Ph.D. course in Combinatorial Decision Making and Optimization

Prof. Roberto Amadini

Goal

This course summarizes the content of this course: https://www.unibo.it/en/teaching/course-unit-catalogue/course-unit/2022/446597

The goal is to provide the basics of the most popular methods from artificial intelligence and operations research for modelling and solving complex combinatorial optimization problems such as *constraint programming* (CP), *Boolean satisfiability* (SAT), *satisfiability modulo theory* (SMT), *mixed integer linear programming* (MIP).

Program

This course is organised in 4 lectures of 2.5 hours each. We will cover the following topics:

1. Constraint programming

2. MiniZinc

3. SAT / SMT solving

4. Linear programming and extensions

Exam

To be agreed with the professor (if evaluation is required).