Year 2024-25

Istituto Europeo di Design
Private Licensed Centre

TEACHING GUIDE FOR

Fundamentals of Design. Analysis

Foundation Course – IED Madrid Diploma Programme

Total Design

Updated on: 1st September 2024

Curso Foundation Course – IED Madrid Diploma Programme
Subject: Fundamentals of Design. Analysis

1. SUBJECT/COURSE IDENTIFIERS

Type	Basic training
Nature	Theoretical-practical course
Specialty/itinerary/style/tool	Total Design
Subject/Field	Fundamentals of Design
Teaching/course period	1st Semester
Number of credits	4 ECTS
Department	Educational Department
Priority/ prerequisites	Without priority
Languages in which the course is taught	English

2. TEACHER IN CHARGE OF THE SUBJECT

Surname & Name	**E-mail**
Ortiz Pérez, Marta	

3. LIST OF LECTURERS & GROUPS THEY TEACH

Surname & Name	**E-mail**	**Groups**

4. COMPETENCIES/SKILLS

Cross-sectorial skills
CT2 Collecting significant information, analysing it, synthesizing and managing it appropriately.
CT3 Solving problems and making decisions in line with the objectives of the work performed.
CT8 Developing ideas and arguments in a reasoned and critical way.
CT9 Being able to integrate adequately into multidisciplinary teams and in diverse cultural contexts.
CT13 Pursuit of excellence and quality in their professional activity.
CT14 Mastering research methodology in the generation/creation of projects, ideas and viable solutions.
CT15 Working autonomously and knowing how to value the importance of initiative and entrepreneurship in professional practice.

General skills
CG2 Mastering the languages and expressive resources of representation and communication.
CG3 Establishing relationships between formal language, symbolic language and specific functionality.
CG11 Communicating ideas and projects to clients, arguing critically, knowing how to evaluate proposals and channelling dialogue.
CG12 Delve deeper into the history and tradition of arts and design.
CG17 Propose, evaluate and develop learning strategies appropriate to the achievement of personal and professional objectives.
CG19 Showing critical capacity and knowing how to propose research strategies.

5. LEARNING ACHIEVEMENTS

- Knowing how to solve the basic elements of form to achieve a specific purpose (shape, size, colour and texture) and space (direction, position, superposition and weight).
- Knowing how to apply the principles of design, attending to both form/shape and its structure, colour, volume, order and articulation in space.
- Knowing how to control and assess the different tools within the fundamentals of design from a multidisciplinary approach.
- Acquiring the skill to articulate basic forms and spaces through different formal operations (repetition, gradation, symmetry, radiation and concentration, etc.).
- Knowing how to use one's critical vision in the analysis of design objects, from multiple formal categories, discretizing its elements, properties and compositional principles (proportion, balance, rhythm, emphasis and contrast, unity and variety, etc.).

6. CONTENTS

Section	Topic/repertoire
I. INTRODUCTION	**Topic 1. Introduction.** 1.1 Objectives. 1.2 Methodology and regulation. 1.3. Importance of analysis, and subsequent synthesis (Analysis & Construction).

II. CATEGORIES OF FORM/SHAPE	**Topic 2. Form and image: Perception.**
	Topic 3. Form and image: Imagination.
	Topic 4. Categories of perception and formal imagination. 4.1 Measurement, Symmetry, Geometry, Rhythm, Chiaroscuro, Transparency, Reflection, Texture, Character, etc. 4.2 Percept and Affect as poles of formal analysis.
	Topic 5. Ways of Looking and Categories of Form.

III. ANALYSIS & CONSTRUCTION	**Topic 6. Construction of Form.** 6.1 Construction & Analysis. 6.2 Formation Strategies. Formal Logic. Morphology and Morphogenesis. 6.3 Formal Operations: Variation, Combination, Mutation.
	Topic 7. Grammars of Form 7.1 The grammar Point / Line / Plane / Volume.
	Topic 8. Point & Line 8.1 The Point as a Formal Atom. 8.2 The Line and its Forming Capacity. 8.3 Linear Germs and Design.
	Topic 9. Curves 9.1 Basic Families. 9.2 Different constructions of the same curve. 9.3 Design with curves. Working logics.
	Topic 10. Angles & Polygons 10.1 Classifications. 10.2 Polygonal Constructions in Nature. 10.3 Constructing with Polygons in Design: Working Logic.
	Topic 11. Grids 11.1 Classifications. 11.2 Grids in Nature. 11.3 Building with Grids in Design: Working Logics.
	Topic 12. Module & Grid 12.1 The Module & Design. 12.2 Modules in Nature. 12.3 Building with Modules based on Grids: Working Logics.

