

Title

Author-a¹ and Author-b^{1,2}

¹ Institute-1

² Institute-2

{author-a,author-b}@ucv.cl

Abstract. The nurse rostering problem consists in assigning working shifts to each nurse on each day for a certain period of time...

Keywords: Constraint Satisfaction, Rostering.

1 Introduction

Nurse rostering problems (NRPs) are combinatorial problems which consist in generating rosters where required shifts are assigned...

Several approaches have been proposed to solve the traditional NRP. Earlier techniques were based on mathematical programming (MP). For instance, traditional methods such as linear, integer, and goal programming were employed to solve NRPs [4, 3, 5]. However, a main disadvantage is that NRPs may have too many or application-specific constraints to allow for a MP formulation. Other methods include metaheuristics such as tabu search [2, 1]...

This paper is organized as follows: Section 2 gives an overview of CSPs and solving techniques...

2 Constraint Programming

Constraint Programming is a powerful programming paradigm devoted to the efficient resolution of constraint-based problems. It draws on methods from operational research, numerical analysis, artificial intelligence...

Formally, a CSP \mathcal{P} is defined by a triple $\mathcal{P} = \langle \mathcal{X}, \mathcal{D}, \mathcal{C} \rangle$ where:

2.1 CSP Solving

The basic CP idea for solving CSPs is to build a tree structure holding the potential solutions by interleaving two main phases: enumeration and propagation...

3 Conclusion and Future Work

In this paper, we have presented a simple nurse rostering model for the Valparaíso Clinic Center...

References

1. E. Burke, P.D. Causmaecker, and G.V. Berghe. A Hybrid Tabu Search Algorithm for the Nurse Rostering Problem. In *Proceedings of SEAL*, volume 1585 of *LNCS*, pages 187–194. Springer, 1999.
2. K.A. Dowsland. Nurse Scheduling with Tabu Search and Strategic Oscillation. *European Journal of Operational Research*, 106:393–407, 1998.
3. H.E. Miller, P. William, and J.R. Gustave. Nurse Scheduling Using Mathematical Programming. *Operations Research*, 24(5):857–870, 1976.
4. F. Semet, T. Vovor, and B. Jaumard. A Generalized Linear Programming Model for Nurse Scheduling. *European Journal of Operational Research*, 107:1–18, 1998.
5. D.M. Warner and J. Prawda. A Mathematical Programming Model for Scheduling Nursing Personnel in a Hospital. *Management Science*, 19(4):411–422, 1972.