

CIS 525 Software Development of Parallel and Distributed Systems Fall 2008

Lecture 5: Tuesday, September 16, 2008

1. Analysis of occurrence sets for Colored Petri nets – examples with inscriptions on arcs and with reference to SATISFIABILITY problem.
2. General formulation of the simulation algorithm for Colored PNs.
3. Example of modeling manufacturing system with robot:
 - Manufacturing cell modeled by means of P/T net
 - Decomposition of P/T net into subnets related to place invariants (introduction).
4. Three main analysis Techniques for Petri nets:
 - Brute force approach by reachability graph
 - Transformation techniques that preserve both structural and behavioral properties
 - Structural analysis that includes graph-based reduction methods.
5. List of term research papers – preliminary version.

Lecture 6: Thursday, September 18, 2008

1. Introduction to place and transition invariants: definition, examples.
2. Verification of system properties using place invariants – reader-writer problem for OS
3. Verification of system properties using place invariants – sender/receiver problem.
4. Case Study: Justice Department modeling by Petri nets.
5. Homework #2 handouted with deadline of October 2, 2008.