Form (H)
Short course description

Course title: Integer Programming	Course number and code: OPER 313
Previous course requirement: OPER 213	Language of the course: English
Course level: Level 6 / Third Year	Effective hours: 3 (2+2+0)

Course description

Introduction to integer programming. Formulation of integer programming problems. Presenting some famous applications such as: the traveling salesman, knapsack, scheduling. Branch and bound method. Implicit enumeration method. Cutting plane .method

Course objectives

Understanding integer programming as one of the most important Operations Research techniques used in planning for utilizing available resources with the best possible manner.
Ability to formulate small integer programming problems. This should lead to the understanding of the nature of some practical applications that can be formulated and solved by integer programming.
Ability to solve small integer programming problems by the branch and bound method and the cutting plane method.

Learning outcomes (understanding, knowledge, and intellectual and scientific skills)
After studying this course, the student is expected to be able to:

Understanding the optimization concept in integer programs and its uses in different applications of life.
Understanding the famous IP real life applications.
Ability to formulate small integer programming problems.
Understanding the mathematical properties of integer program models.
Ability to solve manually small IP problems.
Ability to use computer software to solve integer programming problems and interpreting the results.

Textbook adopted and supporting references

Title of the book	Author's name	Publisher's name	Date of publication
Applied Integer Programming: Modeling and Solution	Der-San Chen, Robert G. Batson, Yu Dang	Wiley	2010
Operations Research: Applications and Algorithms	Wayne L. Winston	Cengage Learning	2004
البرمجة العددية	زيد البلخي و لطفي تاج	KSU	2011