

1. Course number and name  
IN2007 : Operations Research I
2. Credits and contact hours  
3 - 0 - 8
3. Instructor's or course coordinator's name  
Viacheslav Kalashnikov
4. Text book, title, author, and year  
Taha, Hamdy A, Investigación de operaciones / Hamdy A. Taha, tr. José de la Cera Alonso, 5a ed, Mexico : Alfaomega, 1995, Sin información, 1995, spa, [9701210026]  
\* Hillier, Frederick S., Introduccion a la investigacion de operaciones / Frederick S. Hillier, Gerald J. Lieberman, 7a ed, McGraw-Hill, Mexico , c2001, spa,  
a) other supplemental materials
5. Specific course information
  - a. brief description of the content of the course (catalog description)  
This intermediate level course focuses on the skills required to formulate and create linear and mixed integer programming models in order to solve problems with limited resources, to find solutions for said models and to analyze and the interpret results. This course addresses topics related to the social aspect of sustainable development. Prerequisite: Numerical methods in engineering. As a result of the course, students will be able to solve and analyze practical cases and optimization problems that involve the use of linear and integer programming.
  - b. prerequisites or co-requisites  
M2009 or MA2001
  - c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program  
Required
6. Specific goals for the course
  - a. specific outcomes of instruction.  
Define, formulate, construct and resolve linear programming and mixed integer linear programming models either manually or using software. Interpret, analyze and conduct a sensitivity analysis of the results.
  - b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.  
Students will resolve problems in the area of industrial engineering and systems, using mathematical and scientific tools.
7. Brief list of topics to be covered

Optimization problems  
Problem formulation  
Linear and integer programming