Institute for Systems Theory and Automatic Control 09.11.20
University of Stuttgart mg
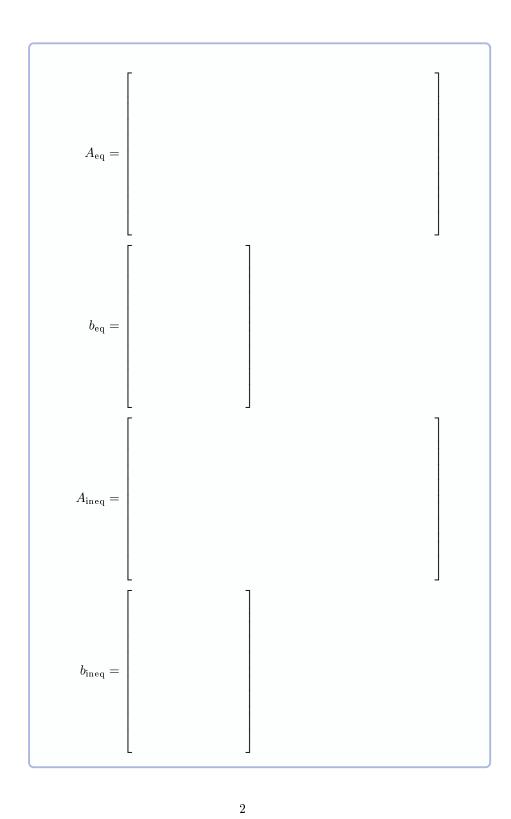Prof. Dr.-Ing. Christian Ebenbauer
Optimal Control

Homework exercise 1: Solution sheet

Please use this sheet to fill in your results and upload it together with the rest of your solution, i.e. your commented written calculations. Note that uploading only these results will not be credited.

a)

> Discretized cost functional:
>
> $$J \approx$$

b) No results have to be filled in.

c)

> Discretized differential equation:
>
> $$x_{k+1} = \qquad x_k + \qquad u_k$$

d)

$$H = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$f = \begin{bmatrix} \\ \\ \end{bmatrix}, \qquad d =$$

$$A_{\text{eq}} = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$b_{\text{eq}} = \begin{bmatrix} \\ \\ \end{bmatrix}$$

$$A_{\text{ineq}} = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$b_{\text{ineq}} = \begin{bmatrix} \\ \\ \end{bmatrix}$$

e)

Optimal solution:

$$y^* =$$

f) No results have to be filled in.

g) No results have to be filled in.

h) No results have to be filled in.