CSCI 3220: Discrete Structures

2023 Summer Session	
Total Class Sessions: 25 **Class Sessions Per Week: 5** **Total Weeks: 5** **Class Session Length (Minutes): 145** **Credit Hours: 4**	**Instructor: Staff** **Classroom: TBA** **Office Hours: TBA** **Language: English**

Course Description:

The course introduces the students to mathematical logic, fundamental discrete structures, such as: sets, functions, relations and graphs. Mathematical reasoning and various counting techniques are also covered in the course. Throughout the course students apply the techniques they learn to simplified practical problems. This course prepares the students for higher level computing courses where these concepts are of fundamental importance.

Course Materials:

1. Primary Text: **Discrete Mathematics and its Applications**, by Kenneth H. Rosen Published, McGraw-Hill International
2. Other References: **Discrete Mathematics**, 8th edition, by Richard Johnsonbaugh, McGraw-Hill International.

Course Format and Requirements:

This course has 25 classes. The duration of each session is 145 minutes in length. According to the protocol, the instructor will ask for prereading the learning materials as well as will assign homework prior to each class. This course has programming assignments as well. The students are strongly encouraged to learn and implement most of the concepts related to graphs, trees, matrices, recursion, prime numbers, and greatest common divisor. Familiarizing with the course material in advance, you will gain a better understanding of the information presented during the class.

Attendance

Students are expected to attend all class sessions and be in class on-time. Attendance is taken during the first few minutes of the class. Missing a class session is a student's responsibility. Missed classes will not be repeated. It is the student's responsibility to periodically check course website for course content, projects assignments, updates and notifications.

Course Assignments:

Daily Homework Assignment

Homework will be assigned on daily basis according sections covered in each class. The purpose is to enhance student practice ability in solving problems. Even through homework will not be collected, but the quizzes questions are quite similar to Homework question. If students are diligent on homework questions, they will definitely have a good score on quizzes.

Quizzes

Quizzes will be assigned which count for 20% of the final grade. Six quizzes will be given through the whole semester. The quizzes questions will be quite similar to homework questions. No make-up quizzes will be given.

Exams

Midterm Exams

There will be two midterm exams in this course. The midterm exams will be based on concepts covered in class. They will be in-class, close-book and non-cumulative.

Final Exam

The final will be cumulative and close-book. Note that the final will not be taken during the normal class times. Exact time for final will be announced later.

Course Assessment:

6 Quizzes	20%
Midterm Exams 1	20%
Midterm Exams 2	20%
Final Exam	40%
Total	**100%**

Grading Scale (percentage):

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
98-100	93-97	90-92	88-89	83-87	80-82	78-79	73-77	70-72	68-69	63-67	60-62	<60

Academic Integrity:

Students are encouraged to study together, and to discuss lecture topics with one another, but all other work should be completed independently.

Students are expected to adhere to the standards of academic honesty and integrity that are described in the Chengdu University of Technology's Academic Conduct Code. Any work suspected of violating the standards of the Academic Conduct Code will be reported to the Dean's Office. Penalties for violating the Academic Conduct Code may include dismissal from the program. All students have an individual responsibility to know and understand the provisions of the Academic Conduct Code.

Special Needs or Assistance:

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.

Course Schedule:

Week	Topics	Assignments
1	**Course introduction and course syllabus** Propositional Logic Propositional equivalences Predicates and quantifiers Sets Set operations	Homework Quiz No. 01
2	Functions Sequences and Summations Matrices The integers and division Primes and greatest common divisor Cryptography	Quiz No. 02 **Midterm No. 01**
3	Mathematical induction Recursive definitions and structural induction The basics of counting Permutations and combinations Binomial coefficients	Homework Quiz No. 03 Quiz No. 04
4	Recurrence relations Solving Recurrence relations Relations and their properties Representing relations Closures of relations Equivalence relations	Quiz No. 05 **Midterm No. 02**
5	Graph Terminology Representing graphs Graph isomorphism Graph Implementation	Quiz No. 06 **Final Exam**