



3. [15pts] Carry out a fault tree analysis for failing this course. Identify at least three intermediate events and at least three basic events
4. **[521 only]** [25pts] You have just been hired to be the Director of Quality Assurance for a growing company that produces software for factory automation. Suppose your company has just won a contract for a new HumVee plant under construction in Amherst, MA.
  - a. Make and state some assumptions about the kind of manufacturing systems and processes in the plant and the "character" of the applications (e.g., distributed, concurrent, real-time, safety-critical, computation-intensive, data-intensive, human-factors, embedded, etc.)
  - b. Of the many different software analysis methods and techniques we have studied, suggest which may be applicable to your company's applications, given the assumptions about the range of applications you stated in 3a.
  - c. What are the tradeoffs you will have to consider in selecting which methods and techniques to apply.
  - d. Given the range of techniques you have selected to support. hat tools are commercially available and which will you have to develop?
5. **[621 only]** [10pts] Discuss:
  - a. Liveness vs. safety properties
  - b. Fairness
  - c. Differences in syntax, semantics, and application of STL, CTL and LTL
  - d. Symbolic model checking vs automata theoretic model checking