MATH 301
INTRODUCTION TO DISCRETE MATHEMATICS (3)

Course Description: Symbolic logic, sets and relations, algorithms, mathematical induction, recurrence relations, trees and other graphs. Additional topics chosen from algebraic systems, networks, automata. Pre: One semester of calculus from mathematics department; or consent. Recommended: one semester programming.

Possible Texts:
R. P. Grimaldi, Discrete and Combinatorial Mathematics, Addison-Wesley.
Lovasz, Pelikan, Vesztergombi, Discrete Mathematics and Beyond, Springer.

Topics:
(7) Graphs. Graphs, Representing Graphs, Graph Isomorphism, Connectivity, Euler and Hamilton Paths, Shortest Paths, Planar Graphs, Graph Coloring.

Student learning outcomes: Upon successful completion, the student will have a working knowledge of discrete mathematics. The student will be able to apply this to problems involving counting, inductive reasoning and analysis of algorithmic complexity.

Program objectives: Discrete mathematics provides a foundation for understanding advanced computer science. In particular the analysis of program correctness, termination and complexity.