IV. ANALYSIS & CONSTRUCTION II: GRAMMAR OF THE THREE-DIMENSIONAL FORM/SHAPE	**Topic 13. Surfaces, Morphogenesis.** 13.1 Surfaces from flat Grids/Reticles: Origami Tessellation 13.2 Surfaces from Polygons: Polyhedral and Polygonal Meshes. 13.3 Surfaces from Flat Plane: Developable - and Non-Developable Surfaces. 13.4 Classification by number of curvatures: 0, 1 and 2 curvatures. 13.5 Surfaces from Curves: Generatrix-Directrix Surfaces; Revolution Surfaces 13.6 Surfaces from Straight Lines: Ruled Surfaces 13.7 Surfaces from Points: Point Clouds. Design with all these surfaces. Working logics.

V. SYNTHESIS: PROJECTS	**Topic 14. Summary of the topics covered**

7. STUDENTS WORK TIME PLAN/SCHEDULE

Type of Activity	Total hours
Theoretical activities	38,5 hours
Practical activities	19 hours
Other mandatory training activities (conferences, seminars, etc.)	48 hours
Tests	2,5 hours
Student's working hours	24 hours
Internship/work placement preparation	48 hours
Total student's working hours	**180 hours**

8. METHODOLOGY

Theoretical activities	Lectures that will occupy the first part of the session, where the teacher will introduce the theoretical concepts and their analysis, supported by documentary, audiovisual and other required ICTs. During this presentation, the student will be able to ask questions to solve any doubts that may arise. During the second part of the session, discussion topics will be raised, and they will require students' active participation.

Practical activities	Practical exercises inviting students to reflect on their work will be encouraged, as well as reaching conclusions regarding what has been achieved, always favouring the functional learning process that enables for the practical application of the concepts and knowledge acquired.
Other mandatory training activities (conferences, seminars, etc.)	Students will have support from the fashion workshop, digital tools, modelling, Fab Lab and laboratories for the realization of projects and exercises with the support of specialized teachers. Sessions to support the practical classes in which, with a participatory methodology based on self-evaluation and discussion, students can solve doubts and advance in the project with the help of a tutor guide.

9. EVALUATION AND GRADING CRITERIA AND INSTRUMENTS

Work to be assessed:

1. Being able to solve with a specific purpose, the basic elements of form (shape, size, colour and texture) and space (direction, position, superposition and weight).
2. Being able to use the principles of design, taking into account the form as well as its structure, colour, volume, order and articulation in space.
3. Knowing how to handle and evaluate the different tools of the fundamentals of design from a multidisciplinary approach.
4. Acquiring the skill to articulate basic forms and spaces through different formal operations (repetition, gradation, symmetry, radiation and concentration, etc.).
5. Knowing how to apply critical vision in the analysis of a design object from multiple formal categories, discretizing its elements, properties and compositional principles (proportion, balance, rhythm, emphasis and contrast, unity and variety, etc.).

The evaluation assessment must be designed and planned in a manner that integrates it within the teaching/learning training activities.

The assessment of students learning ought to be continuous, personalized and integrative:

- Continuous: in that it is integrated into the teaching-learning process and consequently is not limited by dates or specific situations.
- Personalised: since it must take into account the capacities, skills and the student's attitude. Special attention will be paid to the student's participation in work groups.
- Integrative: in that it requires taking into account the general capacities established for each stage, this will be done through the objectives in the different units and areas.

Students' learning will be assessed in relation to the achievement of the educational objectives that are specified in the course syllabus, and associated to the general and specific objectives, taking as an immediate reference the evaluation criteria established for each learning area.

To assess students learning process we need to:

- Evaluate their curricular competence (abilities and aptitudes).
- Assess the factors that hinder or facilitate good learning.
- Encourage self-evaluation and co-evaluation of students amongst themselves, as a source of critical analysis of their results, to allow for changes in attitude and for their improvement.
- Value the learning context in which the student develops.

9.1. EVALUATION/ASSESSMENT TOOLS

Theoretical activities	Students will be expected to have an active role in the classroom, sharing thoughts and experiences. Mandatory tutorials as a follow-up to exercises.
Practical activities	Projects and works based on the perception and experimentation with the concepts explained in the classroom will be assessed. Students will be encouraged to carry out and develop a specific project where they will develop exercises linked to the subject.
Other mandatory learning activities (conferences, seminars, etc.)	Active attendance to workshops, seminars, exhibitions, conferences or webinars sharing points of view and knowledge with the classroom.

