

Modelling and Optimization

 **ECTS**
4 credits

 **Component**
INSTITUT
NATIONAL
DES SCIENCES
APPLIQUEES
TOULOUSE

 **Number of
hours**
48h

Presentation

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts) :

- Various approaches to analyse and evaluate the performance of discrete event

system DES,

- Various types of modelling for these systems (deterministic or

stochastic models, numerical and combinatorial optimisation models, models of

concurrency)

- Algorithms to solve these problems.

The student will be able to:

Model and solve operational research problems (optimisation, graphs, stochastic

process) and discrete-event systems problems.

Model stochastic systems, such as a network of queues using Markov chains,

compute the stationary measures, and compute its capacity.

Model a DES with Petri nets, analyse the properties of the Petri net using various methods

of analysis (exhaustive and structural).

Pre-requisites

Linear Algebra, Probabilities, Dynamic systems, Basic concepts in logics and in Petri Nets.

Useful info

Place

➤ Toulouse