



Universitat de Lleida

DEGREE CURRICULUM **ORGANIZATION OF PRODUCTION**

Coordination: PAGES BERNAUS, ADELA

Academic year 2023-24

Subject's general information

Subject name	ORGANIZATION OF PRODUCTION			
Code	102337			
Semester	1st Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Not informed	3	COMPULSORY	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRAULA		TEORIA
	Number of credits	3		3
	Number of groups	1		1
Coordination	PAGES BERNAUS, ADELA			
Department	ECONOMICS AND BUSINESS			
Teaching load distribution between lectures and independent student work	Classroom hours: 60 hours Autonomous work: 90 hours			
Important information on data processing	Consult this link for more information.			
Language	Catalan / Spanish			
Distribution of credits	Theoretical: 3 ECTS Room practices: 3 ECTS			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
FLORENSA GUIU, ROSA MARIA	rosa.florensa@UDL.CAT	3	
PAGES BERNAUS, ADELA	adela.pages@udl.cat	3	

Subject's extra information

Subject that is studied in the 1st semester of the 3rd year of the Degree in Chemical Engineering

Subject that requires continuous work throughout the semester in order to achieve the stated goals.

It is recommended to frequently visit the Virtual Campus space associated with the subject as all the corresponding information is announced.

Learning objectives

The aim of this subject is to provide students with necessary tools to take on professional tasks in the field of process engineering, study of methods and times, production operations and quality management. The main objective of Production Organization is to help companies to improve the design, implementation and management of productive processes. The subject deals with these issues from the organizational point of view, not the technical content of the processes. The tools that are studied are operative but also methodological.

Learning outcomes:

- Acquire knowledge about the design, analysis and control of processes using tools such as process mapping, productivity, manufacturing forecasts, time studies, inventory management and statistical process control diagrams.
- Know the main planning, control and improvement quality tools.
- Know the main contents of quality management standards.

Competences

Basic

B02 That students know how to apply their knowledge to their work or vocation in a professional manner and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.

B03 That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical issues.

B04 That students can transmit information, ideas, problems and solutions to a specialized and non-specialized public.

B05 That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

Transversal

CT1. To develop a proper understanding and oral and written expression of Catalan and Spanish.

CT4. To apply basic knowledge of entrepreneurship and professional environments.

General

CG4. To solve problems with initiative, make decisions, creativity, critical reasoning and to communicate and transmit knowledge, skills and abilities in the field of Industrial Organization Engineering.

CG8. To apply the principles and methods of quality.

CG9. To organize and plan in the field of the company, and other institutions and organizations.

CG10. To work in a multilingual and multidisciplinary environment.

Specific

CE15. To apply the basic knowledge of production and manufacturing systems.

CE17. To apply concepts of business organization.

Subject contents

Content Block 1: Operations design

Topic 1: Quality Management

- Introduction to quality management. Total Quality Management (TQM)
- Quality planning tools: QFF and FMEA
- Quality control in supplies: concerted quality and suppliers' evaluation
- Quality control in production: statistical process control
- Quality improvement: Ishikawa tools and new quality improvement tools
- Quality assurance: ISO 9001 standard

Topic 2: Process Management. Job design and work measurement

- Introduction to process management
- Study of work methods: process diagrams
- Time and motion study: cycle time and process time
- Methods improvement
- Key indicators: productivity, capacity, efficiency

Content Block 2: Production Management

Topic 3: Introduction to production management

- Production management within the company
- Layout distribution
- Balance production lines
- Sequencing

Topic 4: Production planning

- Production planning
- Aggregate production planning. Bowman's matrix
- Master production planning
- Detailed scheduling
- Push systems: material and resources requirements planning (MRP I and MRP II)
- Pull systems: JIT and Kanban of production

Topic 5: Forecasting demand and inventory management

- Forecasting demand methods
- Inventory management systems: ABC model, economic lot size methods, kanban of materials

Methodology

The course will be taught with a combination of master lessons and practical activities that will involve problems and case study analyses.

The main concepts will be presented in the theory sessions and typical examples will be shown. In the practice sessions, guided activities will be proposed to internalize and consolidate the concepts. There will be face-to-face sessions and virtual sessions.

