

Improving Quality in Intro IE through Case Studies and Communication

John Birge, Shane Henderson
(IOE)

Leslie Olsen (Tech Comm)
University of Michigan

Outline

- Background
- Outline of course
- Teams and communication
- Cases
- Evaluation
- Summary

Background

- Intro IE course
 - Soph level
 - 300-400/year
- Problems
 - Lack of depth in survey form
 - Perceived IE lack of rigor
 - Little comm/team instruction

Outline of Course

- Decision Making in Operations
 - Value concepts
 - Engineering economics
 - Role of operations
- Team/comm. development
- Cases
 - From practice
 - Massaged some data

Teams

- Single lecture
- Structure of teams
- Management
- Selection and task setting
- Dealing with difficulties

Report Writing

- Provide examples
- Impression of managers' time
- Succinct delivery
- Clear expression
- Example of Harvard case report

Cases

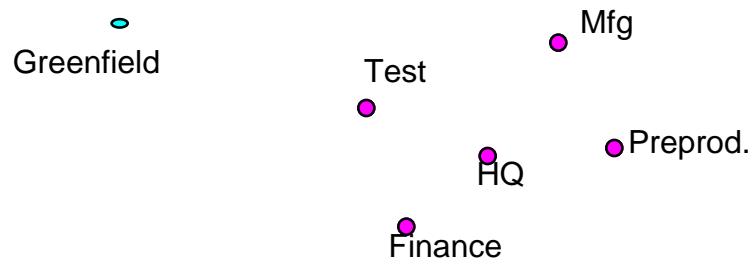
- Origin
 - Practical examples from instructor's experience
 - Coverage of operational issues
 - Crossing industries: mfg., entertainment, health care, public utility
- Goal: Teach a skill that goes beyond "common sense"

Example: Location

- Setting
 - Major manufacturer
 - Considering new location
 - Problems:
 - Leaving city location
 - Employee effects
 - Market returns?
- Decision: where to put HQ, Mfg., Test, Pre-prod., Finance?

“Power Motors” Location

- To Greenfield or not?

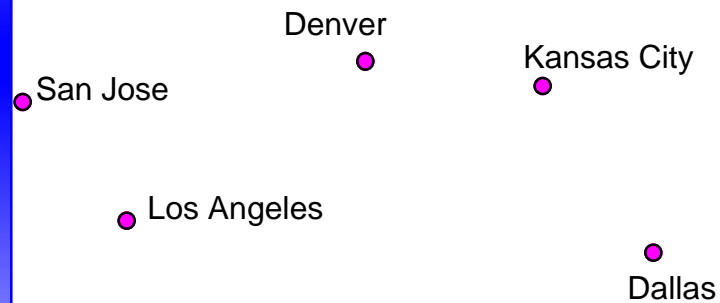


Scheduling

- Problem:
 - Find the most efficient schedule for the new soccer league’s western division
 - Play all teams home/away in two series
 - Max of two consec. road games
 - Limited time of season
- Minimize total distance (constrained tsp)

MLS Schedule

- Teams



Scheduling Results

- Method

- Column generation (as in airline sched.)
- Use of opt. tours for each team

- Solution

- Taught MSEXcel Solver
- Can find optimum in basic Excel

Evaluation

- Grading
 - Techniques
 - Eng Econ - Midterm 1
 - Dynamic Programming, LP - Midterm 2
 - Prob/Stats (health care staffing) - Midterm 3
 - Analysis
 - Case studies
 - Peer evaluations

Student Response/ Observations

- Prefer cases and teams: 2 to 1
- Improved understanding after case
- Some concepts difficult - terms
- Computational skills key
- Alternatives: single case through term
 - Find how to make single product
 - Price and market

Summary

- Changed from survey format
- Included teams and cases
- Increased added value of class (not just common sense)
- Need for broader student involvement
- Now: break into separate 2 cred. classes