

# Course guide 290264 - INTRAP4 - Introduction to Parametric Architecture

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Academic year: 2023	ECTS Credits: 4.0	Languages: Spanish
Degree:	DEGREE IN ARCHITECTURI	E STUDIES (Syllabus 2014). (Optional subject).
Unit in charge: Teaching unit:	Vallès School of Architectu 752 - RA - Departamento o	re de Representación Arquitectónica.

### **LECTURER**

Coordinating lecturer:	Bertomeu Farnós, Gerard
Others:	Soriano Botella, Enrique Serra Ureta, Marc

# **TEACHING METHODOLOGY**

Learning outcomes:

- Design a simple parametric architecture project
- Know the different types of data and their dependencies
- Know the vocabulary of architectural geometry
- Recognize the efficiency of parametrically generated projects

# LEARNING OBJECTIVES OF THE SUBJECT

Introduce the basics of parametric design using Rhinoceros Grasshopper Architectural Geometry: set of geometric tools for complex construction. Pre-rationalization: set of strategies to design optimal forms to build form-finding: efficient search for form through dynamic relaxation (catenaries, funicular forms, trusses) Post-rationalization: strategies to minimize the cost in the construction of complex geometries. Shape optimization: evaluate the results of the shape generation process and return this information to modify its input variables

### **CONTENTS**

#### Subject abstract

#### **Description:**

This course is a practical toolset of applied geometry to provide fluency and control on the use of Grasshopper and its environment. The course focus in the geometric control of parametric modelling and efficient fabrication.

Full-or-part-time: 0h 01m Theory classes: 0h 01m



# Programa

- **Description:**
- 1 Visual programming
- 2 Data structure
- 3 Curves
- 4 Conditional relations and geometric dependencies
- 5 Surfaces
- 6 Tights
- 7 Topology and curvature.
- 8 Evaluation of the results. Graphical and statistical tools
- 9 Return of results and update of parameters
- 10 Generation of manufacturing tools.

**Full-or-part-time:** 39h 50m Laboratory classes: 39h 50m

# **GRADING SYSTEM**

50% continuous assessment 50% evaluation of the final exercise

# **BIBLIOGRAPHY**

### **Basic:**

- Hesselgren, L.. Advances in Architectural Geometry 2018.
- Reiser, J.. Atlas of Novel tectonics.
- Pottmann, Helmut. Architectural Geometry.