East West University
Department of Computer Science and Engineering
Course Outline
Spring 2020 Semester

Course: CSE106 (2, 3), CSE205 (1) Discrete Mathematics
Course Site: https://yeasirrayhanprince.github.io/teaching/cse106-spring-2020

Credits and Teaching Scheme

	Theory	Laboratory	Total
Credits	3	0	3
Contact Hours	3 Hours/Week for 13 Weeks + Final Exam in the 14th Week		3 Hours/Week for 13 Weeks + Final Exam in the 14th Week

Prerequisite
CSE103 Structured Programming

Instructor Information
Instructor: Yeasir Rayhan
Lecturer, Department of Computer Science and Engineering
Office: Room: AB2: 201
Tel. No.: 09666775577 (hunting) ext. 519
E-mail: yrp111@ewubd.edu
Contact: 01793167491

Class Routine and Office Hour

Day	08:30-10:00	10:10-11:40	11:50-01:20	01:30-03:00	03:10-04:40
Sunday	CSE103(10) AB2 205	CSE103(10) 637		CSE106(3) AB2 403	Office Hour
Monday	CSE106(1) AB2 503	CSE103(12) 630			
Tuesday			Office Hour	Office Hour	CSE103(12) AB1 601
Wednesday	CSE106(1) AB2 503	Office Hour			
Thursday	CSE 103(10) AB2 205	Office Hour	Office Hour	CSE106(3) AB2 504	CSE103(12) AB1 601

Course Objective
This course builds up the students' ability to think and express logically and mathematically. The course will address mathematical reasoning, combinatorial analysis, algorithmic thinking, and discrete structures. Knowledge of this course will be needed as prerequisite knowledge for future courses such as CSE110 Objected Oriented Programming, CSE207 Data Structures, CSE246

Algorithms, CSE302 Database Systems, CSE366 Artificial Intelligence, CSE405 Computer Networks, and CSE471 Compiler Design.

Knowledge Profile
K2: Conceptually-based mathematics, numerical analysis, statistics, and formal aspects of computer and information science

Learning Domains
Cognitive - C2: Understanding, C3: Applying
Psychomotor - P3: Precision
Affective - A2: Responding

Program Outcomes (POs)
PO1: Engineering Knowledge

Complex Engineering Problem Solution
None

Complex Engineering Activities
None

Course Outcomes (COs) with Mappings
After completion of this course students will be able to:

CO	CO Description	PO	Learning Domains	Knowledge Profile	Complex Engineering Problem Solving/ Engineering Activities
CO1	**Interpret** and **apply** propositional logic, predicate logic, and theorem proving for mathematical reasoning.	PO1	C2, C3	K2	-
CO2	**Interpret** and **apply** counting principles for combinatorial analysis.	PO1	C2, C3	K2	-
CO3	**Interpret** and **apply** the growth of functions, complexity analysis of algorithms, and integer algorithms for algorithmic thinking; **demonstrate** this knowledge and **write** report for realistic problem solving.	PO1	C2, C3 P3 A2	K2	-

CO4	**Interpret** and **apply** discrete structures such as sets, functions, relations, graphs, and trees for modeling discrete objects; **demonstrate** this knowledge and **write** report for realistic problem solving.	PO1	C2, C3 P3 A2	K2	-

Course Topics, Teaching-Learning Method, and Assessment Scheme

Course Topic	Teaching-Learning Method	CO	Mark of Cognitive Learning Levels		CO Mark	Exam (Mark)
			C2	C3		
Propositional Logic, Propositional Equivalences, Predicates and Quantifiers, Nested Quantifiers	Lectures and discussions inside and outside the class	CO1	8	8	16	Midterm Exam I (25)
Introduction to Proofs, Mathematical Induction	Do	CO1		9	9	
Sets, Set Operations, Functions, Recursive Functions, Relations and Their Properties	Do	CO4	8	8	16	Midterm Exam II (25)
The Basics of Counting, The Pigeonhole Principle	Do	CO2	3	6	9	
Algorithms, The Growth of Functions, Complexity of Algorithms, The Integers and Division, Primes, Greatest Common Divisor, Least Common Multiplier	Do	CO3	4	8	12	Final (25)
Graphs, Graph Terminologies and Special Types of Graphs, Representing Graphs, Introduction to Trees	Do	CO4	6	7	13	

