METROPOLITAN UNIVERSITY, SYLHET
DEPARTMENT OF Computer Science & Engineering
COURSE OUTLINE

Program	:	Bachelor of Computer Science & Engineering(CSE)
Course Title	:	Discrete Mathematics
Course Code	:	CSE-125
Semester	:	Autumn 2021
Credit Hour	:	3
Level	:	
Course Teacher	:	Suhel Ahmed, Assistant Professor
Class Hours	:	
e-mail	:	suhel@ metrouni.edu.bd
Mobile	:	+880-01723976961
Pre-requisite(if any)	:	none
Course Objectives	:	1. To introduce the notion of logical sentences 2. To enable the students to apply set theory and mathematical proof techniques 3. To introduce function growth analysis and comparison techniques 4. To enable the students to apply divide-and-conquer methods 5. To familiarize the students with tree and graph structures 6. To introduce the students to Boolean algebra
Course Learning Outcomes		Upon successful completion of this course, student will be able to: 1. Will be able to express a logic sentence in terms of predicates, quantifiers, and logical connectives 2. Will be able to apply set theory and functions, rules of inference and methods of proof including direct and indirect proof forms, proof by contradiction, and mathematical induction. 3. Will be able to analyze the growth of elementary functions and determine their Big-O value; analyze simple algorithms and compare two algorithms based on computational complexity. 4. Will be able to solve problems using divide-and-conquer recurrence relations such as the fast multiplication algorithm and binary search. 5. Will be able to utilize tree and graph algorithms. 6. Will be able to evaluate Boolean functions and simplify expressions using the properties of Boolean algebra.

Teaching-learning and Assessment Strategy:

Marking Scheme		
Attendance & performance	: 10 marks	
CT/Assignment	: 20 marks	
Mid term	: 30 marks	
Final	: 40 marks	

Tentative Class Schedule and Lesson Outcomes:

Lectures	**Topics**
1-4	Logic sentences, predicates, quantifiers. Logical connectives.
5-7	Set theory, functions, and methods of mathematical proof.
1st Tutorial Examination	
8-12	Growth of functions, computational complexity
Mid Term Examination	
13-16	Divide and conquer algorithms, fast multiplication algorithm, binary search
Quiz Test	
17-20	Tree and graph
2nd Tutorial Examination	
21-24	Boolean functions, Boolean algebra
Assignment	
Semester Final Examination	

References:

1. Discrete mathematics and its applications by Kenneth H. Rosen
2.

Conditions for Students:

1. Assignments must be submitted on time
2. Any excuses for re-class test and re-mid is strongly prohibited
3. Must attend at least 70% classes to appear at the final examination

Grading System: As per the Approved Grading Scale of Metropolitan University

Numeric Grade	Marks Range	Letter Grade	Grade Point	Remarks
80% and above	80 – 100	A+	4	Outstanding
75% to less than 80%	75 – 79	A	3.75	Excellent
70% to less than 75%	70 – 74	A-	3.5	Very Good
65% to less than 70%	65 – 69	B+	3.25	Good
60% to less than 65%	60 – 64	B	3	Above Average
55% to less than 60%	55 – 59	B-	2.75	Average
50% to less than 55%	50 – 54	C+	2.5	Below Average
45% to less than 50%	45 – 49	C	2.25	Poor
40% to less than 45%	40 – 44	D	2.00	Pass
Less than 40%	00 – 39	F	0.00	Fail