[MGB101] DRIVES

GENERAL INFORMATION

Studies	UNIVERSTIY MASTER IN ENERGY AND POWER ELECTRONICS			**Subject**	ADVANCED ELECTRICAL ENERGY TECHNOLOGIES AND PRINCIPLES
Semester	1	**Course**	1	**Mention / Field of specialisation**	
Character	COMPULSORY				
Plan	2015	**Modality**	Adapted Face-to-face	**Language**	ENGLISH
Credits	5	**Hours/week**	3.56	**Total hours**	64 class hours + 61 non-class hours = **125 total hours**

PROFESSORS

ABAD BIAIN, GONZALO

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
DRIVES	*(No previous knowledge required)*
AUTOMATIC REGULATION	

SKILLS

VERIFICA SKILLS

SPECIFIC

MGC12 - Designing new control techniques for AC machines.

MGC19 - Specification of the electric drive for industrial applications, pumping applications, marine propulsion, machine tools, and cranes.

CROSS

MGTR11 - To lead work teams effectively and efficiently in order to achieve common goals.

BASIC

M_CB10 - To have learning skills and the capacity for self-guided or independent subsequent learning.

M_CB6 - To have and understand knowledge which provides a base or opportunity to be original in the development and/or application of ideas, often in an investigation context

M_CB7 - To know how to apply the acquired knowledge and competencies and the ability to solve problems in new or unfamiliar contexts within wider (or multidisciplinary) environments related to their field of study

M_CB8 - To be able to integrate different types of knowledge and make complex judgements based on information that, in spite of being partial or limited, includes ideas on the social and ethical responsibilities associated with the application of knowledge

M_CB9 - To share knowledge, conclusions and their rationale with specialised and lay audiences in a clear, unambiguous manner

LEARNING RESULTS

RMG110 **Design and analyze of control strategies oriented to induction machines.**

LEARNING ACTIVITIES	*CH*	*NCH*	*TH*
Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams	1 h.	2 h.	3 h.
Individual study and work, tests and evaluations and check points	1 h.	8 h.	9 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	10 h.	16,5 h.	26,5 h.
Individual or team workshop and/or lab practice	7,5 h.		7,5 h.
Individual and/or team computer simulation practice	17 h.	10 h.	27 h.

EVALUATION SYSTEM	*W*	MAKE-UP MECHANISMS
Individual written and oral tests to assess technical skills of the subject	50%	Individual written and oral tests to assess technical skills of the subject
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	50%	Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices

CH - Class hours: 36,5 h.
NCH - Non-class hours: 36,5 h.
TH - Total hours: 73 h.

RMG111 **Design and analyze of control strategies oriented to synchronous machines.**

LEARNING ACTIVITIES	CH	NCH	TH
Individual study and work, tests and evaluations and check points		6 h.	6 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	6 h.	5,5 h.	11,5 h.
Individual or team workshop and/or lab practice	7,5 h.		7,5 h.
Individual and/or team computer simulation practice	10 h.	6 h.	16 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and oral tests to assess technical skills of the subject	50%	Individual written and oral tests to assess technical skills of the subject
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	50%	Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices

CH - Class hours: 23,5 h.
NCH - Non-class hours: 17,5 h.
TH - Total hours: 41 h.

RMG112 Design and analyze of basic control strategies oriented to trapezoidal machines and variable reluctance machines.

LEARNING ACTIVITIES	CH	NCH	TH
Individual study and work, tests and evaluations and check points	1 h.	4 h.	5 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	3 h.	2 h.	5 h.
Individual and team exercises		1 h.	1 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports of solving exercises, case studies, computer practices, simulation practices and laboratory practices	100%	*(No mechanisms)*

CH - Class hours: 4 h.
NCH - Non-class hours: 7 h.
TH - Total hours: 11 h.

CONTENTS

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Subject notes	B. K. Bose, "Power electronics and AC drives", Springer 2006
Specific Master Software	S. K. Sul, "Control of electric machine drive systems", Wiley 2011
	G. Abad, "Power Electronics and Electric Drives for Traction Aplications", Wiley 2016