The time distribution of dedications will be:

Activity	Classroom activity		Homework activity		Total time
	Goals	Hours	Student work	Hours	Hours/ECTS
Master class	Explanation of concepts	30	Study: know, understand and synthesize knowledge	45	75
Problems and case studies	Problems, case study analyses, article analyses,	30	Solve study cases	45	75
Totals		60		90	150

Development plan

Content Block 1: Operations design

Week 1: Topic 1: Quality Management

Introduction to the subject. Introduction to quality management. Total Quality Management (TQM). Quality assurance: ISO 9001 standard. Quality policy.

Quality planning tools: QFD and FMEA. Activity: Case study.

Week 2: Topic 1: Quality Management

Quality planning tools: QFD and FMEA. Activity: Case study (cont.).

Quality control of supplies: concerted quality and supplier's evaluation. Example.

Week 3: Topic 1. Quality Management

Quality control of production: Statistical process control. X-R Diagrams. p-np Diagrams. C and U Diagrams. Activity: Problems.

Week 4: Topic 1. Quality Management

Quality improvement: Ishikawa tolos and new quality improvement tools. Activity: Case study.

Week 5: Topic 1. Quality Management

Quality improvement: Ishikawa tolos and new quality improvement tools. Activity: Case study.

Week 6: Topic 2. Process Management. Job design and work measurement

Introduction to process management. Essential concepts. Study of work methods: process diagrams. Activity: Problems

Week 7: Topic 2. Process Management. Job design and work measurement

Time and motion study: cycle time and process time. Problems

Week 8: Topic 2. Process Management. Job design and work measurement

Methods improvement. Key indicators. Activity: Problems

Week 9: Exam 1 (includes content block 1)

Content Block 2: Production management

Week 10: Topic 3. Push/pull strategies

Introduction to production management. Production management stages. Make to stock and make to order production. Traditional systems and jit/lean manufacturing systems. Mixed systems. Activity: Critical analysis of an article.

Topic 4. Demand forecasting and inventory management

Forecasting demand methods. Activity: Problems.

Week 11: Topic 4. Demand forecasting and inventory management

Inventory management models: ABC model, economic lot size methods, kanban of materials. Activity: Problems.

Week 12: Topic 5. Production planning

Production planning. Aggregate production planning. Bowman's matrix. Master production planning. Activity: Problems.

Week 13: Topic 5. Production planning

Detailed scheduling. Push systems: Material and resources requirements. Material resources planning (MRP I and MRP II). Activity: Problems.

Week 14: Topic 5. Production planning

Pull systems: JIT and Kanban of production. Activity: Article analysis / Research activity.

Week 15: Tutoring

Week 16: Exam 2 (includes content block 2)

Evaluation

Continuous evaluation

The grading system is composed of:

- Exam 1: 30%
- Exam 2: 30%
- Practical activities: 4 activities each weighting 10%

The practical activities must be delivered in the format and date indicated in the statement. The presentation, the

correct application of the tools and the interpretation of results will be evaluated. The practices should have a report format (Aims, Scope, Methodology, Results, Conclusions and References).

Alternative evaluation / Avaluació alternativa

Students who have the approval to be assessed through "Avaluació alternativa" (see requirements and procedure in the "Normativa d'avaluació" regulation) must carry out the following activities on the stipulated delivery dates.

- Exam 1: 30%
- Exam 2: 30%
- Practical activities (individual format): 4 activities each weighting 10%

The practical activities must be delivered in the format and date indicated in the statement. The presentation, the correct application of the tools and the interpretation of results will be evaluated. The practices should have a report format (Aims, Scope, Methodology, Results, Conclusions and References).

Bibliography

Ruiz-Canela López, José. La Gestión por calidad total en la empresa moderna. Paracuellos de Jarama, Madrid: RA-MA, cop. 2004. ISBN [8478975926](#).

Domingo Acinas, José de; Arranz Molinero, Alberto. Calidad y mejora continua. San Sebastián: Donostiarra, DL 2006. ISBN [8470633511](#).

Ishikawa, Kaoru. Introducción al control de calidad. Madrid: Díaz de Santos, cop. 1994. ISBN [8479781726](#).

Casadesús Fa, Martí; Heras Saizarbitoria, Iñaki; Merino Díaz de Cerio, Javier. Calidad práctica : una guía para no perderse en el mundo de la calidad. Madrid [etc.]: Prentice-Hall Financial Times, cop. 2005. ISBN [8420546143](#).

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Domínguez Machuca, José Antonio i altres (1995): Dirección de operaciones. Vol 2: Aspectos tácticos. McGraw-Hill.