9.2. EVALUATION CRITERIA

Theoretical-practical activities	Active attention and understanding during explanations. Showing initiative to contribute with your own opinions and constructive criticism. Punctuality and quality throughout the research process, in the follow-up of the exercises during tutorials.
Practical activities	The weekly assessment of the practical work will deal with: • The correct practical use of the theoretical tools shown in the classroom. • Careful execution • Crafted conceptualization • Contributions • Punctual handing-in of work

	When the final project is handed in, the following will be assessed: • Punctual handing-in of work in tutorials. • Visual presentation • Oral presentation • Communicative tools used • Contributions
Other mandatory learning activities (lectures, seminars, etc.)	We shall value that the student applies the knowledge acquired in workshops, seminars, expositions, conferences or webinars, to the work and projects of the course.

9.3. GRADING CRITERIA

1. The evaluation system to be used in the subject/course is adapted to the continuous evaluation model.
2. In the continuous evaluation system, class attendance is compulsory, and students must comply with a percentage of activity in the presence of the teacher, which is estimated to be 80%.
3. If the student does not meet the criteria for continuous evaluation, they will be graded in a evaluation process with a loss of continuous evaluation - they will present the projects requested during the course and a specific test for this call, and, their corresponding relative weights are shown in section 9.3.1 and 9.3.2 of this guide.
4. In any case, the student will take an extraordinary exam, the structure, evaluation instrument and grading criteria for said exam is explained in section 9.3.3 of this guide.
5. To pass the subject/course, the student must meet the requirements of the weighting of the evaluation instruments defined in points 9.3.1, 9.3.2 and 9.3.3.3.

9.3.1. Assessment tools for the weighting of grades in the continuous assessment process

Tools	Weighting of grades
Weekly practical exercise presentation	40%
Development and follow-up of final project	50%
Critical and well-argued participation in debates, tutorials and workshops	10%
Total	**100%**

9.3.2. Assessment tools for the weighting of grades in the evaluation process following a loss of continuous assessment/evaluation

Tools	Weighting of grades
Presentation of the exercises and final project.	60%
Presentation of the specific test for the evaluation in case of a loss of continuous evaluation.	40%
Total	**100%**

9.3.3. Assessment tools for the weighting of grades in the extraordinary evaluation process

Tools	Weighting of grades
Presentation of practical exercises and Final Project	60%
Presentation of the specific test for the extraordinary evaluation	40%
Total	**100%**

9.3.4. Weighting of grades in the evaluation process for students with a disability

When the evaluation tools are adapted for this purpose, all the different types of disability must be taken into account.

Tools	Weighting of grades
These shall be determined taking different types of disability into consideration	
Total	**100%**

10. TIME PLANNING OF THE CONTENTS, TEACHING METHODOLOGY AND ASSESSMENT EVALUATIONS

Session	CONTENTS, CONNECTED TEACHING METHODOLOGY, AND EVALUATION TOOLS		Total hours presence-based	Total hours not presence-based
Session 1	**TOPIC 1: Introduction**			
	Theoretical activities	Master class developing the specific agenda of the section (Methodology and contents of the subject).	2,5 hours	
	Evaluation	Proactive attitude in the classroom		
Session 2 y 3	**TOPIC 2: Form & Image: Perception**			
	Theoretical activities	Master class, which will develop, in the first half, the specific topic of the section.	3 hours	
	Practical activities	During the second half of the session, students will have to put into practice the knowledge acquired, through a series of set exercises.	2 hours	4 hours
	Other learning activities	Attendance to the project workshop.	4 hours	
	Evaluation	Proactive attitude in the classroom		

Session 4 y 5	**TOPIC 3: Form & Image: Imagination**			
	Theoretical activities	Master class, which will develop the specific topic of the section	3 hours	
	Practical activities	Producing a case-study. In the second half of the session students will have to put into practice the concepts and knowledge of the subject, through a series of set exercises.	2 hours	4 hours
	Other learning activities	Attendance to the project workshop.	4 hours	
	Evaluation	Proactive attitude in the classroom, sharing knowledge, experiences, and tools provided through attendance to the workshop. Follow-up and revision of the case-study.		

