Sample Module: Engineering Economics

LEARNING BRIDGE KICK-OFF MEETING
NOVEMBER 13, 2009
Objective

- Teach basic concepts of time value of money
  - Financial analysis problems on FE
- Role of economic analysis in public projects
  - Benefit/cost ratio
  - Bond financing
- Link engineering analysis with societal decision making
Economics of Tolls: Course

- Drexel CIVE 240 Engineering Economics
- Sophomore level introduction to financial analysis, discounting
Economics of Tolls: Concepts

- Civil infrastructure systems require large capital investments that are recovered over long time periods.
- Engineering economic analysis offers concepts and tools to develop pricing schemes to recover these capital costs in the form of user fees (tolls).
  - Find annuity associated with financing a set of upgrades and rehabilitation projects.
  - Find toll associated with this annuity.
  - Use the CPI to adjust both the capital cost and tolls to current dollars.
  - Make pricing recommendations to owner based on analysis, public reaction, other tolls in the bridge.
Economics of Tolls: Format

- CIVE 240 already requires two writing assignments
  - Letter report
  - Executive summary
- Either format will work well for presenting results of students’ analyses
Economics of Tolls: Summary

- Tie concepts of time value of money to concrete decision
- Couple engineering design-based cost estimate with economics and societal decision making