

## Course Syllabus

<b>Course Code:</b>	CPE111
<b>Course Name:</b>	Discrete Mathematics for Computer Engineers
<b>Course Credit:</b>	3 (2-2-6)
<b>Semester/Year:</b>	1/2024
<b>Course Prerequisite:</b>	-
<b>Class Meeting:</b>	<u>Lecture</u> Wednesday 13.30 – 15.20, Classroom 1115  <u>Lab</u> Wednesday 15.30 – 17.20, Classroom 1115
<b>Class Website:</b>	<a href="https://leb2.kmutt.ac.th">https://leb2.kmutt.ac.th</a>
<b>Course Instructor:</b>	Dr. Taweechai Nuntawisuttiwong Email: taweechai.nunta@kmutt.ac.th
<b>Office Hour:</b>	By appointment
<b>Teaching Assistant:</b>	TBA
<b>Course Description:</b>	This course introduces fundamental concepts of discrete mathematics including Sets, relations, propositional logic, predicate logic, mathematical reasoning, proof techniques. Sequences and summation, mathematical induction. Counting, permutation, combination, and discrete probability. Number theory. Logic programming, graphs, trees, and related algorithms. Finite automata, context- free grammar, and the Turing machine.
<b>Learning Outcome:</b>	After completing this course, the student should be able to <b>CLO1. Use mathematics to represent and solve discrete problems</b> <b>CLO2. Work as a team with acceptable writing and presenting skills.</b>
<b>Teaching Method:</b>	Lectures and problem-based learning

<b>Student Evaluation:</b>	In-class assignments	10%
	Quiz	5%
	Project	15%
	M1 Exam	20%
	M2 Exam	25%
	Final Exam	25%
<b>Reference:</b>	Kenneth H. Rosen, Discrete Mathematics and Its Applications, 2019, Eight Edition, McGraw-Hill, ISBN 978-125-967-6512	
<b>Class Policy:</b>	<ul style="list-style-type: none"> <li>Students are responsible for all announcements and changes made in class.</li> <li><b>Academic integrity and the honesty policy will be strictly enforced.</b></li> </ul>	

## Course Schedule

The following topics will be covered in our schedule. The instructor may revise parts of the outline to conform to the background, knowledge, and interests of the student.

Week	Date	Topics	Activities
1	7 Aug	The Foundations: Logic	Mathematica: Rule of Inference
2	14 Aug	Basic Structures: Sets, Functions, Sequences, Sums, and Matrices	Mathematica: Set Operations
3	21 Aug	Number Theory	Mathematica: Cryptography
4	28 Aug	Counting	Mathematica: Knapsack Problem
5	4 Sep	Discrete Probability	Excel: Bayesian Spam Filters
6	11 Sep	No class – KMUTT Exam Period	
7	18 Sep	Algorithms	C Programming: Basic Algorithm
8	25 Sep	Induction and Recursion	C Programming: Recursive Algorithm
9	2 Oct	Recurrence Relations	C Programming: Divide-

Week	Date	Topics	Activities
			and-Conquer Algorithm
10	9 Oct	Relations	C Programming: Transitive Closure
11	16 Oct	TBA	
12	23 Oct	No class – KMUTT exam period	
13	30 Oct	Graphs	Excel: Shortest-Path
14	6 Nov	Trees	C Programming: Recursive Call
15	13 Nov	Boolean Algebra	Design Digital Circuit
16	20 Nov	Modeling Computation	Design FSM
17	27 Nov	TBA	
18	4 Dec	No class – KMUTT exam period	
19	11 Dec	No class – KMUTT exam period	

*Note: Any additional modifications to the syllabus will be announced in class.*