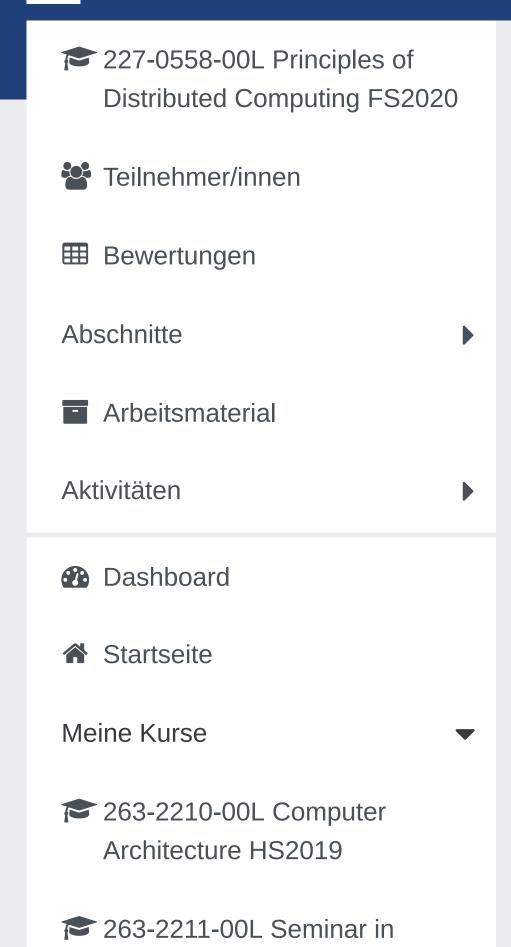




Moodle



Computer Architecture

FS2020

227-0558-00L Principles of Distributed Computing FS2020

Dashboard / Meine Kurse / 227-0558-00L Principles of Distributed Computing FS2020 / Abschnitte / Graded Homework Assignment / Graded Homework Assignment 2

Frage 2

Bisher nicht beantwortet

Erreichbare Punkte: 18.00

Frage markieren

CONGEST Model - MST

Consider a weighted network graph G=(V,E,w) with n vertices, each representing a computer, with unique identifiers $1,\ldots,n$, where the weight w(e) of each edge is known to its endpoints. We consider the following variant of the CONGEST model: Per round, each computer can send (potentially different) $O(n^{1/2}\log n)$ -bit messages to its neighbors. Suppose that D denotes the diameter of G and all computers know the values of n and D.

Devise a distributed algorithm that computes a minimum spanning tree (MST) of G in $O((D+n^{1/4})\log n)$ rounds. Your algorithm may be randomized, but should finish within the desired number of rounds with high probability, i.e. with probability at least $1-n^{-c}$ for any fixed constant c.



