Models, Resources and Activities of Project Scheduling Problems

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Abstract : The Project Scheduling Problem (PSP) is a generic name given to a whole class of problems in which the best form, time, resources and costs for project scheduling are necessary. The PSP is an application area related to the project management. This paper aims at being a guide to understand PSP by presenting a survey of the general parameters of PSP: the Resources (those elements that realize the activities of a project), and the Activities (set of operations or own tasks of a person or organization); the mathematical models of the main variants of PSP and the algorithms used to solve the variants of the PSP. The project scheduling is an important task in project management. This paper contains mathematical models, resources, activities, and algorithms of project scheduling problems. The project scheduling problem has attracted researchers of the automotive industry, steel manufacturer, medical research, pharmaceutical research, telecommunication, industry, aviation industry, development of the software, manufacturing management, innovation and technology management, construction industry, government project management, financial services, machine scheduling, transportation management, and others. The project managers need to finish a project with the minimum cost and the maximum quality.

Keywords : PSP, Combinatorial Optimization Problems, Project Management; Manufacturing Management, Technology Management.