COMMUNICATIONS ELECTRONICS ENGINEERING B. Eng.

SEMESTER 7

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Year 2015/16

Course Name:	English for Professional and Academic Communication	**Course Code:**	595000034
Year:	4	**Semester:**	7
Credits (ECTS):	6	**Credit Hours:**	4
Area:	Common UPM Skills	**Type:**	Basic / Required
Term:	Fall	**Language:**	English
Prerequisites / Co-requisites:		Introduction to professional and academic communication II Introduction to professional and academic communication I	
Coordinator:		Irina Argüelles	
Bachelor Engineering Program:		Communications Electronics Engineering Telecommunication Systems Engineering Sound and Image Engineering Telematics Engineering	

Course Contents

1. Cultural diversity and interpersonal relationships
2. Colloquia and meetings. The job interview
3. Understanding of lectures
4. The understanding of academic and professional texts
5. Oral presentations

ABET Student Outcomes

(c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) An ability to function on multidisciplinary teams

(g) An ability to communicate effectively

(h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(i) A recognition of the need for, and an ability to engage in life-long learning

(j) A knowledge of contemporary issues

(k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Study Outcomes (according to the Spanish program definition)

CG 02 Skilled to searching and selecting information, critical reasoning and writing and defending the reasoning within the defined area

CG 03 Ability to express oneself in oral and written form, and to convey information through documents and public presentations.

CG 05 Ability for teamwork in multidisciplinary environments.

CG 06 Ability for adaptability, negotiation, conflict resolution and leadership.

CG 12 Ability for interpersonal relationships and work in a national and international context with capacity to express themselves oral and written in English-language form.

Specific outcomes of instruction (according to the Spanish program definition)

1.- Elaborate schemes and organize draft texts as reports or essays well structured.

2.- Produce texts clear and detailed on various topics as well as defend a point of view on general topics stating the pros and cons of the different options in English language.

3.- Organize your ideas and opinions of consistently in an academic work.

4.- Understand the main ideas of complex texts in the English language of both concrete and abstract topics, even if they are of a technical nature within their field of specialization.

5.- Adequately synthesize information related to their studies.

6.- Organize information properly in sentences and paragraphs.

7.- Contrasted their ideas with the contributed by other authors.

8.- Interact with native speakers of English language with one degree of fluency and spontaneity so that communication is performed effortlessly by any of the partners.

Bibliography

"Cambridge Academic English Upper", Cambridge.

"Cambridge English for Job-Hunting", Cambridge.

"Business Vocabulary Builder Intermediate to Upper intermediate", MacMillan.

"Presenting in English", Heinle.

"Presentations in English", MacMillan.

"English for presentations", Oxford.

"Successful presentations", Oxford.

Year 2015/16

Course Name:	Electronic Instrumentation	**Course Code:**	595000035
Year:	4	**Semester:**	7
Credits (ECTS):	6	**Credit Hours:**	4
Area:	Systems Engineering and Electronic Products	**Type:**	Engineering Topic / Required
Term:	Fall	**Language:**	Spanish
Prerequisites / Co-requisites:		Signals and Systems Analog Electronics I Digital Signal Processing Analog Electronics II	
Coordinator:		Francisco Javier Jiménez Martínez	
Bachelor Engineering Program:		Communications Electronics Engineering	

Course Contents

1. Introduction to measurement systems
2. Signal conditioners circuits
3. Transducers
4. Analog-digital conversion systems

ABET Student Outcomes

(a) An ability to apply knowledge of mathematics, science, and engineering

(b) An ability to design and conduct experiments, as well as to analyze and interpret data

(d) An ability to function on multidisciplinary teams

(j) A knowledge of contemporary issues

(k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Study Outcomes (according to the Spanish program definition)

CE EC01 Ability to build, utilize and manage systems for the acquisition, transport, representation, processing, storage, management and presentation of multimedia information, from the point of view of electronic systems.

CE EC04 Ability to apply electronics as a support technology in other fields and activities, not just in the field of Information and Communication Technologies.

CE EC05 Ability to design analog and digital electronic circuits, analog-to-digital and digital-to-analog conversion circuits, radiofrequency circuits, and electric power supply and conversion circuits for applications in telecommunications and computing.

