



Universidad
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Graphic Lab III (Gestión del Proyecto Urbano)

Guía docente 2023-24

PRESENTACIÓN

Breve descripción:

This course belongs to the Preparatory module of the curriculum. Specifically, Graphic Lab III is the latest in a series of subjects focused on supporting the students' graphic skills through the most widely used software in the professional field of architecture. The contents address the domain of the most common software in the field of Geographic Information Systems (GIS), a widely spread tool in the professional field of urban studies, and a real standard in those works related to Public Administration. Specifically, it is planned to introduce the student to the multiplatform and open source QGIS software. The program that are going to be attended in the course is QGIS, a Free and Open Source Geographic Information System.

- **Titulación:** Grado en Estudios de Arquitectura
- **Módulo/Materia:** Preparatory/Drawing
- **ECTS:** 3
- **Curso, semestre:** 4º, Anual
- **Carácter:** Required [Elective]
- **Profesorado:** Elena Lacilla, Ángela Abascal
- **Idioma:** English
- **Aula, Horario:**

COMPETENCES

BASIC COMPETENCES

BC02 Students must know how to apply their knowledge professionally to their job or career and have the skills that usually demonstrated by writing and supporting their arguments, and problem-solving within their area of study.

BC04 Students are able to convey information, ideas, problems and solutions to specialist and non-specialist audiences.

BC05 Students have developed the learning skills necessary to undertake further studies with a high degree of autonomy.

GENERAL COMPETENCES

GC06 Understand the industries, organisations, regulations and procedures involved in translating design concepts into buildings and integrating plans into overall planning.

GC07 Understand the relationships between people and buildings, and between buildings and their environment, and the need to relate buildings and the spaces between them to human needs and scale.

SPECIFIC COMPETENCES

SC02 Ability to conceive and represent the visual attributes of objects and good mastery of proportion and drawing techniques, including computer techniques (T).



Universidad
de Navarra

SC05 Adequate knowledge of metric and projective geometry, applied to architecture and urban planning.

SC06 Adequate knowledge of graphical surveying techniques across all its phases, from sketching to scientific restoration, applied to architecture and urban planning.

SC10 Adequate knowledge of the fundamentals of topography, hypsometry and cartography and the techniques of land modification, applied to architecture and urban planning.

SC67 Use of English, level B2, properly according to the scientific and academic terminology of drawing, construction and architecture areas.

PROGRAMA

The course focuses on the basic knowledge of spatial information for those architects devoted to the professional field of urban planning, either through a free desktop and open source GIS client (QGIS). The contents of this subject have an essentially practical approach, pointing to the domain of the computer-aided skills. Thus, the course is divided into two sections, one for each semester: A first part focused on territorial urban strategies and a second part which urban topics will be studied in the local scale.

Both parts, will be organized in 4 weeks with 4 hours per week/each, distributed by an initial joint session and a student work time with personalized attention. Students must bring their own laptop, in which they will install QGIS software, v3.8.1, free and open source (multiplatform) program. No special requirements on the type of teaching work place have been described, as long as there is a wireless internet connection through the eduroam service.

In the first semester, it will be addressed the basic concepts of GIS to be able to analyze and represent territorial strategies, such as territorial cohesion, the management of infrastructures of mobility, environmental, and urban and rural development. In the second semester, deep insights will be given into methods and measuring techniques in QGIS software. The working urban scale will be the small scale, being able to tackle all the urban variables that take place in the city.

This program is related with the scale and content of the subjects *Urbanismo III* and *Urbanismo IV*, so that the student can apply, in a voluntary way, the knowledge about the QGIS tool and its advantages for working in the urban planning field, in the practical exercise of the both subjects.

CLASSES

Two sections are provided, one per semester: firstly, a section of 16 hours along 4 weeks, and a second one 16 hours along 4 weeks.

SECTION 1. FIRST SEMESTER. Practical classes (2h') / Personal work (2h'). By weeks:

WEEK 1:

- CRS Coordinate Reference Systems – EPSG, ETRS89, UTM
- Searching for .shp data in official webs.



Universidad de Navarra

- Creation of geodatabase and how to organize data effectively
- Symbolology – Labeling
- CADTools
- Map layout – Georeferencing of images, georeferencing autocad projects.

WEEK 2:

- Creating and editing features – Table of attributes, query tools
- SQL – Field calculator, csv and gml files.
- Vector Analysis

WEEK 3:

- Raster Analysis – Raster, Digital Elevation Models (DEM) Spatial operations – Toolbox, topology checker
- Representation GIS projects.

WEEK 4:

- Creating and editing features

MIDTERM WORK- DELIVERY

- The specific conditions of the final work will be detailed throughout the statement.

SECTION 2. SECOND SEMESTER. Practical classes (2h') / Personal work (2h'). By weeks:

WEEK 1:

- Introduction to the second section of the course. Advanced tools.
- Creating and editing features – Advanced tools.
- Spatial operations– Advanced tools

WEEK 2:

- GRASS integration – Raster, Digital Elevation Models (DEM) – Advanced tools
- Remote sensing
- ModelBuilder

WEEK 3:

- PyGIS – Python
- OSMNx
- PostGIS – Spatial Dataset

WEEK 4:

- Spatial analysis related to each study case
- Introduction to “Atlas de Vulnerabilidad”

FINAL WORK -DELIVERY

- The specific conditions of the final work will be detailed throughout the statement



EDUCATIONAL ACTIVITIES

TRAINING ACTIVITY	TEACHING METHODOLOGY	RELATED SKILLS	
Attendance and participation in theoretical face-to-face classes	16 h	Lectures (theoretical classes, seminars, conferences)	GC06, GC07 SC02, SC05, SC06, SC10, SC67
Attendance and participation in practical face-to-face classes	16 h	Practical classes by projects in workshop (individual and group) Critical sessions and analysis of the works	GC06, GC07 SC02, SC05, SC06, SC10, SC67
Direct jobs	14 h	Directed works	BC02, BC04, BC05 GC06, GC07, SC02, SC05, SC06, SC10, SC67
Tutorial	4 h	Tutorials	GC07, SC67
Study and personal work of the student	25 h	Directed works	GC07 SC06, SC10, SC67
TOTAL dedicación:	75 h	= 3 ECTS	

ASSESSMENT



Universidad de Navarra

The evaluation system is continuous, and it's mainly held through a midterm and a final work based on a practical exercise, two partial examination will be held also. Attendance and participation (in practical classes and seminars) are also taken into account.

