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Educational Outcomes of Cross-Course Learning in Interior Architecture

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Abstract. In order to implement the concept of Project-Based Learning within the bachelor's program in Furniture and Interior Design (FID) at the Faculty of Architecture and Urban Planning, Politehnica University of Timișoara (FAUT), the curricular structure was designed to support the design process in a logical and progressive manner over the three years of study. The disciplines associated with design are organized into three categories, corresponding to the fundamental components of design: artistic, functional, and technical. Starting from the premise that design belongs to the field of arts, the first year is predominantly conceptual and artistic, while gradually introducing elements related to graphic representation, materials, construction techniques, and ergonomic principles. The second year maintains the artistic component—supported by the Form Study Studio and the Stylistics course—but places greater emphasis on the functional aspects of space and furniture. At the same time, technical knowledge diversifies to include digital representation, constructability, and finishes. The third year shifts its focus toward the technical detailing of the spatial and formal concept, in close correlation with complementary disciplines from both the humanities and engineering domains. This progression aims to prepare students for the diploma project, for continuing their studies through a master's program in interior architecture, and for professional practice. This paper details the way in which the disciplines are correlated during the first year of study and highlights how they contribute to the acquisition and experimentation of knowledge within the design studio, considered the core subject of this educational model. Furthermore, the study presents strong arguments for the effectiveness of this type of curricular organization, through the increased applicability of theoretical knowledge and the development of transversal skills. Additionally, the coherent integration of disciplines around the design project enhances student engagement and interest, increasing the attractiveness of the program and reinforcing long-term motivation.

Keywords: Project based learning; interior architecture and furniture design; curricular organization; visual language; synthesis; compositional concept; cross-course learning; educational outcomes

INTRODUCTION

One of the fundamental priorities in academic education in the field of interior design is the development of skills specific to the field through appropriate pedagogical methods, along with the formation of the ability to make coherent connections between knowledge. The formation and development of the synthesis capacity plays an important role in creating innovative compositional design concepts, correctly structured and providing an adequate response to specific contexts in the field of interior architecture and furniture. Applying the principle of information synthesis, the hypothesis was considered that, for students, a good way to assimilate the acquired knowledge is to correlate the information received in various subjects within a semester, as well as to correlate the tasks in the practical activities.

The method applied in the first year of study generated very good results especially in the main subjects, Design 1 and Design 2. Due to the fact that the subjects studied are very different, it was necessary to find a unifying binder. In this approach, the semester project was chosen as the main element and most of the assignments were oriented towards solving requirements within the project.

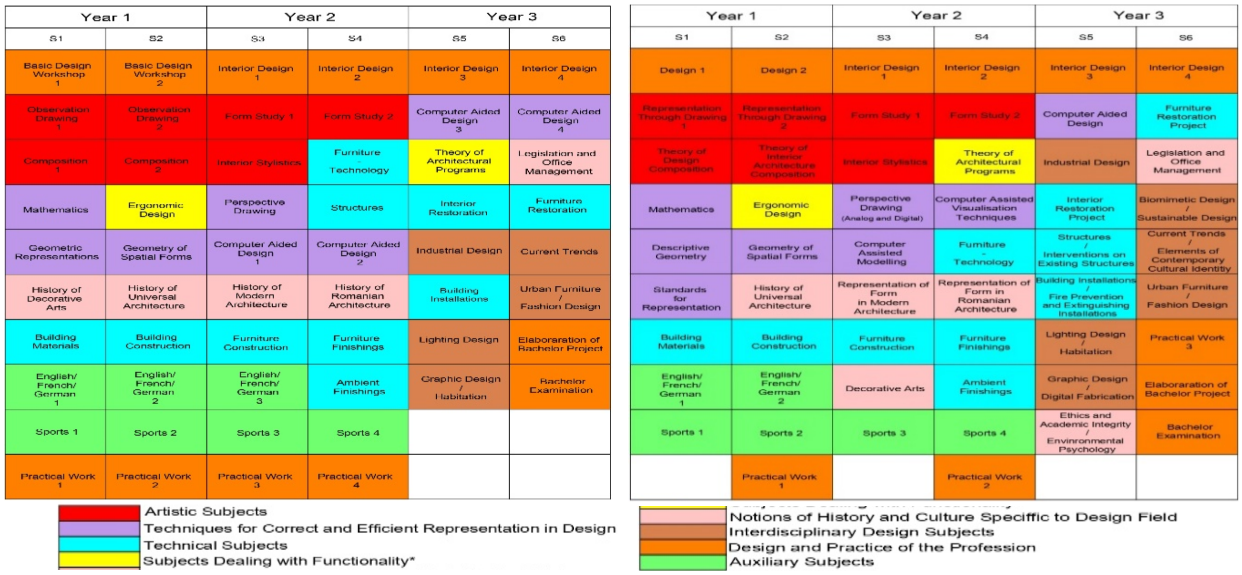
The conclusions of this study highlight that focusing the subjects studied within a semester, around the main subject - Design, has positive effects on students in acquiring the ability to integrate and synthesize the assimilated information. This conclusion is also underlined by the results obtained from the questionnaire applied both to students who benefited from this new teaching methodology focused on correlating subjects and contents and to students from previous years, in order to highlight the benefits of the new learning direction.

