



IDENTIFYING DATA

Applied Electrotechnics

Subject	Applied Electrotechnics			
Code	V12G360V01501			
Study programme	Degree in Industrial Technologies Engineering			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	1st
Teaching language	Spanish			
Department				
Coordinator	Garrido Suárez, Carlos			
Lecturers	Garrido Suárez, Carlos Novo Ramos, Bernardino			
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General description	The subject of Applied Electrotechnics has like general aim complete the training of the students that go to study the Degree of Engineering in Industrial Technologies in the Theory of Circuits and of the Electric Machines so as to supply him specific tools that allow him board, analyze and evaluate the behaviour of the electric circuits so much in stable as in transitory regime. The subject is conceived to supply knowledges, objective and competitions that are necessary to board with guarantees other subjects of the courses 3º and 4º. To a suitable use of this subject and that do not suppose a additional effort for the student, would owe to have studied previously the subjects of Bases of Theory of Circuits and Electric Machines and Calculation I and II since we will give by imparted basic knowledges of both subjects that serve of starting point stop the development of the Applied Electrotechnics.			

Competencies

Code	
B3	CG3 Knowledge in basic and technological subjects that will enable them to learn new methods and theories, and equip them with versatility to adapt to new situations.
C22	CE22 Applied knowledge of electrical engineering
D1	CT1 Analysis and synthesis.
D2	CT2 Problems resolution.
D6	CT6 Application of computer science in the field of study.
D10	CT10 Self learning and work.
D14	CT14 Creativity.
D17	CT17 Working as a team.
D19	CT19 Personal relationships.

Learning outcomes

Expected results from this subject	Training and Learning Results			
Comprise the behavioural basic aspects of the electric circuits in front of a change of conditions	B3	C22	D1	
			D2	
			D6	
			D10	
			D14	
			D17	
			D19	

Dominante the available current techniques for it analysis of electric circuits triphases balanced and B3 unbalanced	C22	D1 D2 D6 D10 D14 D17 D19
Know the techniques of measure and register of data in the real electric circuits	B3 C22	D1 D2 D6 D10 D14 D17 D19
Purchase skills envelope the process of analysis of electric circuits (transformers) also in regime of B3 foul	C22	D1 D2 D6 D10 D14 D17 D19

Contents

Topic

SUBJECT I: CIRCUITS OF THAT TRIPHASES. MEASURES. COMPENSATION. With this subject, intends that the student know to #analyze circuits triphases so much balanced how unbalanced. It initiates the subject with the basic concepts stop the analysis of circuits balanced. It continues with the unbalanced circuits, the different methods to measure the power and the compensation of power reactivates as well as the methods to determine the sequence of phases. It finalizes with an introduction to the symmetrical components.	<ul style="list-style-type: none"> □ Introduction: Generators, cargos and circuits triphases. □ Circuits triphases balanced. Tensions and intensities. □ Conversion of sources and triphases charges. □ Analysis of circuits triphases balanced. □ Power in circuits triphases balanced. Compensation. □ Analysis of circuits triphases unbalanced. □ Determination of the sequence of phases and measure of power and energy. □ Symmetrical components.
SUBJECT II: TRANSFORMERS With this subject, intends that the student know the constructive characteristics more *salientables of the transformers as well as determine his characteristic parameters and main properties, as well as his utilization in the electric systems.	<ul style="list-style-type: none"> □ Analogies between electric and magnetic circuits. □ Introduction to the transformers: constructive aspects. □ The transformer ideal: bases. □ Operation of a transformer real. □ Equivalent circuit of the triphases transformer real: fems and tensions. □ Essay in emptyness and in short-circuit of the transformer. □ Fall of tension, losses and performance of a transformer. □ Autotransformers. □ Transformers triphases: Constitution, diagrams of connection and essays. □ Transformers Of Measure and Protection.

