Glover, Fred; **Laguna, Manuel**
Tabu search. (English) Zbl 0930.90083
Boston, MA: Kluwer Academic Publishers. xix, 382 p. (1997).

This book presents in a precise, complete and simple way the essentials about the tabu search heuristic. After a clear introduction to the background principles of the tabu search heuristic, four chapters are reserved for the analyse and classification of the possible variants of the memory structures (short and long term memory), which are the fundamental components of the heuristic. Other important aspects to be considered when implementing a tabu search are discussed and described (frequency, quality, influence and recency aspects).

A more technical chapter is dedicated on tabu search techniques for integer programming. In particular, it explains, with simple examples, how a tabu search heuristic can be used to guide the resolution of mixed integer linear problems, improving the pivoting process for finding the optimal solution.

Another important chapter, even if a little bit more philosophical, explains the relation between simulated annealing, genetic algorithms and tabu search heuristics. Finally, a quite complete references list of possible applications is given, from parallel computing to financial analysis.

In conclusion, "Tabu search" is not only a book on the tabu heuristics, which should rise interest for mathematically mature audience who intend to implement such an heuristic, but also a complete analyse and clever approach of a new family of heuristic which should be one of the most promising heuristics in the future. Course work in operations research science and computer science are sufficient background.

Reviewer: Thomas M.Liebling (Lausanne)

MSC:

90C59	Approximation methods and heuristics in mathematical programming
90C10	Integer programming
90C11	Mixed integer programming
65Y05	Parallel numerical computation
91B28	Finance etc. (MSC2000)

Keywords:

tabu search heuristic; simulated annealing; genetic algorithms; parallel computing

Software:

Tabu search