

220007 - Calculus II

Coordinating unit:	205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit:	749 - MAT - Department of Mathematics
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN AEROSPACE VEHICLE ENGINEERING (Syllabus 2010). (Teaching unit Compulsory) BACHELOR'S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
ECTS credits:	6
Teaching languages:	Catalan

Teaching staff

Coordinator:	JORDI SALUDES CLOSA
Others:	ANTONIO MAGAÑA NIETO

Degree competences to which the subject contributes

Specific:

1. The ability to solve mathematical problems that may arise in an engineering context. The ability to apply knowledge of linear algebra; geometry; differential geometry; differential and integral calculus; differential and partial differential equations; numerical methods; numerical algorithms; statistics and optimisation

General:

2. THE ABILITY TO ANALYSE AND SYNTHESISE: The ability to think abstractly about the fundamental concepts of a text or exposition and to intelligibly present the result of one's work.

Teaching methodology

- Attendance theory lessons.
- Attendance exercises lessons.
- Autonomous work.

In theory lessons there will be introduced the basic concepts and results of each topic, as well as examples and practical instances

In practical lessons the students are due to solve exercises and problems that would help them to understand the theory concepts.

On the other hand, the students are due to solve a collection of problem, both during lessons and autonomous work. Along the course, a tracing of the learning of the student will be made. As a reference, there will be a solved problem collection available. Teachers will set doubts hours.

Learning objectives of the subject

Provide the basic concepts of differential and integral calculus in several variables. Introduce the concept of parameterization of a curve and a surface. Introduce the vector calculus and its more relevant applications.



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Study load

Total learning time: 150h	Hours large group:	32h	21.33%
	Hours medium group:	28h	18.67%
	Self study:	90h	60.00%

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Content

<p>1. Curves.</p>	<p>Learning time: 21h 02m Theory classes: 4h 27m Practical classes: 3h 44m Self study : 12h 51m</p>
<p>Description:</p> <p>Related activities:</p>	
<p>2. Introduction to several variables functions.</p>	<p>Learning time: 14h 58m Theory classes: 2h 40m Practical classes: 3h 44m Self study : 8h 34m</p>
<p>Description:</p> <p>Related activities:</p>	
<p>3. Differential calculus.</p>	<p>Learning time: 39h 02m Theory classes: 8h Practical classes: 7h 28m Self study : 23h 34m</p>
<p>Description:</p> <p>Related activities:</p>	
<p>4. Integral calculus.</p>	<p>Learning time: 33h 15m Theory classes: 6h 13m Practical classes: 5h 36m Self study : 21h 26m</p>
<p>Description:</p> <p>Related activities:</p>	

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5. Vector analysis.	Learning time: 41h 43m Theory classes: 10h 40m Practical classes: 7h 28m Self study : 23h 35m
Description:	
Related activities:	

Qualification system

Continuos avaluation: 25%
Midterm exam: 25%
Final exam: 50%

Regulations for carrying out activities

The final and midterm exams are individually developed. The teacher may ask the students to identify themselves.

Bibliography

Basic:

- Marsden, Jerrold E. Cálculo vectorial [on line]. Madrid: Addison Wesley, 2004 [Consultation: 03/10/2018]. Available on: <http://www.ingebook.com/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=7634>. ISBN 8478290699.
- Leseduarte Milán, Ma. Carme [et al.]. Càlcul II: Problemes. Terrassa: Omnia Science, 2014. ISBN 978-84-941872-5-4.
- Rogawski, Jon. Càlculo. Vol. 2, Varias variables. 2ª ed. Barcelona: Reverté, 2012. ISBN 9788429151749.

Complementary:

- Salas, Saturnino L [et al.]. Calculus: una y varias variables, vol. 2 [on line]. 4a ed. Barcelona: Reverté, 2002 [Consultation: 16/07/2019]. Available on: <http://www.ingebook.com/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=7715>. ISBN 9788429151589.
- Fàbrega, Albert [et al.]. Exàmens de càlcul resolts. 2a ed. Terrassa: Cardellach Còpies, 2004. ISBN 848497877X.

Others resources: