

# Recherche Opérationnelle



**Component**  
École Nationale  
Supérieure  
d'Électrotechnique  
d'Électronique  
d'Informatique  
d'Hydraulique  
et des  
Télécommunications

In brief

> **Code:** N7EN12B

## Presentation

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### Objectives

Provide the mathematical basis for modeling and solving operations research problems.

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### Description

The course describes the main methods for modeling and solving Operations Research problems whose objective is decision support. Five projects are proposed to the students who must program in Matlab their solution programs. The course examines in turn linear and integer programming methods (simplex algorithm), maximal flow and tension methods (Ford and Fulkerson algebra), non-zero sum game theory in a non-cooperative game context, Markov chains and trajectory planning in mobile robotics.

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### Pre-requisites

Basic knowledge of linear algebra, differential calculus, probability theory and programming.