Form (H)
Short course description

Course title: **Dynamic programming**	Course number and code: **OPER 415**
Previous course requirement: **OPER 331**	Language of the course: **English**
Course level: **elective**	Effective hours: **3 (2+2+0)**

Course description

General Introduction. Basic definitions and theorems. Principle of optimality. Application of Dynamic programming to solve real life problems: Shortest path Problem, Allocation problems, Dynamic Inventory problems, Markov decisions processes. Application of dynamic programming to solve Linear and Integer programming problems (knapsack problem ,..). Application of dynamic programming to solve Nonlinear programming problems.

Course objectives

The course aims to study the use of Dynamic Programming techniques to solve problems that can be modeled as Multistage decisions problems.

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

1. Ability to recognize some real world problems that can be solved by dynamic programming.

2. *Ability to use dynamic programming to solve real world problems that can be modelled as multistage decision problems.*

Textbook adopted and supporting references

سنة النشر	اسم الناشر	اسم المؤلف	اسم الكتاب
1981	**Pergamon Press**	**Leon Cooper and Mary W. Cooper**	**Introduction to dynamic programming**
2007	**Athena scientific**	**Dimitri P. Bertsekas**	**Dynamic Programming and Optimal Control**