IE 321: Operations Research I

Textbook
Operations Research: An Introduction, 7/e,

Reference
Introduction to operations research

Goals
The course is designed to introduce industrial engineering students to linear programming, transportation, and some network models and their applications, with an emphasis on model building to solve problems and improve system performance

Topics
- The art and science of operations research
- Linear Programming formulations and graphical solution
- Linear Programming algebraic solution, the standard form, the simplex method
- Sensitivity analysis, unit worth of resources, max. change in resource availability, max. Change in marginal profit/cost
- Duality, Definition, Primal-Dual Relationships, Economic Interpretation of Duality, Dual Simplex Method, Sensitivity Analysis
- Transportation Model, Definition, Starting solution (northwest corner method, least-cost method, Vogel's approximation method), Iteration Technique to Optimality
- The Assignment and Transshipment Model
- Network models

Computer usage
- TORA (A Computer Package that comes with the text)
- Excel (Using Solver)

Schedule
Sunday: 10.00 -12.00
Tuesday: 10.00 -12.00

Grading
2 midterms 40%
Homework + class participation and attendance 10%
Final exam 50%

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