

# The Crew Rostering Problem at Urban Mass Transit Companies

## The Assignment of Crews without Predefined Work

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**Abstract**— Concerning the crew rostering problem at urban mass transit companies, the daily assignment of the existing crews to the transportation duties frequently originates a complex and ill-defined problem, involving objectives and constraints that vary from company to company. Considering that crew members represent the majority of personnel employed by these companies, the amount of work involved and the resulting impacts can be easily imagined. This work specially addresses the assignment of crews whose work is not defined on a regular basis. First, the overall rostering process is described and the subsequent problems are identified. Then, the decision support system developed by the authors is presented, being devoted particular attention to an innovative tool designed for the automatic assignment of the crews without predefined work. Finally, the results obtained by the two largest urban mass transit companies operating in Portugal using that tool are reported.

**Keywords**— *crew rostering; automatic assignment; mass transit companies*

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