

## **SIKS-SEMINAR FLEXIBILITY IN SCHEDULING**

On Monday February 1th, the Algorithmics Group at Delft University of Technology organises a seminar at the occasion of the PhD defence of Michel Wilson. The event is part of SIKS-educational program; therefore all students interested in the topic of the seminar are strongly encouraged to participate.

Michel's thesis deals with Robust Scheduling in an uncertain environment. Michel himself will give an introduction to his research. Two of his PhD committee members and a PhD student working in a follow-up project will present their views on this field and related topics.

You are cordially invited to attend both the seminar and the defence of Michel.

The seminar will take place in

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**Delft University of Technology**  
**EEMCS building**  
**Mekelweg 4,**  
**Snijderszaal ( Lower Building, Room LB 01.010)**

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### PROGRAM

9.30 - 10.00 coffee, tea + cookies

10.00 START SEMINAR

10:00 Michel Wilson, “An introduction to Robust scheduling in an uncertain environment”

10.20 Jim Boerkoel, Harvey Mudd College, USA  
“Temporal Planning for Robust Human-Robot Teamwork”

11.00 Coffee break

11.20 Bob Huisman, NedTrain BV and TU Delft  
Robust scheduling requirements in service and repair industry

11.55 Simon Mountakis, TU Delft  
Beyond fixed-time schedules

12.30 END SEMINAR

The thesis defense of Michel will take place in the aula of TU Delft. The program in the afternoon is as follows:

14.30 Small introductory talk of Michel in Dutch (lekenpraatje)

15.00 PhD defence Michel: Robust Scheduling in an uncertain environment

16.30 Reception

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## Abstracts

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### Robust scheduling requirements in service and repair industry Bob Huisman

The logistic characteristics of industrial service and repair processes differ from those of production processes like car manufacturing.

The key difference is the lack of a priori information about the jobs to be executed, which causes uncertainty in operations.

Although one speaks often of planned services, on job level it can not be planned in detail. It merely refers to planned visits and inspections.

The outcome of inspection is revealed only during service process execution.

Traditionally the job uncertainty is anticipated by giving shop floor staff significant autonomy in decision making on job sequencing and workforce allocation.

Then the problem arises how to facilitate the autonomy of different groups of engineers, while avoiding resource conflicts.

The presentation will address the need for robust scheduling methods from the application perspective in the service and repair industry.

### Beyond fixed-time schedules Simon Mountakis

#### Abstract:

Committing to a set of fixed start-times (i.e. a fixed-time schedule) is insufficient for most applications of scheduling: in practice, task durations are uncertain because of unforeseen events (e.g. resource breakdowns, delays) which may render the schedule infeasible or inefficient.

Assuming statistical information about uncertain durations is available, this talk will cover scheduling techniques for preparing, along with (or even instead of) a fixed-time schedule, a strategy (often known as a policy) for quickly adapting to outcome task durations without sacrificing timeliness and without deviating too much from planned start-times.