UNIVERSITAT POLITÈCNICA DE VALÈNCIA

ESCUELA TÉCNICA SUPERIOR DE ARQUITECTURA

I. GENERAL INFORMATION:			
Acronym:	**Course:**		**Code:**
IAR	Introduction to Architecture		13385
			Syllabus:
			178 (2015)
Academic year:	**Semester:**	**Nature:**	**Credits:**
1st	A	Compulsory	4.5 credits = 2.5 (TA) + 2 (PL)
Coordinator:			**Department:**
Aranda Navarro, Fernando			Architectural Composition

II. GENERAL OVERVIEW OF THE SUBJECT:

The syllabus starts with the introduction of the discipline by presenting the context and the teaching objectives. As a result, its field, method and sources are defined. Then it delves into he different historical definitions of architecture, thus preparing the analysis of its key topical concepts. The current social role of architects, their competences and their recent evolution are studied. Possessing some knowledge about architecture and architects, up to the present, allows referencing the key concepts of architecture, its instruments and its means. The theoretical knowledge is accompanied and complemented by practical activities that consist of the "in situ" experience of architecture through guided visits to destinations of general interest for the work of new students.

III. SELECTION AND STRUCTURING OF THE BASIC UNITS:

1. UT.1 THE ARCHITECT
2. UT.2 ARCHITECTURE
3. UT.3 ORDER AND CHAOS
4. UT.4 SPACE AND MOVEMENT
5. UT.5 SHAPE AND ENERGY
6. UT.6 FUNCTION AND USE
7. UT.7 EXPERIENCE IN ARCHITECTURE

ESCOLA TÈCNICA SUPERIOR D'ARQUITECTURA - VALÈNCIA

I. GENERAL INFORMATION:			
Acronym:	**Course:**		**Code:**
MAT1	Mathematics 1		13376
			Syllabus:
			178 (2015)
Academic year:	**Semester:**	**Nature:**	**Credits:**
1st	A-B	Basic training	9.0 credits = 4.5 (TA) + 4.5 (PL)
Coordinator:			**Department:**
Person in charge pending			Applied mathematics

II. GENERAL OVERVIEW OF THE SUBJECT:

Algebra, calculus and differential equations are presented with the following key objectives:

1. Improving the abstraction, analysis, synthesis and critical reasoning ability: approach to models associated to specific problems related to Physics, Construction, Structures, Economy, etc. and obtaining analytical solutions, as the case may be.

2. Improving the numerical understanding and the ability to solve problems: introduction to the calculation of approximate numerical solutions, introduction to computer tools and applied problem solving methods.

The topics to be analysed are as follows: Differential and integral calculus. Differential equations. Vector and matrix analysis. Euclidean space.

III. SELECTION AND STRUCTURING OF THE BASIC UNITS:

1. Approximate calculation of function zeros

1. Graphic study of the roots of a function
2. Isolation of the roots of a function
3. Approximation to the root. Numerical methods

2. Integration

1. Indefinite integrals. Primitives calculation.
2. Definite integrals. Barrow's rule
3. Applications: areas and volumes
4. Numerical integration

3. First order differential equations

1. Linear equations
2. Bernouilli equations
3. Separable variables equations
4. Applications

4. Second order differential equations

1. Second order ordinary linear differential equations with constant coefficients
2. Second order homogeneous linear differential equations. General solution
3. Particular solution of the complete second order differential equation
4. Applications

5. Matrices, vectors and linear equations systems.

1. Gaussian method

2. Matrix inverse. Gauss-Jordan method

6. Euclidean vector space

1. Vector subspaces. Bases
2. Scalar product, standard and angles
3. Orthogonality. Gram-Schmidt method

7. Linear applications

1. Linear applications. Matrix of a linear application
2. Nucleus and image of a linear application

8. Diagonalisation

1. Values and eigenvectors
2. Diagonalisable matrices
3. Diagonalisation of symmetric matrices
4. Conic

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ESCUELA TÉCNICA SUPERIOR DE ARQUITECTURA

I. GENERAL DATA:			
Acronym:	**Subject:**		**Code:**
AFO	Analysis of Architectural Form		13373
			Study Plan: 178 (2015)
Year:	**Semester:**	**Status:**	**Credits:**
1	A-B	Basic training	12 credits = 6 (TA) + 6 (PL)
Course Director:			**Department:**
Llopis Verdú, Jorge			Architectural graphic expression

II. GENERAL DESCRIPTION OF THE SUBJECT:

The subject of Analysis of architectural forms is based on the acquisition of a graphic language to analyse and express the complex phenomena of form generation and architectural spaces. Drawing allows to represent, analyse, interpret, devise and express the configuration of the architectural organism and the laws that make it possible. The expression is adapted to each stage of the ideation process and uses the systems and techniques of representation which are gradually perfected and codified by collective experience, which includes not only the traditional graphic media but also the architectural model as well as computer tools.

