

## Course guide

### 290602 - FISICI14 - Environmental Physics

Last modified: 21/06/2023

**Unit in charge:** Vallès School of Architecture  
**Teaching unit:** 748 - FIS - Department of Physics.

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

**Academic year:** 2023    **ECTS Credits:** 6.0    **Languages:** Catalan

#### LECTURER

**Coordinating lecturer:** Puigdomenech Franquesa, Joan

**Others:** DIONIS BOIXADER IBAÑEZ - 1, HERRE  
ANNA PAGES RAMON - 1, HERRE  
JOAN PUIGDOMENECH FRANQUESA - 1, HERRE

#### PRIOR SKILLS

To follow the course with maximum performance, it is convenient that students have prior knowledge of mathematics (trigonometry, complex numbers) and physics (waves, electromagnetism).

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

**Specific:**

EAB8G. Adequate knowledge of the principles of thermodynamics, acoustics and optics applied to architecture and urbanism.  
EAB9G. Adequate knowledge of the principles of fluid mechanics, hydraulics, electricity and electromagnetism applied to architecture and urbanism.

**Generical:**

CE9. Adequate knowledge of the physical problems, technologies and functions of buildings so as to provide them with comfortable indoor conditions and protection from climate factors.  
CG4G. An understanding of structural, construction and engineering design problems related to building design and techniques for solving them.  
CG5G. Knowledge of the physical problems, technologies and functions of buildings so as to provide them with comfortable indoor conditions and protection from climate factors.

#### TEACHING METHODOLOGY

#### LEARNING OBJECTIVES OF THE SUBJECT

Aims: Thermal comfort. Humidity. Electricity, light, and sound. Environmental impact of architecture.

#### 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

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### Syllabus

**Description:**

Thermal comfort. Humidity. Electricity, light and sound. Environmental impact of architecture.

**Full-or-part-time:** 66h

Theory classes: 33h

Practical classes: 33h

## GRADING SYSTEM

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## BIBLIOGRAPHY

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**Basic:**

- Bravo, Eduard. Física Ambiental. 1a. Barcelona: Iniciativa Digital Politècnica. Oficina de Publicacions Acadèmiques Digitals de la UPC, 2019. ISBN 9788498807639.
- Salu, Yehuda. Physics for architects. 2nd ed. [Charleston, South Carolina: CreateSpace], cop. 2008. ISBN 9781463708115.
- Isalgué Buxeda, Antoni. Física de la llum i el so. Barcelona: Edicions UPC, 1995. ISBN 8476535449.
- Pinteric, Marko,. Building physics : from physical principles to international standards. Cham: Springer, 2017. ISBN 9783319574837.

**Complementary:**

- Collieu, Antony M; Powney, Derek J. Propiedades mecánicas y térmicas de los materiales. Barcelona [etc.]: Reverté, DL 1977. ISBN 8429141421.
- Cromer, Alan H. Física para las ciencias de la vida. 2ª ed. Barcelona [etc.]: Reverté, 1986. ISBN 842911808X.
- McMullan, Randall. Environmental science in building. 2nd ed. London: Mcmillan, 1989. ISBN 0333491165.