ADVANCED FUNCTIONAL ANALYSIS

MODULE NAME	II a. ADVANCED TECHNICS
SUBJECT NAME	ADVANCED FUNCTIONAL ANALYSIS
SEMESTER	SECOND
NUMBER OF ECTS	8
COORDINATOR	UNIVERSITY OF ALMERÍA
LEARNING	BLENDED/HYBRID
UNIVERSITIES	UNIVERSITY OF ALMERÍA
LANGUAGE	SPANISH

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PRERREQUISITES
None
COMPETENCES
They are described in the verification document

OBJECTIVES

- Know and clearly understand the classic theorems of Functional Analysis.
- Know classic examples of normed spaces.
- Know the fundamentals of geometry of Banach spaces.
- Know the basic topics on Banach algebras.
- Know the fundamentals in the theory of series and summability in Banach spaces.

THEORETICAL CONTENT

1. Basic Principles of Functional Analysis (review).
2. Locally convex spaces. The Krein-Milman theorem.
3. Weak topologies. The Banach-Alaoglú theorem . Weak convergence and compactness.
4. Geometry and structure of Banach spaces.
5. Banach algebras.
6. Series and summability in Banach spaces.

BIBLIOGRAPHY

- J. B. Conway. A Course in Functional Analysis. Springer-Verlag , New York, 1985.
- M. Fabian, P. Habala, P. Hayek, V. Montesinos, J. Pelant and V. Zizler. Functional Análisis and infinite-dimensional geometry. Springer-Verlag , 2001.
- T. J. Morrison. Functional Analisys. An Introduction to Banach Space Theory. John Wiley and Sons, 2001.
- G. J. Murphy. C*-Algebras and Operator Theory. Academic Press, 1990.
- G. K. Pedersen. Análisis Now. Springer-Verlag , New York, 1989.
- H. L. Royden. Real Analysis. Macmillan Publishing company, 1988.

LINKS

http://150.214.18.236/login/index.php

TEACHING AND LEARNING METHODOLOGY

This is a blended course, although the intensive use of internet resources is encouraged, to improve and enhance the quality of teaching. All lecturers and students will have a unique identified access code which will facilitate communication between them as well as allow the downloading of theory or practical materials, problem resolution, forums, surveys, etc. As a general reference, each ECTS corresponds to 25 student work hours, and for this course nearly 40% (10 hours) has been established as the amount of in-person class time. These 25 hours are structured as follows:

- 10 hours of face to face activities.
- 15 hours of self-taught work and online activities (studying course materials and creating theory and/or practical work).

Each of these training activities and its relationship to skills is listed below.

- Face to face activities: Course content is presented through the lecturer's oral explanation and appropriate technologies, encouraging participation by students, who will be provided with required references. The tutorials will guide students' development of theoretical and/or practical content.
- Self-taught work and online activities: Studying the content of the different subjects, analysis and solving of problems, creation of guided theory and/or practice work.

The application of these training activities will enable the adquisition of the competences.

ACTIVITIES

6 weeks second semester	Parts of the content	Face to face activitles						Self-taught work and online activities			
		Lectures (hours)	Practical content (hours)	Seminars (horas)	Academic tutorials (horas)	Exams (hours)	Etc.	Online Tutorials (hours)	Self –taught work (hours)	Grupal work (hours)	Self-asses ment
Weeks 1-3	1-3	14	10	8	5			5	42	10	6
Weeks 3-6	4-6	14	10	8	4	1		5	42	10	6
Total hours		28	20	16	9	1		10	84	20	12

ASSESSMENT CRITERIA AND PROCEDURES

Attendance and participation in lectures is essential to pass the course, and additional work will be proposed for those students who wish to improve their grades. Those students who are unable to attend all lectures will be helped to pass the course based on their self-taught work and the material available on the Internet.

MORE INFORMATION

Master's homepage