III. SELECTION AND STRUCTURING OF THE MAIN UNITS:

1. Introduction to the Analysis of Architectural Forms
2. Methodology of the analysis of architectural forms by the graphic medium
3. Graphic techniques applied to the formal analysis of Architecture
4. Elements of analysis of the architectural organism: Methodology of analysis
5. Complementary techniques of formal analysis: The mock-up and computer techniques
6. Analysis of exemplary architectures by the graphic medium

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ESCUELA TÉCNICA SUPERIOR DE ARQUITECTURA

I. GENERAL INFORMATION:			
Acronym:	**Course:**		**Code:**
PR1	Architectural Projects 1 (Design Studio)		13380
			Syllabus:
			178 (2015)
Academic year:	**Semester:**	**Nature:**	**Credits:**
1st	B	Compulsory	5 credits = 2.5 (TA) + 2.5 (PL)
Coordinator:			**Department:**
Lacalle García, Carlos			ARCHITECTURAL PROJECTS

II. GENERAL OVERVIEW OF THE SUBJECT:

The subject addresses the architectural project from its concept, idea and expression and enables, from a few assumptions and definition of objectives, to organise and develop project proposals that meet certain functional, technical, cultural, aesthetic, and relational requirements with the environment, in the context suggested and from the understanding of the architect's social role and project responsibility.

It will be necessary to determine the tools and procedures for the representation and expression of said proposals throughout the design process, as well as the presentation of the basic criteria on which an architectural project is based.

This subject is taught by the Department of Architectural Projects, whose workshops are responsible for ensuring a structured and complete teaching in the area of knowledge. The following topics will be specifically addressed: The project in history, the project concept, the activities of mankind, the perception of space, architecture and the city: types, systems and processes

III. SELECTION AND STRUCTURING OF THE BASIC UNITS:

1. Concept, idea and expression
2. Physical and cultural environment
3. Activity and function
4. Space and shape
5. Materials and technique

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ESCUELA TÉCNICA SUPERIOR DE ARQUITECTURA

I. GENERAL DATA:			
Acronym:	**Subject:**		**Code:**
DES	Descriptive Geometry		13372
			Study Plan:
			178 (2015)
Year:	**Semester:**	**Status:**	**Credits:**
1	A-B	Basic training	9 credits = 4'5 (TA) + 4'5 (PL)
Course Director:			**Department:**
Higón Calvet, José Luís			Architectural graphic expression

II. GENERAL DESCRIPTION OF THE SUBJECT:

1. Concept of projection. Types and properties.
2. Generalities of the Dihedral System.
3. Fundamentals of the Orthogonal Axonometric System. Orthogonal Axonometric Perspectives.
4. Basics of the Oblique Axonometric System. Oblique Axonometric Perspectives
5. Introduction to Shadow Theory. Shadows of elemental surfaces.
6. Introduction to the Conical System. Conical perspectives of architectural ensembles.
7. Dimensioned system. Geometric principles and grammar of the System.
8. Dimensioned system. Covers, lands and earthworks.
9. Dihedral system. Intersection between planes and lines. Parallelism and perpendicularity.
10. Dihedral system. Movements: plane changes, twists and turns.
11. Dihedral system. Distances and angles.
12. Surface concept. Generation and classification.
13. Polyhedral surfaces. Regular polyhedra, semi-regular and spatial meshes.
14. Radial surfaces: conical and cylindrical.
15. The sphere and its architectural applications.
16. Surfaces of revolution.
17. Surfaced surfaces.
18. Intersection of surfaces. Architectural applications.
19. Geometric solar drying.

For the purposes of the resolution of exercises, both manual and computerised means will be used. The subjects related to the study of surfaces, intersections of the same and shadows will be tackled with software such as Autocad and 3dStudio in three dimensions. Thus, students will complement, in a transversal way, in the second semester, the acquired learning in two dimensions in the subject of Architectural Drawing.

