



Teaching Guide				
Identifying Data				2015/16
Subject (*)	FÍSICA II	Code	730G03009	
Study programme	Grao en enxeñaría en Tecnoloxías Industriais			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	2nd four-month period	First	FB	6
Language	SpanishGalician			
Teaching method	Face-to-face			
Prerequisites				
Department	Enxeñaría Industrial 2			
Coordinador	Tobar Vidal, María José	E-mail	maria.jose.tobar@udc.es	
Lecturers	Alvarez Feal, Jose Carlos Juan Amado Paz, José Manuel Saavedra Otero, Emilio Tobar Vidal, María José	E-mail	carlos.alvarez@udc.es jose.amado.paz@udc.es emilio.saavedra@udc.es maria.jose.tobar@udc.es	
Web				
General description	Leis xerais da termodinámica e o electromagnetismo, así como a súa aplicación na resolución de problemas propios da enxeñaría.			

Study programme competences	
Code	Study programme competences

Learning outcomes			
Learning outcomes	Study programme competences		
Define and distinguish between temperature, heat , energy and work . Describe and understand the laws of classical thermodynamics.	A2	B1 B2 B3	C1 C5
Describe the basic principles underlying electric and magnetic fields as well as the classic laws of electromagnetism which describe and relate them.	A2	B1 B2 B3	C1 C5
Apply acquired knowledge to the analysis of basic engineering situations : identify the underlying physical phenomena , state and solve the problem using correct mathematical expression and give the solution in adequate units .		B6 B7 B8	C1
Perform experimental tests in laboratory: analyze the validity of the data obtained and compare results with theoretical predictions.		B6 B8 B9	C1

Contents	
Topic	Sub-topic
TERMODINÁMICA	TEMA 1. Propiedades térmicas da materia. TEMA 2. Principio cero da termodinámica TEMA 3. Calor e traballo. Primeiro principio da Termodinámica. TEMA 4. Procesos de transmisión de calor. TEMA 5. Transformacións en sistemas termodinámicos. Aplicacións do primeiro principio. TEMA 6. Reversibilidade dos procesos. Segundo principio da Termodinámica.



INTERACCIONS ELECTROMAGNETICAS	TEMA 7. Campo eléctrico TEMA 8. Potencial eléctrico TEMA 9. Aplicacións electrostáticas TEMA 10. Corrente eléctrica TEMA 11. Magnetostática. Forzas sobre cargas en movemento. TEMA 12. Campos magnéticos xerados por correntes. TEMA 13. Propiedades magnéticas da materia. TEMA 14. Inducción electromagnética. TEMA 15. Circuitos de corrente alterna. TEMA 16. Ecuacions de Maxwell.
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Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A2 B1 B2 B3 C1 C5	22	22	44
Problem solving	B2 B6 B7 B8 B9 C1	22	44	66
Laboratory practice	B6 B8 B9 C1	10	8	18
Objective test	A2 B1 B2 B3 B6 B7 B8	5	15	20
Personalized attention		2	0	2

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

Methodologies	
Methodologies	Description
Guest lecture / keynote speech	Clases de teoría na pizarra
Problem solving	Resolución por parte do profesor e por parte dos alumnos, dos exercicios propostos.
Laboratory practice	Realización de 5 prácticas en 10 horas
Objective test	Exame intermedio con contido parcial e un exame final de todo o contido da materia. Constarán dunha parte teórica e outra de problemas

Personalized attention	
Methodologies	Description
Laboratory practice	Discusión sobre os diferentes aspectos da materia: teoría, problemas, prácticas.

Assessment			
Methodologies	Competencies	Description	Qualification
Laboratory practice	B6 B8 B9 C1	Mandatory: No unexcused absences.	10
Objective test	A2 B1 B2 B3 B6 B7 B8	Theory accounts for 40% and problems for 60% of the total points obtained.	90

Assessment comments



Two objective tests, partial and final will be held. Both will be celebrated according to exam dates approved by the School Board. They consist of theory and practice (problems) with a maximum duration of 4 hours.

Partial test will cover contents revised up to the date of the exam. Points obtained will account for the 30% of the overall mark.

Final test will cover all the contents of the subject. It will represent 90% of the overall mark for students which have not attended the partial exam.

Those who have attended may be examined of the remaining part. The points obtained will represent 60% of the overall mark. Alternatively, they may choose to be examined of the whole subject material in order to raise their partial mark.

On second opportunity, examination will cover the whole contents. Partial results and laboratory practice will preserve their validity as in first opportunity.

Assistance to laboratory practice is mandatory and to be done in first year enrolment. Points obtained will be kept for 3 consecutive courses. No unexcused absences allowed. Student must attend 4 laboratory practices and a final (individual) examination

## Sources of information

<b>Basic</b>	<ul style="list-style-type: none"><li>- Francis W. Sears, Mark. W. Zemansky (2009). Física universitaria. Addison-Wesley</li><li>- Giancoli, Douglas C. (2009). Física para ciencias e ingeniería. Pearson educación</li><li>- Giancoli, Douglas C. (2002). Física para universitarios. Pearson Educación</li><li>- Serway, Raymond A. (2008). Física : para ciencias e ingenierías. Cengage Learning</li><li>- Paul A. Tipler, Gene Mosca. (2011). Física para la ciencia y la tecnología. Reverté</li></ul>
<b>Complementary</b>	<ul style="list-style-type: none"><li>- Zemanski, Dittman (). Calor y Termodinámica. McGraw-Hill</li><li>- Roald K. Wangsness (). Campos Electromagnéticos. Limusa</li><li>- Francis Sears, Gerhard Salinger (). Termodinámica, Teoría Cinética y Termodinámica Estadística. Reverté</li></ul> <p>&lt;br /&gt;</p>

## Recommendations

### Subjects that it is recommended to have taken before

### Subjects that are recommended to be taken simultaneously

CÁLCULO/730G03001  
FÍSICA I/730G03003  
ÁLXEBRA/730G03006

### Subjects that continue the syllabus

FUNDAMENTOS DA ELECTRICIDADE/730G03012  
TERMODINÁMICA/730G03014  
FUNDAMENTOS DE ELECTRÓNICA/730G03016  
CALOR E FRIO INDUSTRIAL/REFRIG/730G03020

### Other comments

(\*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.