Session 6 y 7	**TOPIC 4: Categories of perception and formal imagination**			
	Theoretical activities	Master class, which will develop the specific topic of the section.	3 hours	
	Practical activities	In the second half of the session students will put into practice their knowledge on the subject, through a series of set exercises.	2 hours	4 hours
	Other learning activities	Attendance to the project workshop.	4 hours	
	Evaluation	Proactive attitude in the classroom, sharing knowledge, experiences, and tools provided through attendance to the workshop. Follow-up and revision of the case-study.		

Session 8	**TOPIC 5: Ways of Looking and Categories of Form**			
	Theoretical activities	Master class, which will develop the specific topic of the section. Compulsory Tutorials.	2,5 hours	
	Practical activities	Introduction to the project.		4 hours
	Other learning activities	Attendance to the project workshop.	4 hours	
	Evaluation	Proactive attitude in the classroom, sharing knowledge, experiences, and tools provided through attendance to the workshop. Follow-up and revision of the case-study.		

Session 9 y 10	**TOPIC 6: Construction of the Form/Shape**			
	Theoretical activities	Master class, which will develop the specific topic of the section. The teacher will display documents and images and analyse them using the necessary ICTs.	3 hours	
	Practical activities	Producing a case-study. In the second half of the session students will put into practice their knowledge on the subject, through a series of set exercises. Preparing a Final Project.	2 hours	4 hours
	Other learning activities	Attendance to the project workshop.	8 hours	
	Evaluation	Proactive attitude in the classroom, sharing knowledge, experiences, and tools provided through attendance to the workshop. Follow-up and revision of the case-study.		

Session 11 y 12	**TOPIC 7: Grammars of Form. The Dot/Line/Plane/Volume.**			
	Theoretical activities	Master class, which will develop the specific topic of the section. The teacher will display documents and images and analyse them using the necessary ICTs. Mandatory Tutorial.	3 hours	
	Practical activities	Preparing the internship work experience. In the second half of the session students will put into practice their knowledge on the subject, through a series of set exercises. Developing Final Project.	2 hours	4 hours
	Other learning activities	Attendance to the project workshop.	8 hours	
	Evaluation	Proactive attitude in the classroom, sharing knowledge, experiences, and tools provided through attendance to the workshop. Follow-up and revision of the case-study.		

Session 13 y 14	**TOPIC 8: Dot & Line**			
	Theoretical activities	Master class, which will develop the specific topic of the section. The teacher will display documents and images and analyse them using the necessary ICTs. Mandatory Tutorial.	3 hours	
	Practical activities	Preparing a practical case study. In the second half of the session students will put into practice their knowledge on the subject, through a series of set exercises. Preparing the Project.	2 hours	4 hours
	Other learning activities	Attendance to the project workshop.	4 hours	

	Evaluation	Proactive attitude in the classroom, sharing knowledge, experiences, and tools provided through attendance to the workshop. Follow-up and revision of the case-study.		

Session 15	**TOPIC 9: Curves**			
	Theoretical activities	Master class, which will develop the specific topic of the section. The teacher will display documents and images and analyse them using the necessary ICTs.	1,5 hours	
	Practical activities	Preparing a practical case study. In the second half of the session students will put into practice their knowledge on the subject, through a series of set exercises. Preparing the Project.	1 hour	4 hours
	Other learning activities	Attendance to the project workshop.	4 hours	
	Evaluation	Proactive attitude in the classroom, sharing knowledge, experiences, and tools provided through attendance to the workshop. Follow-up and revision of the case-study.		

Session 16	**TOPIC 10: Angles & Polygons**			
	Theoretical activities	Master class, which will develop the specific topic of the section.	2,5 hours	
	Practical activities	Students will put into practice their knowledge on the subject, through a series of set exercises.		4 hours
	Other learning activities	Attendance to the project workshop.	4 hours	
	Evaluation	Proactive attitude in the classroom, sharing knowledge, experiences, and tools provided through attendance to the workshop. Follow-up and revision of the case-study.		

Session 17	**TOPIC 11: Grids – Reticules**			
	Theoretical activities	Master class, which will develop the specific topic of the section. The teacher will display documents and images and analyse them using the necessary ICTs.	2,5 hours	
	Practical activities	Students will put into practice their knowledge on the subject, through a series of set exercises.		4 hours
	Other learning activities	Attendance to the project workshop.	4 hours	
	Evaluation	Proactive attitude in the classroom, sharing knowledge, experiences, and tools provided through attendance to the workshop. Follow-up and revision of the case-study.		

