

Academic Year: (2019 / 2020)

Review date: 19-04-2019

Department assigned to the subject: Statistics Department

Coordinating teacher: NIÑO MORA, JOSE

Type: Electives ECTS Credits : 6.0

Year : Semester :

DESCRIPTION OF CONTENTS: PROGRAMME

1. Linear optimization
 - Formulation of linear optimization models: decision variables, objective and constraints.
 - Applications to the optimization of business decisions.
 - Graphical solution and optimality of vertex solutions.
 - Duality, optimality test and sensitivity analysis: interpretation and applications.
 - Software-based numerical solution.
2. Integer optimization
 - Formulation of integer optimization models.
 - Applications to the optimization of business decisions.
 - Linear relaxations. Bounding the optimality gap of a feasible solution. Optimality test.
 - The Branch & Bound method and software-based numerical solution.
3. Unconstrained nonlinear optimization
 - Formulation of unconstrained nonlinear optimization models.
 - Applications to the optimization of business decisions.
 - Local and global optimality conditions.
 - Software-based numerical solution.
4. Equality-constrained nonlinear optimization
 - Formulation of equality-constrained nonlinear optimization models.
 - Applications to the optimization of business decisions.
 - Local and global optimality conditions via Lagrange multipliers.
 - Software-based numerical solution.
5. Inequality-constrained nonlinear optimization
 - Formulation of inequality-constrained nonlinear optimization models.
 - Applications to the optimization of business decisions.
 - Local and global optimality conditions via Karush-Kuhn-Tucker multipliers.
 - Software-based numerical solution.

% end-of-term-examination:	60
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% of continuous assessment (assignments, laboratory, practicals...):	40
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BASIC BIBLIOGRAPHY

- F.S. Hillier, G.J. Lieberman Introduction to operations research, McGraw-Hill.
- H.A. Taha Operations research : an introduction, Prentice Hall.