

**Arab Academy for Science and Technology and Maritime Transport
Computer Science Curriculum
Course Syllabus**

Course Code: CS202	Course Title: Discrete Structures	Classification:	Coordinator: Dr. Nahla Belal Lecturer:	Credit Hours: 3
Pre-requisites: CS111 (Introduction to Computers)	Co-requisites: None	Schedule: Lecture: 2 hours Tutorial-Lab: 2 hours		
Office Hours:				
Course Description: The course provides an introduction to mathematical structures fundamentals of computer science. Topics discussed include logic of compound and quantified statements, number theory and methods of proof, sequences and mathematical induction, set theory, counting methods, functions and relations. The course lays down the mathematical formulation necessary for success in the computer science field.				
Textbook: Susanna Epp, <i>Discrete Mathematics with Applications</i> , Thomson Learning.				

References:

Judith L. Gersting, *Mathematical Structures for Computer Science*, W. H. Freeman Press.

Course Objective/Course Learning Outcome:

Contribution to Program Student Outcomes:

1. Use logic to determine the validity of an argument.

SO 1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

2. Construct the proof of a theorem.

3. Understand the terminology, operations, and symbols of set theory.

4. Use combinatorial techniques when needed in solving problems.

5. Identify functions; specifically, surjective, injective, and bijective functions.

6. Identify relations; specifically, a partial order, equivalence, and total order relations.

Course Outline:

Week 1. Introduction + The logic of compound statements

Week 2. The logic of compound statements (cont.)

Week 3. The logic of quantified statements

Week 4. The logic of quantified statements (cont.)

Week 5. Elementary number theory and methods of proof

Week 6. Elementary number theory and methods of proof (cont.)

Week 7. 7th Week Assessment

Week 8. Counting

Week 9. Counting (cont.)

Week 10. Functions

Week 11. Functions (cont.)

Week 12. 12th Week Assessment

Week 13. Relations

Week 14. Mathematical induction

Week 15. Revision

Week 16. Final Exam

Grade Distribution:

7th Week Assessment (30%)

12th Week Assessment (20%)

Year Work (10%):

Final Exam (40%)

Policies:**Attendance:**

AASTMT Education and Study Regulations (available at aast.edu)

Academic Honesty:

AASTMT Education and Study Regulations (available at aast.edu)

Late Submission:

Late submissions are graded out of 75% (1 week late), 50% (2 weeks late), 25% (3 weeks late), 0% (more than 3 weeks late)