Session 18	**TOPIC 12: The Module & The Grid**			
	Theoretical activities	Master class, which will develop the specific topic of the section. The teacher will display documents and images and analyse them using the necessary ICTs.	2,5 hours	
	Practical activities	Students will put into practice their knowledge on the subject, through a series of set exercises.		4 hours
	Evaluation	Proactive attitude in the classroom, sharing knowledge, experiences, and tools provided through attendance to the workshop. Follow-up and revision of the case-study.		
Session 19 y 20	**TOPIC 13: Surfaces and Design. Possibilities depending on morphogenesis.**			
	Theoretical activities	Master class, which will develop the specific topic of the section (Feedback on the subject). The teacher will display documents and images and analyse them using the necessary ICTs.	5 hours	
	Practical activities	Developing the Project.		4 hours
	Evaluation	Proactive attitude in the classroom. Follow-up of the case-study.		
Session 21	**Project Completion**			
	Theoretical activities	Master classes that will develop the practical cases that will be developed in the sessions.	1,5 hours	
	Practical activities	Developing the case-study. Project.	5,5 hours	
	Evaluation	Proactive attitude in the classroom. Follow-up and revision of the practical case study.		
Session 22	**Evaluación Convocatoria Ordinaria**			
	Practical activities	**Continuous Evaluation:** Project & result evaluation **Evaluation following a loss of continuous evaluation/assessment:** The evaluation will be based on projects and results, as well as the specific test.	2,5 hours	
	Evaluation			

Session 23	**Comments on the Final Results**			
	Evaluation	Assessment, comments and information on the results obtained in projects and exercises.	2,5 hours	

11. TEACHING RESOURCES AND MATERIALS

11.1. General Bibliography

Title	Paul Klee notebooks vol. 1 (The thinking eye) y vol. 2 (The nature of nature)
Author	Paul Klee. Jürg Spiller (editor)
Publisher	Lund Humphries

Title	Form
Author	Frei Otto
Publisher	Ed IL, Stuttgart

Title	Powers of ten – English edition (Potencias de 10 – Spanish edition).
Author	Eames, Charles y Ray
Publisher	Editorial Prensa Científica

Title	Design and Form
Author	Itten
Publisher	Lund Humphries

Title	The New Vision: fundamentals of Bauhaus design, painting, sculpture, and architecture. Dover. - (La nueva visión – Spanish edition).
Author	Moholy-Nagy
Publisher	Infinito

Title	Signs and Symbols: Their Design and Meaning - (English edition). Signos, Símbolos, Marcas, Señales – Spanish edition.
Author	Frutiger
Publisher	Gustavo Gili

Title	Point and Line on the Plane – English edition. Punto y línea sobre el plano – Spanish edition.
Author	Kandinsky
Editorial	Labor

Title	Notes on the synthesis of form- English edition
Author	Alexander
Publisher	Harvard University Press

11.2. Additional bibliography

Title	Principles of Form and Design – English edition. Fundamentos del diseño (Spanish edition).
Author	Wong, Wucius
Publisher	Gustavo Gili

Title	De la Medida (Spanish edition)
Author	Durero
Publisher	Akal

Title	The Theory of Colours - English edition. Teoría de la naturaleza (Spanish edition). “Zur Farbenlehre” Original title in German.
Author	Goethe
Publisher	Tecnos

Title	Signs and Symbols: Their Design and Meaning - (English edition). Signos, Símbolos, Marcas, Señales (Spanish edition).
Author	Frutiger
Publisher	Gustavo Gili

Title	Notebooks I & II
Author	Leonardo
Publisher	Dover

Title	On Growth and Form- English edition. Sobre el crecimiento y la forma (Spanish edition).
Author	D’Arcy Thompson
Publisher	Cambridge University Press

Title	Design and Visual Communication -English edition. Diseño y comunicación visual (Spanish edition).
Author	Munari, Bruno
Publisher	Gustavo Gili

Title	Language of vision – English edition. El lenguaje de la vision (Spanish edition).
Author	Kepes, Gyorgy
Publisher	Infinito

Title	How are objects born? – English edition. ¿Cómo nacen los objetos? Apuntes para una metodología proyectual (Spanish edition).
Author	Munari, Bruno
Publisher	Gustavo Gili

Title	Architecture: Form, Space & Order - English edition. Arquitectura. Forma, espacio y orden (Spanish edition).
Author	Francis D. K. Ching
Publisher	Gustavo Gili

11.3. Websites of interest

Klee	http://www.kleegestaltungslehre.zpk.org/ee/ZPK/Archiv/2011/01/25/00001/
Universes & form	https://www.nikon.com/about/sp/universcale/