EVALUATION SYSTEM	PERCENTAGE
Attendance and participation in exhibition classes, practices and masters	10 %
Individual practical work	40 %
Partial exams	50 %

Final results must be 5 over 10, or higher, in order to pass the examination period. This score will be obtained from the mark average of every examination, without prejudice to the fact that the teacher decides to assess – only if it is upward – other circumstances such as progression or an extraordinary high dedication of the student.

Final numerical mark will correspond to the following intervals: from 0 to 4,99, fail; from 5 to 6,99, C; from 7 to 8,99, B; from 9 to 10, A. Honor plates may be granted, according to current academic regulations.

MIDTERM EXAMINATIONS

The first semester will be the **25%** of the final score, as a midterm examination.

The second semester will be the **25%** of the final score, as a midterm examination. And also a final individual work that will mean the **40%** of the final score.

Attendance and participation in classes and the integrated seminar will contribute the remaining **10%**.

In short: [25/ 25/ 40/ 10] = 100% of final score.

Each one of the partial notes will be evaluated numerically from 1 to 10. If plagiarism, misappropriation of similar contents in any work is detected, it will receive the grade of 0. If the case was particularly serious, it could suppose the suspension of the whole subject. Submissions over the deadline (including the different attempts) or that does not meet the requirements of format established in each statement (type or maximum size of file, etc.) will be penalized in each exercise by subtracting 1 point for each breach, cumulative.

Every statement will include a part in ADI, setting a deadline plus a submission deadline a few hours later beyond which the work will not be accepted in the whole ordinary examination period. Do not submit an exercise – even if it is for a technical reason unrelated to the student (except the fall of the ADI service) – it will mean a numerical score of 0 in the respective computation of the partial evaluation of the ordinary examination period.



Universidad
de Navarra

It will be an opportunity for getting better the final mark in May, throughout the improvement of the deliveries done during the course. If necessary, this option will adapt to the situation of every student.

CONVOCATORIA EXTRAORDINARIA

The ordinary examination period will not include any additional evidence to the evaluations described here (except for serious circumstances duly justified, in which case, the repetition of the midterm work will be allowed with a view to the consideration of the score in the ordinary call).

The re-sit examination period has been planned for students who do not pass the examination period.

To overcome it, they must pass an individual test – a practical exam of the contents taught during the course – that will be addressed for that purpose.

HORARIOS DE ATENCIÓN

Dra. Elena Lacilla (mlacilla@unav.es)

- Modulo C
- Horario de tutoria: ask for previously by email

BIBLIOGRAFÍA

BASIC BIBLIOGRAPHY

CORBIN, T. ArcGIS Pro Cookbook. Packt Publishing, 2018. [\[Avaible in the library\]](#)

GORR, W.; KURLAND, K. GIS Tutorial 1 for ArcGIS Pro: A platform workbook. ESRI Press. Redlands, 2017. [\[Avaible in the library\]](#)

GRASER, A. et al. QGIS: Becoming a GIS Power User. Packt Publishing, 2017. [\[Avaible in the library\]](#)

QGIS 3.0 project [\[Electronic resource\]](#)

SUPPLEMENTARY BIBLIOGRAPHY

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Universidad de Navarra

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Instituto Geográfico Nacional (IGN), Ministerio de Fomento. Madrid, 2014.

LAW, Michael. Getting to Know ArcGIS Pro. ESRI Press. Redlands, 2015. [\[Avaible in the library\]](#)

SCHMIDT, Miriam. Esri ArcGIS desktop associate: certification study guide. Esri

Press. Redlands, 2013. [\[Avaible in the library\]](#)

TOMS, Silas. ArcPy and ArcGIS, geospatial analysis with python. Packt Publishing,

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SPECIFIC BIBLIOGRAPHY

PINHO, Paulo; OLIVEIRA, Victor (2009). "Cartographic analysis in urban morphology", In: Environment and Planning B: Planning and Design (36): 107-127.

DOI: 10.1068/b34035. [\[Avaible in the library\]](#)

SERRA, Miguel; PINHO, Paulo (2013). "Tackling the structure of very large spatial systems: Space Syntax and the analysis of metropolitan form", In: Journal of Space Syntax 4, (2): 179-196. [\[Avaible in the library\]](#)

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RESOURCES

- MappingGIS, QGIS Bronze sponsor: <http://mappinggis.com/>
- QGIS: <http://qgis.org/>
- ArcGIS documentation site (ESRI): <http://desktop.arcgis.com/es/documentation/>
- Sistema Nacional de Informação Geográfica (Portugal): <http://snig.dgterritorio.pt/>
- Instituto Geográfico Nacional - IGN (Spain): <http://ign.es/>
- Centro Nacional de Información Geográfica: <http://centrodedescargas.cnig.es/>
- Infraestructura de Datos Espaciales de España (geoportal): <http://www.idee.es/>
- Journal of Space Syntax: <http://joss.bartlett.ucl.ac.uk/>

LINKS AND TUTORIALS



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Access to other geographic information services such as SNIG, SNIT, SIARL and SNIC included.