



## Exercise 1 – Routing

Submission: Via Moodle in your exercise group until May 8<sup>th</sup> 2019, 08:59 as PDF file.

Please note, that by submitting your solution to this exercise, you confirm that you are the exclusive author(s) of the respective material. For additional information, we would like to refer you to: [https://www.informatik.tu-darmstadt.de/studium\\_fb20/im\\_studium/studienbuero/plagiarismus/index.en.jsp](https://www.informatik.tu-darmstadt.de/studium_fb20/im_studium/studienbuero/plagiarismus/index.en.jsp)

**Prof. Dr. Max Mühlhäuser**

Leon Böck, M.Sc.

Florian Brandherm, M.Sc.

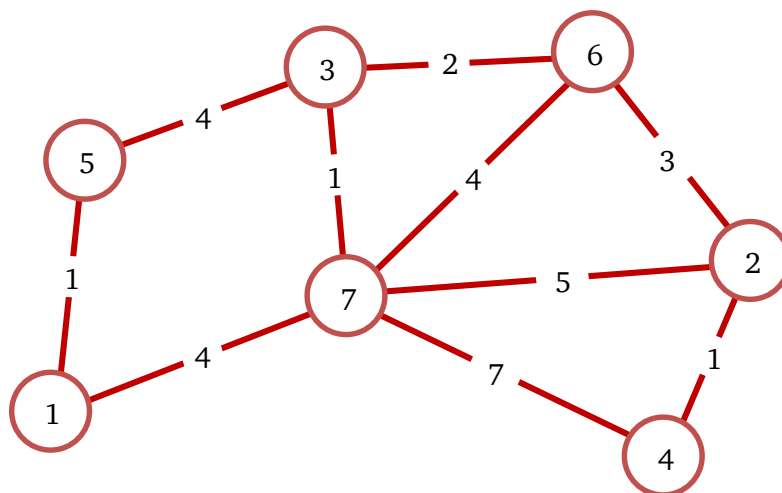
Julius Willich genannt von Pöllnitz,

M.Sc.

Telecooperation Group (TK)

<http://www.tk.informatik.tu-darmstadt.de>

### Task 1.1: Dijkstra's Shortest Path Algorithm (7 P.)



Calculate the shortest paths from vertex 1 to the other vertices using the “Dijkstra's Shortest Path Algorithm”. Your calculations have to be comprehensible (use a table like below,  $P_i$  = predecessor of vertex  $i$ ,  $C_i$  = cost from vertex 1 to vertex  $i$ ). (7 P.)

Visited vertices	$P_2$	$C_2$	$P_3$	$C_3$	$P_4$	$C_4$	$P_5$	$C_5$	$P_6$	$C_6$	$P_7$	$C_7$

---

# Computer Netzwerke und verteilte Systeme

Summer Term 2019

<https://www.tk.informatik.tu-darmstadt.de/de/teaching/sommersemester-2016/computer-netzwerke-und-verteilte-systeme-ncs/>

## Task 1.2: Multiplexing (5 P.)

- a) What would be the disadvantage of an Internet without Multiplexing? (1 P.)
- b) Briefly explain Time Division Multiplexing (TDM) and Frequency Division Multiplexing (FDM). (2 P.)
- c) Do some further research on Code Division Multiplexing (CDM) and Space Division Multiplexing (SDM). Write a short summary about both methods. (2 P.)