

# MAP562 Optimal design of structures

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## Homework 6, Feb 08, 2017

### Exercise 1

Take the cantilever script from the practical exercises TP 6.

1. Design better initial shapes  $\Omega_0$  such that the final optimal structure is improved (corresponding to a smaller minimal value of the cost functional in comparison to the current exercise).
2. Implement a gradient algorithm (using as usual the adjoint) for the objective functional

$$J(\Omega) = \int_{\omega} |u|^2 dx,$$

where  $\omega$  is a small domain around the point in which the traction force is applied.

#### **Remark:**

Please upload your solutions as separate files on

<http://www.cmap.polytechnique.fr/~MAP562/>