Lecture Series
Summer semester 2022

Research Institute
for Supply Chain
Management

Monday, May 09, 2022, 5.30 pm.
The lecture will be held in hybrid mode.

VALENTINA CACCHIANI

INTEGRATED TIMETABLING AND ELECTRIC VEHICLE SCHEDULING IN PUBLIC TRANSPORT:

Timetabling and vehicle scheduling are often solved in sequence due to their complexity. In this work, instead, we tackle the two problems in an integrated way for a bus company operating in a transport network, and consider a mixed-fleet of vehicles that include electric buses. The problem was introduced for the EU MINOA Research Challenge.

We propose a heuristic algorithm based on an Integer Linear Programming (ILP) model with arc-variables representing the consecutive trips selected for the timetabling problem, and exponentially many variables corresponding to vehicle-blocks for the vehicle scheduling problem. Computational results are reported on instances of the MINOA Research Challenge.

Prof. Valentina Cacchiani is Associate Professor in Operations Research at the University of Bologna. Her research interests concern the definition of Integer Linear Programming models and the development of exact and heuristic algorithms for NP-hard problems. She has several collaborations with research groups in Europe, and was involved in EU projects such as PARTNER, ARRIVAL, ONTIME. She has more than 40 publications in International Journals in the field of Operations Research. She is Associate Editor of Transportation Science and SN Operations Research Forum.

For further information, please contact sekretariat.itl@wu.ac.at