

Academic Year: (2019 / 2020)

Review date: 09-05-2019

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: PRIDA ROMERO, BERNARDO

Type: Electives ECTS Credits : 6.0

Year : 4 Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

THE STUDENTS WHO TAKE THE INDUSTRIAL ORGANIZATION SPECIALITY
IS RECOMMENDED START WITH THIS SUBJECT

OBJECTIVES

The student who pass this subject will be reach skills to:

- * Study any other subject in "Industrial Organization" speciality
- * Ability to apply knowledge of mathematics, statistics, economics and other scientific fields to the analysis of business situations.
- * Identify and describe industrial problems in a given environment
- * Recognize the supply chain and their life cycle (Design, working, maintenance, replacement and innovation to sustainability) and identify the strategic role of the human resources in the organization.
- * Modelize this situations and solve this models with computer tools and sometimes, in simple cases, manually.
- * Modelize: Production planning, supply chain management, assignment, assignment, transport, location, etc.
- * Recognize situations that could be modeled with optimization restricted models (linear programming, dynamic programming, networks).
- * Ability of communication and working in groups

DESCRIPTION OF CONTENTS: PROGRAMME

- 1 The Enterprise as a sociotechnical system.
 - 1.1 Efficacy Efficiency and flexibility
 - 1.2 Productivity
 - 1.3 Human and technical resources in the enterprise
 - 1.4 Models in taking decision in management.
 - 1.5 Types of models
- 2- Modeling with lineal optimization with constraints models: Exercises:
 - 2.1 Production planning, supply chain management,
 - 2.2 assignment
 - 2.3 Logistics management
 - 2.4 Transportation
- 3 Solve and analysis of results of models.
 - 3.1 Advantages and limitations of this models.
 - 3.2 Cost accounting and cost in decision models
- 4 Hypothesis in linear programming
 - 4.1 Integer, binary, mixed and non linear models
 - 4.2 Location problems
- 5 Another methods in modeling: Networks optimization and heuristics
- 6 Another methods in modeling: Dynamic programming

LEARNING ACTIVITIES AND METHODOLOGY

Lectures, exercises, practical sessions in laboratory with cases and assignments to be carried out by the students and discussed in the sessions, readings assigned by the instructor

The students must assist to sessions of theory and practice and also must take practices with

- * Case analysis
- * Computer software
- * Working in groups

ASSESSMENT SYSTEM

THE CONTINUOUS ASSESMENT (40%) FINAL EXAM (60%)

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

BASIC BIBLIOGRAPHY

- Bazaraa and Jarvis Programación lineal y flujo en redes, Limusa, 1981
- Hillier y Lieberman Investigación de operaciones, Mc Graw Hill, 2001
- Taha, H. Investigación de Operaciones, Rama omega, 1991