

ENG EC 533

Tentative Syllabus

<u>Ch. 1</u>	<u>Basic Concepts</u>	<u>Lectures</u>
1.1	What is mathematics?	1
1.2	Formal systems	2
1.3	Logical concepts	3
1.4	Theorem proving	4
1.5	Sets	5
1.6	Relations on sets	6, 7
1.7	Functions	8
1.8	Graphs	9
<u>Ch. 2</u>	<u>Mathematical Structures</u>	
2.1	The Boolean algebra as a structure	10
2.2	Monoids	11
2.3	Morphisms	12
<u>Ch.3</u>	<u>Algebraic Structures</u>	
3.1	Semigroups, monoids, groups	13, 14
3.2	Substructures	15, 16
3.3	Morphisms	17, 18
3.4	Quotient groups	19, 20
<u>Ch. 4</u>	<u>Finite-State Machines</u>	
4.1	Definitions and examples	21
4.2	Morphisms and simulation	22, 23
4.3	Machines as recognizers	24, 25

Text:

- Recommended:
1. J.L. Gersting "Mathematical Structures for Computer Science", 5th edition, Freeman & Co., New York, 2003 (or later editions)
 2. K.A. Ross, C. R.B. Wright "Discrete Mathematics", Pearson Education, 2003.
 3. B. Kolman, R C. Busby "Discrete Mathematical Structures for Computer Science", Prentice-Hall, 1987.
 4. F.P. Preparata, R.T. Yeh "Introduction to Discrete Structures", Addison-Wesley, 1973.

5. H. S. Stone, "Discrete Mathematical Structures and Their Applications", Science Research Association, Inc., Chicago, 1973.

Grading:

30 - homeworks
30% - mid-term exam
40% - final exam