

## Computer Methods in Civil Engineering, 2nd grade (15h lectures+15h laboratory classes), 2018/2019

### Lecturer:

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### Lectures (15h):

- Finite element method for 1D problems (statics, dynamics) (4h)
- Finite element method for 2D problems (plane states, elasto-plastics) (4h)
- Finite element method for 1D non-linear problems (large strains, non-linear elastics) (4h)

Lecture tests (6 x 15-20 min  $\approx$  2h)

Reserve (1h)

### Laboratory classes (15h):

- PDEtool - introduction (2h)
- **bar structure – statics and dynamics (4h, 1 project)**
- **plane strain problem – statics and dynamics (4h, 1 project)**
- **non-linear problem (4h, 1 project)**
- reserve (1h)

### General rules:

- lectures and laboratory classes are obligatory, 1 unexplained absence is admissible,
- all lab. projects have to be positively evaluated, without any exceptions,
- each lecture (starting from the second one) will start from a short test, consisting of 1 open/test question (1 point) and a computational problem (4 points). The total number of points equals 30. 15-30 points give the final positive grade. In case one collects 7.5 – 14.5 points, she/he may try to improve it during the make-up test (June/July or September), providing that the lab. classes are positively evaluated. If one collects less than 7.5 points, the final negative grade will be given, without any chance for improvement. The third attempt is possible in October (“short term condition”), providing that the lab. classes are positively evaluated and that student has gained at least 25% of points possible to obtain during each of the previous tests.
- the final grade:  $0.51 * \text{Lectures} + 0.49 * \text{Lab.classes}$ .

### References:

#### 1. Lecture handouts (in English):

[http://www.L5.pk.edu.pl/~slawek/Comp\\_Meths\\_2019/script.pdf](http://www.L5.pk.edu.pl/~slawek/Comp_Meths_2019/script.pdf)