



INDUSTRIAL MANAGEMENT



Seminario Permanente en Diseño, Gestión y Optimización de Procesos
Industriales y de Servicios

*Seminar on Design, Management and Optimization of Processes in Industry and
Services*

**“Scheduling & design of manufacturing systems/Industrial
engineering techniques in healthcare”**

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21.01.2019 - 17:00

Sala 108, Entreplanta 1, Escuela Técnica Superior de Ingeniería

Summary: The objective of the seminar is to make an overview about the research streams we are addressing right now, with the aim of sharing new challenges and solution methods as well. Basically, I would present the different simulation methods and optimization approaches we are going to apply to several problems, which range from design to scheduling issues. Two main research areas are investigated. The former refers to manufacturing systems, and specifically implies the following issues: Scheduling of Hybrid Flow Shop (HFS) systems with limited human resources, Single machine scheduling with variable and flexible maintenance; and Design of serial-parallel manufacturing systems. The latter, which arises from two recent collaborations, namely with the Polyclinic of Catania and the Polytechnic of Milan, includes Design of an outpatient chemotherapy unit for improving the service levels; Scheduling outpatients for oncology treatments and Home Health Care (HHC) routing and scheduling. Mathematical modeling and metaheuristic optimization have been used for addressing most of the aforementioned issues. Thus, the encoding scheme required by each specific problem as well as the adopted decoding techniques will be presented. Finally, the trade-off between computational efficiency and solution effectiveness will be discussed.

ANTONIO COSTA is Associate Professor at the DICAR Department, University of Catania, Italy. He got a Ph.D. in Structural Mechanics. Before being an assistant professor he worked two years as a production manager of a firm involved in the manufacturing of composites and fiber glass components for both automotive and mechatronic applications. His current research aims to develop new metaheuristics as well as simulation algorithms to be applied to several research streams, which mainly range from design to scheduling of manufacturing systems. In addition, it is worth mentioning his recent interests on further research topics such as lean manufacturing methods applied to health-care systems. He is a member of AITeM, Italian Association on Manufacturing Technologies and lecturer of “Production Planning and Control” for the MoS degree in Management Engineering at the University of Catania.