CS222- Discrete Structures for Computing: Minimum Content

Revised: 1/6/1999

1. Elementary logic and proofs
   - 1.1. Propositions
   - 1.2. Conditionals and logical equivalence
   - 1.3. Informal proofs
   - 1.4. Mathematical induction, weak and strong
2. The language of mathematics
   - 2.1. Sets, relations and functions
   - 2.2. Equivalence relations
3. Counting
   - 3.1. Permutations and combinations
   - 3.2. Binomial coefficients
   - 3.3. Combinatorics
   - 3.4. The pigeonhole principle
4. Recurrence relations
5. Graph theory
   - 5.1. Paths and cycles
   - 5.2. Hamiltonian cycles
   - 5.3. Dijkstra’s shortest path algorithm
   - 5.4. Representations of graphs
   - 5.5. Graph isomorphism
6. Trees
   - 6.1. Classification and representation of trees
   - 6.2. Minimal spanning trees
   - 6.3. Binary trees