

Course guide

330605 - MNAEM - Numerical Methods Applied to Mining Engineering

Last modified: 10/07/2023

Unit in charge: Manresa School of Engineering
Teaching unit: 749 - MAT - Department of Mathematics.

Degree: MASTER'S DEGREE IN MINING ENGINEERING (Syllabus 2013). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 5.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Cors Iglesias, Josep M.

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

1. (ENG) Capacitat per a abordar i resoldre problemes matemàtics avançats d'enginyeria, des del plantejament del problema fins al desenvolupament de la formulació i la seva implementació en un programa d'ordinador. En particular, capacitat per a formular, programar i aplicar models analítics i numèrics avançats de càlcul, projecte, planificació i gestió, així com capacitat per a la interpretació dels resultats obtinguts, en el context de l'Enginyeria de Mines.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

STUDY LOAD

Type	Hours	Percentage
Self study	80,0	64.00
Hours medium group	45,0	36.00

Total learning time: 125 h

CONTENTS

title english

Description:

content english

Full-or-part-time: 19h

Theory classes: 3h

Laboratory classes: 6h

Self study : 10h



title english

Description:

content english

Full-or-part-time: 53h

Theory classes: 6h

Laboratory classes: 12h

Self study : 35h

title english

Description:

content english

Full-or-part-time: 53h

Theory classes: 6h

Laboratory classes: 12h

Self study : 35h

ACTIVITIES

name english

Full-or-part-time: 5h

Laboratory classes: 1h

Self study: 4h

name english

Full-or-part-time: 10h

Laboratory classes: 2h

Self study: 8h

name english

Full-or-part-time: 10h

Laboratory classes: 2h

Self study: 8h

name english

Full-or-part-time: 20h

Theory classes: 4h

Self study: 16h



GRADING SYSTEM

BIBLIOGRAPHY

Basic:

- Chapra, S. C.; Canale, R. P. Métodos numéricos para ingenieros [on line]. 5ª ed. México: McGraw-Hill, 2007 [Consultation: 08/06/2022]. Available on: https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=8100. ISBN 9789701061145.
- Strikwerda, J. C. Finite difference schemes and partial differential equations. 2nd ed. Philadelphia: Society for Industrial and Applied Mathematics, 2004. ISBN 0898715679.
- Masdemont, J. Curs d'elements finits amb aplicacions [on line]. Barcelona: Edicions UPC, 2002 [Consultation: 19/11/2020]. Available on: <http://hdl.handle.net/2099.3/36166>. ISBN 8483015951.
- Aubanell, A.; Benseny, A.; Delshams, A. Eines bàsiques de càlcul numèric: amb 87 problemes resolts. Barcelona: Universitat Autònoma de Barcelona, 1991. ISBN 8479292318.

Complementary:

- Burden, R. L.; Faires, J. D. Análisis numérico. 6ª ed. México: International Thompson, 1998. ISBN 9687529466.