

FUNDAMENTALS OF MATHEMATICS II

Academic year: First

Semester: Second

Number of credits: 7,5

Code: 721

Department: Applied Mathematics

Main professor: M^a Teresa Herrero

Assisting professor:

Recommended preparatory courses:

Fundamentals of Mathematics I and Linear algebra, taught in the first semester of this academic year.

Recommended subjects during the same year:

GENERAL OBJETIVES:

- ▶ Provide the students with the mathematical knowledge and skills that they will need in order to face other courses of their engineering degree.
- ▶ Provide an introductory course to some mathematical fields that are widely used in engineering such as Integration, Vector Analysis, Fourier Analysis and Partial Differential Equations.

SYLLABUS:

Integral calculus: indefinite integration and definite integration. Multiple integration. Vector analysis. Fourier series. Fourier transforms. Second order partial differential equations.

BIBLIOGRAPHY:

- Alvarez, E., Herrero, M^aT. y Ruiz, R. Colección Fundamentos Matemáticos. Tomos III, IV y V.
- James, G. (1996) "Modern Engineering Mathematics". Second Edition. Editorial Addison-Wesley.
- Marsden, J.E. y Tromba, A.J. "Cálculo Vectorial". Tercera edición. Editorial Addison-Wesley Ib.
- O'Neil, P.V. (1994) "Matemáticas avanzadas para Ingeniería". Editorial Ceca.
- Nagle, R. K. y Staff, E. B. "Fundamentos de ecuaciones diferenciales". Editorial Addison-Wesley.

EVALUATION CRITERIA:

- ▶ Written partial exams.
- ▶ Evaluation of practical exercises that will be completed using Matlab.
- ▶ Final written exam that will include both theory and exercises.