

[GJR102] PRODUCTION EQUIPMENT AND AUTOMATED SYSTEMS ENGINEERING I

GENERAL INFORMATION

Studies	DEGREE IN MECHATRONICS ENGINEERING		Subject	?
Semester	1	Course	3	Mention / Field of specialisation
Character	COMPULSORY		Language	?
Plan	2020	Modality	Adapted Face-to-face	Total hours
Credits	12	Hours/week	15.56	280 class hours + 20 non-class hours = 300 total hours

PROFESSORS

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REQUIRED PREVIOUS KNOWLEDGE

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

SKILLS

VERIFICA SKILLS

SPECIFIC

GJCE10 - Understanding and analysing situations and mechatronic problems in equipment or production processes and automated systems, participating in different work teams and generating the appropriate technical documentation while describing existing solutions and transmitting information, ideas, problems and solutions to a specialised and non-specialised public

GENERAL

GJCG01 - To be able to take the initiative in problem solving, decision making, creativity, critical thinking, effective communication and the transfer of knowledge and skills in the field of mechatronics engineering

GJCG02 - To be able to do their job in multilingual, multidisciplinary environments.

GJCG03 - Addressing and optimising activities of assembly, commissioning, assistance and maintenance of facilities, machinery, and industrial mechatronic systems

GJCG04 - Managing technically teams and people in activities of assembly, commissioning, assistance and maintenance of facilities, machinery and industrial systems, through the methodology of administration by projects for the effective execution of planning

GJCG06 - Implement and materialize projects of automation and control of equipment, processes and flexible industrial systems, through the integration of hardware and software in order to optimize the operation of the different units that make up the system to meet the needs of the productive sector

CROSS

GJCTR1 - To be able to do their job in cooperative, participatory environments, with awareness of social responsibility.

GJCTR2 - To be able to understand and apply knowledge to problem solving in complex work situations or specialised and professional environments calling for creative and innovative ideas, using self-developed arguments and procedures;

BASIC

G_CB2 - To be able to apply knowledge to occupational or professional tasks; have the necessary skills to pose and defend arguments, and to solve problems within their field of study

G_CB4 - To be able to communicate information, ideas, problems and solutions to both expert and lay audiences

LEARNING RESULTS

RG301 They assume responsibilities in the team, organizing and planning the tasks to be developed, dealing with contingencies and encouraging the participation of its members.

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Tutoring sessions and monitoring of training activities	10 h.		10 h.
Carrying out work experience in real environments and writing the corresponding report	20 h.		20 h.

EVALUATION SYSTEM

Observation (technical capacity, attitude and participation) *W* 100%

MAKE-UP MECHANISMS

Observation of student participation and attitude in the proposed training activities
Comments: Continuous assessment. With the practices of the second semester

CH - Class hours: 30 h.
NCH - Non-class hours: 0 h.
TH - Total hours: 30 h.

RG302 They analyze the variables involved in the problem and propose actions for a stable situation.

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Tutoring sessions and monitoring of training activities	10 h.		10 h.
Carrying out work experience in real environments and writing the corresponding report	20 h.		20 h.

EVALUATION SYSTEM

Observation (technical capacity, attitude and participation) *W* 100%

MAKE-UP MECHANISMS

Observation of student participation and attitude in the proposed training activities
Comments: Continuous assessment. With the practices of the second semester

CH - Class hours: 30 h.
NCH - Non-class hours: 0 h.
TH - Total hours: 30 h.

RG304 They define the problem, the development of the solution, as well as the conclusions in an effective way, arguing and justifying each of them, making a correct use of the language, in writing.

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Carrying out work experience in real environments and writing the corresponding report	20 h.	10 h.	30 h.

EVALUATION SYSTEM

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems *W* 100%

MAKE-UP MECHANISMS

Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices
Comments: Continuous assessment. With the written document of the practices of the second semester

CH - Class hours: 20 h.
NCH - Non-class hours: 10 h.
TH - Total hours: 30 h.

RG305 They define the problem, the development of the solution, as well as the conclusions in an effective way, arguing and justifying each one of them, and making a correct use of the language, orally.

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Carrying out work experience in real environments and writing the corresponding report	20 h.	10 h.	30 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

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

100%

Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices
Comments: Continuous assessment. With the oral presentation of the practices of the second semester

CH - Class hours: 20 h.
NCH - Non-class hours: 10 h.
TH - Total hours: 30 h.

RGJ324 They understand concepts and apply methods, techniques, standards, tools, etc. that are specific to the profession of Mechatronic Engineer in a known industrial context.

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Carrying out work experience in real environments and writing the corresponding report	180 h.		180 h.

EVALUATION SYSTEM

W

Observation (technical capacity, attitude and participation) 100%
Comments: Technical and learning capacity demonstrated by the student in the practices developed in the company

MAKE-UP MECHANISMS

Observation of student participation and attitude in the proposed training activities
Comments: Continuous assessment. Retake is not foreseen.

CH - Class hours: 180 h.
NCH - Non-class hours: 0 h.
TH - Total hours: 180 h.

CONTENTS

The contents on which the student will develop their activities will be determined by the type and activity of the company and / or the technical department in which the student is located. The contents will be based on one or more of the following areas:

- * Assembly techniques for productive equipment: mechanical elements (transmission parts, guiding parts, sealing parts...) in known contexts.
- * Introduction to parameters and systems of manufacturing processes: forming processes, machining processes, welding...
- * Introduction to automation of lines, equipment or productive processes.
- * Demos of automation and programming of parameters of productive equipment, manufacturing processes or automated systems.
- * Introduction to the setting-up of productive equipment or productive processes.
- * Measurement, testing and verification of components / subassemblies / mechanical assemblies or parameters on production processes accompanied by experts of the company: tools, techniques and elements of measurement / monitoring / testing.
- * Diagnosis of dysfunctions of the productive equipment of simple mechanisms and systems.
- * Diagnosis, verification and fixing of simple automated systems.
- * Programming of simple automated systems.
- * Design of simple mechatronic systems that contain both mechanical and electronic parts, with the use of specific software.
- * Introduction to project management and work methods of the company departments.
- * Health & safety

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Topic related web quires
 Technical articles
 Moodle Platform
 Material and training resources in the company for the development of the internship
 Workplace in the company for the development of the internship
 Support from company and the academic tutors of the internship

Bibliography

http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_in k.pl?grupo=MECATRONICA31&ejecuta=50&_ST