



# Combinatorial Optimization

**B4M35KO+BE4M35KO**

# Grading system

To get an **assessment**, the following requirements have to be met:

- ⦿ obtain at least **30 from 50 points**.
- ⦿ successfully **solve all homework** assignments.

How to get points:

- ⦿ 8 points for each test I,II (written at lectures).
- ⦿ 8 points for practical test (written at the lab).
- ⦿ 11 points for semester project.
- ⦿ 15 points for homework assignments No. 1-5  
(3 points for each assignment if successfully submitted before the deadline).

For more information, please check **course website**:

<https://cw.fel.cvut.cz/b192/courses/ko/start>

# Homeworks

- © homeworks can be coded in C++, Java or Python.
- © **each homework** (the source code) **must be handed** in to **BRUTE** (<https://cw.felk.cvut.cz/brute>) with a hard deadline, specified in BRUTE.
- © homeworks are **graded automatically** by the BRUTE.
- © there is **1 penalty point for each commenced week** until the homework is uploaded successfully (max. -3 points penalty).
- © check **[https://cw.fel.cvut.cz/b192/courses/ko/upload\\_system](https://cw.fel.cvut.cz/b192/courses/ko/upload_system)** for technical requirements on the submitted source code.

# Semester project

- © each student chooses from the following two options:
  - a. **Cocontest.**  
Students participating in the contest implement a solver for one specific combinatorial optimization problem.
  - b. **Research on chosen topic.**  
A student chooses a non-trivial problem from the combinatorial optimization area on which he/she will work during the semester. The topic must be approved by the lab teacher!
- © each student expresses her/his choice of semester project by submitting a text file into BRUTE system with the **strict deadline of 9. 3. 2020, 23:59** (1 penalty point for the late delivery).

# Combinatorial Optimization Contest

## Cocontest 2019

### © Optimization competition

- single real-life **optimization problem**.
- the assignment is **to implement the solver**, no report needed.
- solutions are **evaluated by BRUTE**.
- grading comprises both the **ability to solve** given instances well enough and the **rating among the other students**.
- **computation time** given for the solver is **bounded**.

### © Past contests

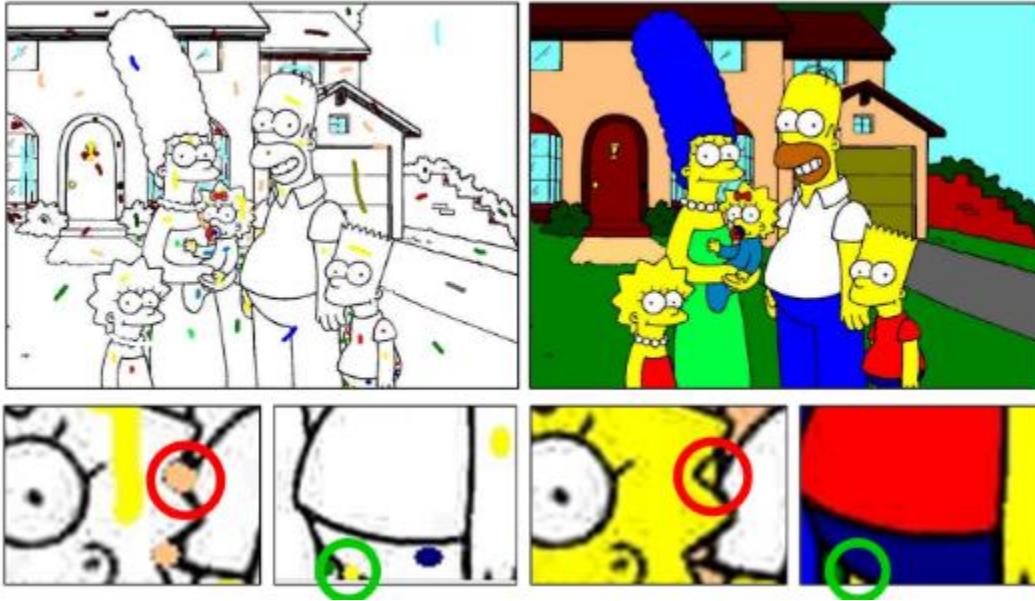
- 2019: **Sewer Design Problem** (winner Pavel Gramovich)  
[https://cw.fel.cvut.cz/b182/media/courses/ko/semester\\_project\\_cocontest\\_2019.pdf](https://cw.fel.cvut.cz/b182/media/courses/ko/semester_project_cocontest_2019.pdf)
- 2018: **Air Tickets TSP** (winner Lukáš Hejl)  
[https://cw.fel.cvut.cz/b172/media/courses/ko/semester\\_project\\_cocontes\\_2018.pdf](https://cw.fel.cvut.cz/b172/media/courses/ko/semester_project_cocontes_2018.pdf)
- 2017: **Settle-up Problem** “dlužníček” (winner Ondřej Benedikt)  
[http://rtime.felk.cvut.cz/~novakan9/cocontest2017/semester\\_project\\_cocontest.pdf](http://rtime.felk.cvut.cz/~novakan9/cocontest2017/semester_project_cocontest.pdf)
- 2016: **The Capacitated Facility Location Problem** (winner Vladimír Kunc)  
<http://rtime.felk.cvut.cz/~novakan9/cocontest2016/contest2016.pdf>

# Research on Chosen Topic

- ◎ students can solve a **problem for some company, project, diploma thesis** etc.
- ◎ the assignment has two parts: **written report and implementation**.
- ◎ **submission is divided into 3 parts constrained by deadlines**.
  - **1 penalty point for the late delivery** (for each part)
- ◎ written document is between 4 and 8 pages.
- ◎ the evaluation is performed by the student's lab teacher, **it considers fulfillment of formal requirements and the work quality**.

# Past successful topics

interactive image coloring



*For more information about what we are doing,  
our projects, thesis topics etc., please visit:*

<http://industrialinformatics.fel.cvut.cz/>

<https://www.facebook.com/IIRC.CVUT/>

