MANAGEMENT ENGINEERING (LM54)

(Lecce - Università degli Studi)

Teaching MANUFACTURING SCHEDULING

GenCod A004626

Owner professor Antonio Domenico GRIECO

Teaching in italian MANUFACTURING SCHEDULING

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SSD code ING-IND/16

Reference course MANAGEMENT ENGINEERING

Course type Laurea Magistrale

Credits 6.0

Teaching hours Front activity hours: 54.0

For enrolled in 2020/2021

Taught in 2020/2021

Course year 1

Language ENGLISH

Curriculum Percorso comune

Location Lecce

Semester First Semester

Exam type Oral

Assessment Final grade

Course timetable https://easyroom.unisalento.it/Orario

BRIEF COURSE DESCRIPTION

The course examines the basic concepts of what to produce, when to produce, how much to produce, etc. to create finished products. Throughout the course, we will discuss the capabilities of ERP and/or MRP system(s) as it applies to production planning and scheduling. In the course several industrial cases and experiences will be illustrated.

REQUIREMENTS

Conoscenza degli elementi di base degli impianti industriali; degli elementi di base della programmazione matematica; degli elementi di base della gestione dei dati; di Excel; degli elementi di base di Tecnologia Meccanica; degli elementi di base dei Sistemi di Lavorazione e della Produzione Industriali, conosceva sistemi MRP, MPS (vedi sezione OTHER USEFUL INFORMATIONS per esempi di materiali disponibile sui motori di ricerca).

COURSE AIMS

This course will teach you how to improve, manage, and regulate all aspects of a successful manufacturing operations infrastructure. You'll develop the ability to design and oversee an effective master production schedule that makes the best possible use of your manufacturing resources. You'll discover the basics of materials requirements planning, including considerations like lead time offsetting, bill of materials, and determining manufacturing order quantities. You'll understand how to apply the principles of capacity planning and management to determining capacity requirements and to matching capacity with materials scheduling and input/output control. You'll learn the best way to develop and implement a winning production activity control system that reduces WIP, inventories, and lead times, guarantees the correct execution of material plans, and ultimately meets all of your customer service objectives.

TEACHING METHODOLOGY

Lezioni frontali

ASSESSMENT TYPE

Esame scritto sia con domande di teoria che esercizi numerici.

OTHER USEFUL INFORMATION	docs.oracle.com/cd/E39583_01/fscm92pbr0/eng/fscm/smfg/task_ExamplesofProductionScheduling-9f2db7.html http://www.dia.uniroma3.it/~pacciare/CORSI/MSP/MRP.pdf http://production-scheduling.com/education/tutorial-asp/
FULL SYLLABUS	Introduction: The Role of Scheduling, The Scheduling Function in an Enterprise. Deterministic Models. Deterministic Models: Preliminaries, Framework and Notation Examples, Classes of Schedules, Complexity Hierarchy. Single Machine Models (Deterministic), The Total Weighted Completion Time, The Maximum Lateness, The Number of Tardy Jobs , The Total Tardiness - Dynamic Programming, The Total Tardiness - An Approximation Scheme, The Total Weighted Tardiness. Advanced Single Machine Models (Deterministic), The Total Earliness and Tardiness, Primary and Secondary Objectives, Multiple Objectives: A Parametric Analysis. The Makespan with Sequence Dependent Setup Times, Job Families with Setup Times, Batch Processing. Parallel Machine Models (Deterministic): The Makespan without Preemptions, The Makespan with Preemptions, The Total Completion Time without Preemptions, The Total Completion Time with Preemptions, Due Date Related Objectives, Online Scheduling, Flow Shops and Flexible Flow Shops (Deterministic), Flow Shops with Unlimited Intermediate Storage, Flow Shops with Limited Intermediate Storage, Flexible Flow Shops with Unlimited Intermediate Storage. Job Shops (Deterministic) Disjunctive Programming and Branch-and-Bound, The Shifting Bottleneck Heuristic and the Makespan, The Shifting Bottleneck Heuristic and the Total Weighted Tardiness Constraint Programming and the Makespan. Open Shops (Deterministic) The Makespan without Preemptions, The Makespan with Preemptions, The Maximum Lateness without Preemptions, The Maximum Lateness with Preemptions, The Number of Tardy Jobs.
REFERENCE TEXT BOOKS	Scheduling. Theory, Algorithms, and Systems. Authors: **Pinedo**, Michael L. Edizione dalla 2012 e successive.