MIDDLESEX COUNTY COLLEGE

Course Title: Introduction to Discrete Math Course No. MAT 206

Class Hours: 4 Laboratory Hours: 0 Credit Hours: 4

Department Head Approval: _____ Date: 2007-2008
Maria DeLucia, Ph.D.

Dean Approval: _____
Reginald Luke, Ph.D.

Prerequisite:
Mat-132 (or approval of Department Chairperson)

Textbook of Course:

Title	Discrete Mathematics with Graph Theory
Author	Goodaire and Parmenter
Publisher	Prentice Hall

Catalog Course Description:

This is a first course in discrete mathematics. Topics include number theory, sets, functions and sequences, relations, recurrence relations, counting techniques, logic and techniques of proof, graphs, and algorithms. This course prepares a student for further study in mathematics and computer science.

Objectives of Course:

1. To introduce students to the theoretical mathematical framework underlying key concepts in computer science. This mathematics background includes set theory, logic, combinatorics, Boolean Algebra, graph theory and analysis of algorithms.
2. To familiarize students with the nature of mathematical reasoning, deductive logic and proofs. The students will be asked to develop their own proofs of selected theorems throughout the course.
3. To assist students in realizing the connection between mathematical theory and its applications to computer problems.

4. To help students understand the concepts of models, simulation and abstraction in mathematics.
5. To provide students with an appreciation of the inherent beauty of a discrete structure in mathematics.
6. To prepare students for further study in computability theory, coding and switching theory, analysis of algorithms and complexity, formal language theory and finite state/Turing Machines.

Syllabus for Math 206 – Discrete Math

Course Outline

Sections	Topics	Approximate Number of Classes
0.1 – 0.2 1.1 – 1.3	Logic and logical arguments	2.5
2.1 – 2.4	Sets, relations, equivalence relations	2.5
3.1, 3.2	Functions	1
Review		1
Test 1		1
4.1 – 4.4	Integers, prime numbers, and congruence	3
5.1 – 5.3	Induction and recurrence relations	2
Review		1
Test 2		1
6.1 – 6.3	Principles of counting	2
7.1, 7.2, 7.7	Permutations, combinations, and the binomial theorem	2
9.1 – 9.3	Graphs and isomorphism	2
Review		1
Test 3		1
12.1 – 12.3	Trees and spanning trees	2
Selected Topics	ENJOY!	2
Review		1