Planning

	Class hours	Hours outside the classroom	Total hours
Laboratory practises	9	9	18
Practice in computer rooms	9	9	18
Troubleshooting and / or exercises	9	18	27
Master Session	20	60	80
Long answer tests and development	7	0	7

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Laboratory practises	□ Experimental manufacture of the practices or essays proposed, realization of measures and presentation of results.
Practice in computer rooms	□ Simulación by means of computer programs of circuits triphases and transformers.
Troubleshooting and / or exercises	□ Resolution put student with attention customized of problems proposed.

Master Session	□ Exhibition by part of the professor of the contained theoretical of the subject, with clarification of question and punctual doubts that can arise during the exhibition.
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Personalized attention

Methodologies	Description
Master Session	The doubts and questions that can arise during the kinds and the personal work of the student will be resolved well *in *situ or during it time of tutorials. Also it will be possible to attention by means of the email stop the resolution of doubts.
Laboratory practises	The doubts and questions that can arise during the kinds and the personal work of the student will be resolved well *in *situ or during it time of tutorials. Also it will be possible to attention by means of the email stop the resolution of doubts.
Practice in computer rooms	The doubts and questions that can arise during the kinds and the personal work of the student will be resolved well *in *situ or during it time of tutorials. Also it will be possible to attention by means of the email stop the resolution of doubts.
Troubleshooting and / or exercises	The doubts and questions that can arise during the kinds and the personal work of the student will be resolved well *in *situ or during it time of tutorials. Also it will be possible to attention by means of the email stop the resolution of doubts.

Assessment

	Description	Qualification	Training and Learning Results
Long answer tests and development	(*)Evaluación continua (100%): Ao final de cada tema o alumno realizará unha proba que se cualificará de 0 a 10 puntos, alcanzándose o aprobado con un 5. Na proba valoraranse cuestións teóricas e exercicios prácticos. En cada proba o alumno poderá alcanzar un 50% da nota final. As probas parciais aprobadas son liberatorias da parte correspondente no exame final. Os alumnos que superen tódalas probas, a nota final será a media ponderada das notas das probas parciais. Para os alumnos que suspendan ou non se presenten a algunha ou tódalas probas parciais realizarán un examen final na convocatoria oficial que se cualificará de 0 a 10 puntos. Para superala materia é necesario alcanzar unha nota mínima de 3 puntos en cada tema. Os alumnos aprobados por probas parciais poden modificala nota presentándose tamén á proba final. No exame indicárase as datas e lugares de publicación das cualificacións e das revisións. Compromiso ético: Espérase que o alumno presente un comportamento ético axeitado. No caso de detectar un comportamento non ético (copia, plaxio, utilización de aparatos electrónicos non autorizados, e outros) considerarase que o alumno non reúne os requisitos necesarios para superar a materia. Neste caso a cualificación global no presente curso académico será de suspenso (0.0)	100	B3 C22 D1 D2 D6 D10 D14 D17 D19

Other comments on the Evaluation

The student only has to realize in the second announcement the mid-terms no surpassed in the first. The final result calculates of the even way that in the first announcement

Sources of information

Parra V.M., Ortega J., Pastor A. y Pérez-Coyto A, **Teoría de Circuitos**, UNED,
González E., Garrido C. y Cidrás J, **Ejercicios resueltos de circuitos eléctricos**, Tórculo Edicións,
Fraile Mora, Jesús, **Máquinas Eléctricas**, McGraw-Hill,
Jesús Fraile Mora y Jesús Fraile Ardanuy, **Problemas de Máquinas Eléctricas**, McGraw-Hill/InterAmericana de España,

Recommendations

Subjects that continue the syllabus

Electrical Machines/V12G360V01605

Subjects that it is recommended to have taken before

Physics: Physics 2/V12G360V01202
Mathematics: Calculus II and Differential Equations/V12G360V01204
Basics of Circuit Analysis and Electrical Machines/V12G360V01302

Other comments

Requirements: To enrol in this subject is necessary to had surpassed or well be enrolled of all the subjects of the inferior courses to the course in the that is summoned this subject
