Topic I: Software Testing

Testing...
- Is an important process for software quality assurance
- Consumes more than 50% of the cost of software development, even higher for critical software, such as avionics systems

Testing dates back to...
- The beginning of human civilization
- Comes all the way along with software development practices

Where we stand now:
- Redwine: Enhance and exploration
- Numerous testing techniques have been advanced and used, and possibly to be applied to large systems
- However, widespread use of systematic testing technique is not common in industry

Principal results:
- Big open question or problem:
Topic II: SWE and Performance

- The problem:
  - Software Performance Engineering

- How it got started:
  - Recognition that performance analysis techniques have suffered a lack of acceptance in the wider software design community

- Where we stand now:
  - Redwine: Basic research
Topic II: SWE and Performance

- **Principal results:**
  - Adapting of formal and semi-formal description languages.
  - Integrated environments, incorporating many model representations and solution techniques, in an attempt to lure designers into adopting them.

- **Big open questions and problems:**
  - Reluctance of designers to learn the specialized formalisms
  - The failure of performance engineering ideas to influence software engineering