Mini Projects

Mini Project	Teaching-Learning Method	CO	Mark of Cognitive Learning Level	Mark of Psycho-motor Learning Level	Mark of Affective Learning Level	CO Mark	Exam (Mark)
			C3	P3	A2		
Mini Project with reports and presentation	Group-based or Individual, moderately complex programming projects with report writing and presentation	CO3 CO4	4 4	0.5 0.5	0.5 0.5	5 5	Mini Project (10)
		Total	8	1	1	10	

Overall Assessment Scheme

Assessment Area	CO				Other	PO Marks
	CO1	CO2	CO3	CO4		PO1
Class Participation					5	
Class Test/Quiz					10	
Midterm Exam - I	25	0	0	0		25
Midterm Exam -II	0	9	0	16		25
Final Exam	0	0	12	13		25
Mini Projects with report and presentation	0	0	5	5		10
Total Mark	**25**	**9**	**17**	**34**	**15**	**85**

Teaching Materials/Equipment

Text book:
Kenneth H. Rosen, *Discrete Mathematics and Its Applications with Combinatorics and Graph Theory*, 7th Edition, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2015.

Mini Projects:
Mini Project description will be provided.

Grading System

Marks (%)	Letter Grade	Grade Point	Marks (%)	Letter Grade	Grade Point
97-100	A+	4.00	73-76	C+	2.30
90-96	A	4.00	70-72	C	2.00
87-89	A-	3.70	67-69	C-	1.70
83-86	B+	3.30	63-66	D+	1.30
80-82	B	3.00	60-62	D	1.00
77-79	B-	2.70	Below 60	F	0.00

Exam Dates

Section	Term I	Term II	Final
1(205), 2(106)	6 February	12 March	16 April
3(106)	5 February	11 March	13 April

Academic Code of Conduct

Academic Integrity:

Any form of cheating, plagiarism, personification, falsification of a document as well as any other form of dishonest behavior related to obtaining academic gain or the avoidance of evaluative exercises committed by a student is an academic offence under the Academic Code of Conduct and **may lead to severe penalties as decided by the Disciplinary Committee of the university.**

Special Instructions:

- Students are expected to attend all classes and examinations. A student MUST have at least 80% class attendance to sit for the final exam.
- Students will not be allowed to enter into the classroom after 20 minutes of the starting time.
- For plagiarism, the grade will automatically become zero for that exam/assignment.
- Normally there will be **NO make-up exam**. However, in case of **severe illness, death of any family member, any family emergency, or any humanitarian ground**, if a student miss any exam, the student MUST get approval of makeup exam by written application to the Chairperson through the Course Instructor **within 48hours** of the exam time. Proper supporting documents in favor of the reason of missing the exam have to be presented with the application.
- For **final exam**, there will be NO makeup exam. However, in case of **severe illness, death of any family member, any family emergency, or any humanitarian ground**, if a student miss the final exam, the student MUST get approval of **Incomplete Grade** by written application to the Chairperson through the Course Instructor **within 48 hours** of the final exam time. Proper supporting documents in favor of the reason of missing the final exam have to be presented with the application. **It is the responsibility of the student to arrange an Incomplete Exam within the deadline mentioned in the Academic Calendar in consultation with the Course Instructor**.
- All mobile phones MUST be turned to silent mode during class and exam period.
- There is **zero tolerance for cheating** in exam. Students caught with cheat sheets in their possession, whether used or not; writing on the palm of hand, back of calculators, chairs or nearby walls; copying from cheat sheets or other cheat sources; copying from other examinee,

etc. would be treated as cheating in the exam hall. The only penalty for cheating is **expulsion for several semesters as decided by the Disciplinary Committee of the university**.