

## [MHJ202] PRODUCTIVE OPERATIONS

### GENERAL INFORMATION

<b>Studies</b>	UNIVERSITY MASTER IN INDUSTRIAL ENGINEERING	<b>Subject</b>	?
<b>Semester</b>	2	<b>Course</b>	1
<b>Character</b>	COMPULSORY	<b>Mention / Field of specialisation</b>	
<b>Plan</b>	2022	<b>Modality</b>	Face-to-face
<b>Credits</b>	3	<b>Hours/week</b>	2.5
		<b>Language</b>	CASTELLANO/EUSKARA
		<b>Total hours</b>	45 class hours + 30 non-class hours = <b>75 total hours</b>

### PROFESSORS

APAOLAZA PEREZ DE EULATE, UNAI
ATORRASAGASTI ALDABALDETRECU, ESTELA

### REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
(No specific previous subjects required)	(No previous knowledge required)

### LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
<b>MHRA13</b> - To demonstrate knowledge of information systems to management, industrial organization, production and logistics systems and quality management systems		x		2,2
<b>MHRA27</b> - To demonstrate the ability to integrate knowledge and face the complexity of formulating judgments based on information that, being incomplete or limited, includes reflections on the social, health and safety, environmental, economic and industrial implications and responsibilities		x		0,2
<b>MHRA28</b> - To communicate your conclusions and the knowledge and ultimate reasons that support them to specialized and non-specialized audiences in a clear and unambiguous way		x		0,2
<b>MHRA30</b> - To work with people, involving and directing them in a dynamic aimed at a common objective that includes reflection on their ethical and social responsibility, with a global vision of the work to be carried out and the characteristics that it requires (quality, deadlines,...), assuming responsibility for the decisions made		x		0,2
<b>MHR126</b> - To apply the knowledge acquired and your problem-solving skills in new, little-known or changing environments within broader (or multidisciplinary) contexts related to your area of study		x		0,2
<b>Total:</b>				<b>3</b>

*KC: Knowledge or Content / SK: Skills / AB: Abilities*

### ENAE LEARNING RESULTS

ENAE LEARNING RESULTS	ECTS
<b>ENA124</b> - Knowledge and comprehension: Deep knowledge and comprehension of the engineering disciplines of their speciality, at the level necessary to acquire the rest of the competencies of the degree.	0,43
<b>ENA127</b> - Analysis in engineering: Ability to analyse new and complex engineering products, processes and systems within a broader multidisciplinary context; select and apply the most appropriate analysis, calculation and experimental methods already established, as well as innovative methods; and critically interpret the results of such analyses.	0,43
<b>ENA131</b> - Engineering projects: Ability to project, develop and design new complex products (parts, components, finished products, etc.), processes and systems with specifications defined incompletely and/or with conflicts, which require the integration of knowledge from different disciplines, and consider social, health and safety, environmental, economic and industrial aspects; to select and apply the appropriate methodologies or employ creativity to develop new project methodologies.	0,43
<b>ENA138</b> - Practical application of engineering: Complete knowledge of the applicable techniques and methods of analysis, project and research, as well as their limitations.	0,43
<b>ENA143</b> - Practical application of engineering: Critical knowledge and comprehension of economic, organisational and management issues (such as project, risk and change management)	0,43
<b>ENA145</b> - Preparation of judgements: Ability to manage complex technical or professional activities or projects that require new approach approaches, assuming responsibility for the decisions made.	0,43
<b>ENA147</b> - Communication and Teamwork: Ability to operate effectively in domestic contexts as a member or leader of a team, which may be composed of people of different disciplines and levels, and who can use virtual communication tools.	0,43
<b>Total:</b>	<b>3</b>

### SECONDARY LEARNING RESULTS

**RMH127** [!] *Plantea políticas de gestión de materiales y stocks atendiendo a diferentes cadenas de suministro y estrategias productivas*

LEARNING ACTIVITIES	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out		5 h.	5 h.

individually and/or in teams			
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		4 h.	4 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints		2 h.	2 h.
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams		4 h.	4 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	12 h.		12 h.
Tutoring sessions and monitoring of training activities		3 h.	3 h.
<b>EVALUATION SYSTEM</b>	<b>W</b>	<b>MAKE-UP MECHANISMS</b>	
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	35%	Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	35%	Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	
Individual written and/or oral tests or individual coding/programming tests	30%	Individual written and/or oral tests or individual coding/programming tests	
<p><b>Comments:</b> All activities (control points, individual and group assignments, etc...) must have a minimum mark (5 minimum) and there will be an opportunity to retake every activity. In case of retake of the control point, the final mark will be the mark of the retake. Failed assignments, practices, etc... must be retaken and will be graded with a maximum mark of 5. In addition to other assignments, the evaluation of the multidisciplinary projects consists of an individual defence that must be passed with a minimum mark of 5. Only if this mark is 5 or more, the average will be made with the other parts to calculate the final mark. It is mandatory to do the practices to pass.</p>			
<p><b>CH - Class hours:</b> 15 h.  <b>NCH - Non-class hours:</b> 15 h.  <b>TH - Total hours:</b> 30 h.</p>			

