Course guides
290605 - MATII14 - Calculus

Last modified: 06/10/2020

Unit in charge: Vallès School of Architecture
Teaching unit: 753 - TA - Department of Architectural Technology.

Degree: DEGREE IN ARCHITECTURE STUDIES (Syllabus 2014). (Compulsory subject).

Academic year: 2020 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: JORGE RECASENS FERRES

Others: DIONIS BOIXADER IBAÑEZ
JORGE RECASENS FERRES

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
EAB1G. An aptitude for applying graphic skills to the representation of spaces and objects (T).
EAB2G. An aptitude for conceiving and representing the visual attributes of objects and mastering proportion and drawing techniques in general, including computer drawing techniques (T).
EAB3G. Adequate knowledge of spatial representation systems applied to architecture and urbanism.
EAB6G. Adequate knowledge of graphic surveying techniques at all stages, from sketching to scientific restitution, applied to architecture and urbanism.
EAB7G. Adequate knowledge of the principles of general mechanics, statics, mass geometry and vector and tensor fields applied to architecture and urbanism.
EAB11G. Applied knowledge of numerical calculus, analytic and differential geometry and algebraic methods.

Generical:
CE8. An understanding of structural, construction and engineering design problems related to building design.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

To pose and solve problems of areas, volumes, masses, balances and moments using integrals and differential equations. Model aspects of form and tangency through the derivative of graphic design problems. Summarize numerically and graphically data populations and interpret the results qualitatively. Answer questions and solve written exercises in a synthetic, structured and understandable way.

STUDY LOAD

Type	Hours	Percentage
Hours large group	33,0	22.00
Hours medium group	33,0	22.00
Self study	84,0	56.00

Total learning time: 150 h

CONTENTS

Syllabus

Description:
The course is focused on a mathematical view on curves and surfaces and its applications, such as functional modelling and optimisation.

Full-or-part-time: 66h
Theory classes: 33h
Practical classes: 33h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:
- Alsina, Claudi. L'Art de calcular en l'arquitectura. Barcelona: Edicions UPC, 1993. ISBN 8476532598.
- Moore, David S. The Basic practice of statistics. 5th ed. New York, NY: W.H. Freeman and Co, cop. 2010. ISBN 9781429201216.
- Trias Pairó, Joan. Geometria per a la informàtica gràfica i CAD. Barcelona: Edicions UPC, 1999. ISBN 8483013541.
- Larson, Ron; Hostetler, Robert P. Cálculo y geometría analítica. 2a ed. Madrid [etc.]: McGraw-Hill, 1988. ISBN 847615240X.
- Hildebrandt, Stefan; Tromba, Anthony. Matemática y formas óptimas. Barcelona: Prensa Científica, 1990. ISBN 8475930387.
- Buck, R. Creighton; Buck, Ellen F. Introduction to differential equations. Boston: Houghton Mifflin, 1976. ISBN 0395206545.