CE EC08 Ability to specify and use electronic instrumentation and measurement systems.

Specific outcomes of instruction (according to the Spanish program definition)

1.- Learn some techniques and circuits that are used to set up the signals provided by the transducers in measurement systems.

2.- Understand the utility, electrical performance and technical specifications of the subsystems constituting the conversion string in a multichannel data acquisition system (analog multiplexer, sampling and retention (SH), particularities of the digital-analog converter (DAC) and circuit of the Analog Digital Converters (ADC) in the systems of measurement, reference voltages).

3.- Be able to analyze the behavior of the analog digital conversion chain and structures used in the data acquisition systems.

4.- Learn about transducers that allow the conversion of physical variables to electric variables.

5.- Characterize the mistake made by the subsystems used in the measurement process and the total system error.

Bibliography

M.A. Pérez y otros. Instrumentación Electrónica. Thomson, 2004.

Sergio Franco. Design with Operational Amplifiers and Analog Integrated Circuits. Mc-Graw Hill, 3ª Edición, 2002

Year 2015/16

Course Name:	Electronic Power Systems	**Course Code:**	595000036
Year:	4	**Semester:**	7
Credits (ECTS):	4,5	**Credit Hours:**	3
Area:	Analog Electronics	**Type:**	Engineering Topic / Required
Term:	Fall	**Language:**	Spanish
Prerequisites / Co-requisites:		None	
Coordinator:		Manuel Vázquez Rodríguez	
Bachelor Engineering Program:		Communications Electronics Engineering	

Course Contents

1. Elements of a power converter
2. Linear power supply.
3. Switching power converters
4. Power in telecommunication and computing equipment solutions

ABET Student Outcomes

(b) An ability to design and conduct experiments, as well as to analyze and interpret data

(d) An ability to function on multidisciplinary teams

(e) An ability to identify, formulate, and solve engineering problems

(f) An understanding of professional and ethical responsibility

(g) An ability to communicate effectively

(h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(i) A recognition of the need for, and an ability to engage in life-long learning

(j) A knowledge of contemporary issues

(k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Study Outcomes (according to the Spanish program definition)

CG 02 Ability to search and select information, develop critical thinking and produce and defend arguments within the area..

CG 04 Ability to abstract, analyze, and synthesize, and to solve problems.

CG 13 Learning skills with a high degree of autonomy.

CE TEL12 Ability to use different energy sources and especially solar photovoltaic and thermal, as well as the foundations of the electrotechnics and power electronics

CE EC05 Ability to design analog and digital electronic circuits, analog-to-digital and digital-to-analog conversion circuits, radiofrequency circuits, and electric power supply and conversion circuits for applications in telecommunications and computing.

Specific outcomes of instruction (according to the Spanish program definition)

1.- Know the relationships between topology, control and function of the electrical power converter circuits in power converting applications in telecommunication and computing.
2.- Understand the characteristics of performance, limitations and applications of power electronics.
3.- Apply the techniques of linear regulation to power electronic systems.
4.- Use analysis techniques of the electronic circuits of electrical energy conversion in switching.
5.- Select appropriate topologies for commutated converters applied to power electronic equipment.
6.- Learn practical solutions of circuits or power systems, by selecting the appropriate ones in a project of power supply of telecom/computing equipment.
7.- Develop design solutions based on switching converters.
8.- Select components, according to power electronic converters design specifications.
9.- Introducing photovoltaic systems.

Bibliography

POWER ELECTRONICS: A FIRST COURSE. Ned Mohan. Editorial: John Wiley. 2012.

POWER ELECTRONICS: CONVERTERS,APPLICATIONS AND DESIGN. (Third Edition). Ned Mohan, Tore M. Undeland, William P. Robbins. Editorial: John Wiley. 2003.

ELECTRÓNICA DE POTENCIA. Daniel W. Hart. Editorial: Prentice-Hall. 2001.

DESIGN WITH OPERATIONAL AMPLIFIERS AND ANALOG INTEGRATED CIRCUITS. (Third Edition). Sergio Franco. Editorial: McGraw-Hill. 2002.