

بسم الله الرحمن الرحيم

OPER 313 : Integer Programming Syllabus

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Book: Operations Research: Applications and Algorithms (Wayne L. Winston). In addition to some extra examples from other books.

Course content:

- Introduction to Integer Programming.
- Formulating Integer Programming Problems:
 - Capital Budgeting.
 - Fixed-Charge Problems.
 - Facility Location Problems (The Lockbox Problem).
 - Set Covering, Set Packing, and Set Partitioning Problems.
 - Either–Or Constraints, If–Then Constraints, ...
 - Piecewise Linear Functions.
 - etc.
- The Branch-and-Bound Method for Solving:
 - Pure Integer Programming Problems.
 - Mixed Integer Programming Problems.
- Solving Knapsack Problems by the Branch-and-Bound Method.
- Solving Combinatorial Optimization Problems by the Branch-and-Bound Method:
 - Machine-Scheduling Problem.
 - Traveling Salesperson Problem.
- Implicit Enumeration.
- The Cutting Plane Algorithm.
- Solving IPs using some Software.

Grading:

Mid-term I 30 points , Mid-term II 30 points , Final 60 points

Exams dates:

Mid-term-I : on Wednesday 26/02/1439 H

Mid-term-II : on Wednesday 11/03/1439 H

الأعذار الطبية للغياب: يقبل فقط التقرير الطبي الصادر من مستشفى أو مستوصف حكومي.