III. SELECTION AND STRUCTURING OF THE MAIN UNITS:

1. Concept of projection. Types and properties.
2. Generalities of the Dihedral System.
3. Fundamentals of the Orthogonal Axonometric System. Orthogonal Axonometric Perspectives.
4. Basics of the Oblique Axonometric System. Oblique Axonometric Perspectives
5. Introduction to Shadow Theory. Shadows of elemental surfaces.
6. Introduction to the Conical System. Conical perspectives of architectural ensembles.
7. Dimensioned system. Geometric principles and grammar of the System.
8. Dimensioned system. Covers, lands and earthworks.
9. Dihedral system. Intersection between planes and lines. Parallelism and perpendicularity.

10. Dihedral system. Movements: plane changes, twists and turns.
11. Dihedral system. Distances and angles.
12. Surface concept. Generation and classification.
13. Polyhedral surfaces. Regular polyhedra, semi-regular and spatial meshes.
14. Radial surfaces: conical and cylindrical.
15. The sphere and its architectural applications.
16. Surfaces of revolution.
17. Surfaced surfaces.
18. Intersection of surfaces. Architectural applications.
19. Geometric solar drying.

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ESCUELA TÉCNICA SUPERIOR DE ARQUITECTURA

I. GENERAL INFORMATION:			
Acronym:	**Course:**		**Code:**
DAR	Architectural Design		13374
			Syllabus:
			178 (2015)
Academic year:	**Semester:**	**Nature:**	**Credits:**
1st	A-B	Basic training	9 credits = 4'5 (TA) + 4'5 (PL)
Coordinator:			**Department:**
Grande Grande, Francisco Antonio			Architectural graphic expression

II. GENERAL OVERVIEW OF THE SUBJECT:

Theoretical knowledge, physical and intellectual skills for the understanding and use of graphic language as a means to represent and expressively communicate the architectural space; the understanding and application of the graphic representation as a form of analysis and recognition of the architectural reality, and as a tool in the processes of architectural devising.

1. Functions, modalities and graphic means of architectural representation.
2. The projection concept. Representation systems.
3. Types of scales: Physical, Relational, Conceptual.
4. Interior representation: Sections and types of sections.
5. Architectural dimensioning
6. Digital representation of architecture.
7. Descriptive representation of architecture.
8. Illustrative representation of architecture.
9. Comprehensive representation of architecture.
10. Territory representation
11. Survey drawing: Introduction to architectural graphic survey

III. SELECTION AND STRUCTURING OF THE BASIC UNITS:

1. Functions, modalities and graphic means of architectural representation.
2. The projection concept. Representation systems.
3. Types of scales: Physical, Relational, Conceptual.
4. Interior representation: Sections and types of sections.
5. Architectural dimensioning
6. Digital representation of architecture.
7. Descriptive representation of architecture.
8. Illustrative representation of architecture.
9. Comprehensive representation of architecture.
10. Territory representation
11. Survey drawing: Introduction to architectural graphic survey

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ESCUELA TÉCNICA SUPERIOR DE ARQUITECTURA

I. GENERAL DATA:			
Acronym:	Subject:		Code:
FIS	Physics for Architecture		13378
Academic Year:			Study Plan:
2015 / 2016			178 (2015)
Year:	Semester:	Status:	Credits:
1	B	Compulsory	7 credits = 4 (TA) + 3 (PL)
Course Director:			Department:
Carrión Mondéjar, Juan Carlos			Applied Physic

II. GENERAL DESCRIPTION OF THE SUBJECT:

The subject aims to contribute mainly to the improvement in the use and thoroughness in the application by the future architect of the basic physical concepts related to the subjects of Calculus of Structures, Construction and Facilities, mainly. The subject also aims that students relate, through the relevant examples and exercises, these physical foundations with their practical application, so that they already feel involved since the beginning of their studies with aspects of their future professional life. To this end, the subject has been structured in the following thematic units:

Theme 1.- Static vector

Topic 2.- Fluid Mechanics

Topic 3.- Mass geometry

Topic 4.- Efforts in isostatic beams

Topic 5.- Electricity and Electromagnetism

III. SELECTION AND STRUCTURING OF THE MAIN UNITS:

1. Static Vector
2. Mass geometry
3. Efforts in isostatic beams
4. Basic Concepts of Electricity and Electromagnetism

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