<b>RMH128</b> [!] <i>Identifica las distintas corrientes de producción y describe las condiciones y herramientas necesarias para su ejecución</i>			
<b>LEARNING ACTIVITIES</b>	<b>CH</b>	<b>NCH</b>	<b>TH</b>
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams		7 h.	7 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		7 h.	7 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints		1 h.	1 h.
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	10 h.		10 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	20 h.		20 h.
<b>EVALUATION SYSTEM</b>	<b>W</b>	<b>MAKE-UP MECHANISMS</b>	
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	35%	Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	35%	Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	
Individual written and/or oral tests or individual coding/programming tests	30%	Individual written and/or oral tests or individual coding/programming tests	

**CH - Class hours:** 30 h.  
**NCH - Non-class hours:** 15 h.  
**TH - Total hours:** 45 h.

## CONTENTS

### LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
<p>Topic related web quires</p> <p>Moodle Platform</p> <p>Class presentations</p> <p>Slides of the subject</p> <p>Video projections</p> <p>Topic related web quires</p>	<p>Anaya,J.J. (2000) Logística Integral. La Gestión Operativa de la empresa. Ediciones ESIC</p> <p>Boyer, R. &amp; Freyssenet, M. (2003) Los Modelos Productivos; Ediciones Fundamentos</p> <p>Chase, R.B., Aquilano N.J. &amp; Jacobs F.R. (1998) Production and Operations Management: Manufacturing and Services. Eighth Edition; Irwin/Mcgraw-Hill</p> <p>Cox III, J. F., and Schleier Jr, J. G. (2010) Theory of constraints handbook. McGraw-Hill Education.</p> <p>Cox III, J.F., Boyd, L.H., Sullivan, T.T., Reid, R.A., and Cartier, B., (2012) The TOCICO Dictionary (Second Edition). McGraw-Hill Education</p> <p>Pau Cos, J. &amp; Navascúes y Gasca, R. (1998) Manual de Logística Integral; Ediciones Diaz de Santos</p> <p>Pittman, P.H., and Atwater, J.B. (2019) The APICS Dictionary, 16th edition. American Production and Inventory Control Society</p> <p>Porter, M.E. (1980) Competitive Strategy: techniques for analyzing industries and competitors; The Free Press</p> <p>Porter, M.E. (1985) Competitive Advantage; The Free Press</p> <p>Prahalad, C. &amp; Hamel, G. (1990) The Core Competence of the corporation; Harvard Business Review</p> <p>Umble, M., and Srikanth, M. L., (1995) Synchronous manufacturing: principles for world-class excellence. Spectrum Publishing, pp 211-255.</p> <p>Womack, J.P., Jones, D.T. &amp; Roos, D. (1992) La máquina que cambió el mundo; Ediciones McGraw-Hill</p> <p>Womack, J.P. &amp; Jones, D.T. (1996) Lean Thinking: Banish waste and create wealth in your corporation; Caledonian Internacional Book Manufacturing</p> <p>Orlicky, J. (1975). Material requirements planning: The new way of life in production and inventory management. New York: McGraw-Hill.</p> <p>Davis, M. M., Aquilano, N. J., &amp; Chase, R. B. (2003). Fundamentals of operations management (3rd ed.). Boston: McGraw-Hill/Irwin.</p> <p>Vollmann, T. E., Berry, W. L., &amp; Whybark, D. C. (1997). Manufacturing planning and control systems (4th ed.) McGraw-Hill/Irwin.</p> <p>Ptak, C., &amp; Smith, C. (2011). Orlicky's material requirements planning. McGraw-Hill Education.</p> <p>Casanovas, A. y Cuatrecasas, L. (2011). Logística Integral. Barcelona: Profit.</p> <p>Harmon, R.L. y Peterson, LD (1990). Reinventar la fábrica. Ed. Ciencias de la Dirección.</p> <p>Linker, J. K. (2006). Las claves del éxito de Toyota. (Ed. 4). Barcelona: Gestión 2000.</p> <p>Ohno, T. (1991). El Sistema de Producción Toyota. Más allá de la producción a gran escala. Barcelona: Editorial Gestión 2000.</p> <p>Suzaki, K. (1991) Competitividad en fabricación en la década de los 90. Tecnologías de Gerencia y Producción S.A.</p> <p>Goldratt, E. M. and Cox, J. (1984) The Goal. Croton-on-Hudson, NY: North River Press.</p> <p>Goldratt, E. M. and Fox, R. E. (1986) The Race. Croton-on-Hudson, NY: North River Press.</p> <p>Ptak, C., &amp; Smith, C. (2018). The Demand Driven Adaptive Enterprise: Surviving, Adapting, and Thriving in a VUCA World</p>

