3	Lecture, Graded practice	

Appendix 1: Assessment Methods

Assessment Types	Marks
Attendance	05%
Class Performance	25%
Exams	30%
Assignments	25%
Final Quiz	15%

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 and Finance
PO12	A recognition of the need for, and an ability to engage in life-long learning