GENERAL CONTEXT, BACHELOR'S DEGREE IN FURNITURE AND INTERIOR DESIGN, CURRICULUM UPDATE

The current correlation of the contents of the subjects from the 1st year of the Furniture and Interior Design (FID) specialization, together with their phasing according to the requirements of the main subject - Design, represents the response to the idea of project-based learning [1,2], implemented in a systematized manner within the Faculty of Architecture and Urban Planning from Timisoara (FAUT). The process within FID began with the 2021-2022 academic year and has diversified along the way, an increasing number of subjects correlating with the immediate requirements of the main subject, during the semester. It is obvious that not all of the information can immediately serve the requirements of Design, some requiring sedimentation and having applicability in the medium term (in the immediate following semester or over two semesters) or long term, but a significant percentage (more than 50%) is discharged into the basic subject during the current semester. The Gantt Chart created before the start of the current academic year (2024-2025) aimed, in addition to the visible correlation of the subject contents in all years of study, to "gravitate" them in the immediate proximity of the design and, at the same time, to avoid overloading students with other applied activities during the teaching periods of the core subject. The presentation in this article captures a moment of refining the process, based on the accumulated experience, under the impetus of the intention of systematized generalization of the process within FAUT.

Compared to the previous situation, starting with the 2021-2022 academic year, the curriculum has undergone three types of changes:

- New subjects appeared (Biomimetic Design/Sustainable Design, Digital fabrication, Elements of Contemporary Cultural Identitiy, Interventions on Existing Structures), in year 3, due to the need to update the curricula to the new trends and realities of contemporaneity, but also Standards for Representation, dedicated to correct and efficient representation in design, in the first semester of year 1, thus reorienting the course related to the Design 1 subject from representation issues to design-specific tasks, related to functionality and sizing. The emergence of new subjects was possible by transforming existing mandatory subjects into optional subjects, in tandem with the new ones and by permuting some from one semester to another, in a more natural sequence.
- Some existing subjects have changed their name and content, depending on their increased customization for the design component (Theory of Design Composition, Theory of Interior Architecture Composition, Interior Restoration Project, Furniture Restoration Project) related to form (Representation of Form in Modern Architecture, Representation of Form in Romanian Architecture) or to define more precisely the specific knowledge progressively accumulated, in the case of those involving the use of the computer.
- The content of the subjects has been reorganized in such a way that there are effective correlations between the notions taught in different subjects and, together, to download, as much as possible, information necessary for the project in the current semester, while avoiding overloading students by duplicating different applied activities from those in the main subject.



Year 1		Year 2		Year 3	
S1	S2	S3	S4	S5	S6
Basic Design Workshop 1	Basic Design Workshop 2	Interior Design 1	Interior Design 2	Interior Design 3	Interior Design 4
Observation Drawing 1	Observation Drawing 2	Form Study 1	Form Study 2	Computer Aided Design 3	Computer Aided Design 4
Composition 1	Composition 2	Interior Stylistics	Furniture - Technology	Theory of Architectural Programs	Legislation and Office Management
Mathematics	Ergonomic Design	Perspective Drawing	Structures	Interior Restoration	Furniture Restoration
Geometric Representations	Geometry of Spatial Forms	Computer Aided Design 1	Computer Aided Design 2	Industrial Design	Current Trends
History of Decorative Arts	History of Universal Architecture	History of Modern Architecture	History of Romanian Architecture	Building Installations	Urban Furniture / Fashion Design
Building Materials	Building Construction	Furniture Construction	Furniture Finishings	Lighting Design	Elaboraration of Bachelor Project
English/ French/ German 1	English/ French/ German 2	English/ French/ German 3	Ambient Finishings	Graphic Design / Habitation	Bachelor Examination
Sports 1	Sports 2	Sports 3	Sports 4		
Practical Work 1	Practical Work 2	Practical Work 3	Practical Work 4		

Year 1		Year 2		Year 3	
S1	S2	S3	S4	S5	S6
Design 1	Design 2	Interior Design 1	Interior Design 2	Interior Design 3	Interior Design 4
Representation Through Drawing 1	Representation Through Drawing 2	Form Study 1	Form Study 2	Computer Aided Design	Furniture Restoration Project
Theory of Design Composition	Theory of Interior Architecture Composition	Interior Stylistics	Theory of Architectural Programs	Industrial Design	Legislation and Office Management
Mathematics	Ergonomic Design	Perspective Drawing (Analog and Digital)	Computer Assisted Visualisation Techniques	Interior Restoration Project	Biomimetic Design / Sustainable Design
Descriptive Geometry	Geometry of Spatial Forms	Computer Assisted Modelling	Furniture - Technology	Structures / Interventions on Existing Structures	Current Trends / Elements of Contemporary Cultural Identitiy
Standards for Representation	History of Universal Architecture	Representation of Form in Modern Architecture	Representation of Form in Romanian Architecture	Building Installations / Fire Prevention and Extinguishing Installations	Urban Furniture / Fashion Design
Building Materials	Building Construction	Furniture Construction	Furniture Finishings	Lighting Design / Habitation	Practical Work 3
English/ French/ German 1	English/ French/ German 2	Decorative Arts	Ambient Finishings	Graphic Design / Digital Fabrication	Elaboraration of Bachelor Project
Sports 1	Sports 2	Sports 3	Sports 4	Ethics and Academic Integrity / Envinronmental Psychology	Bachelor Examination
	Practical Work 1		Practical Work 2		

FIGURE 1. Comparison between the initial curriculum (left) and the current one (right) [3].

Figure 1 illustrates the disciplinary trunks distributed over the three years of the bachelor's program. These are: Artistic Subjects, Techniques for Correct and Efficient Representation in Design, Technical Subjects, Subjects Dealing with Functionality, Notions of History and Culture Specific to the Design Field, Interdisciplinary Design Subjects, Design and Practice of the Profession, and Auxiliary Subjects. *Notions related to functionality are also gradually introduced in the Design and Interior Design courses.

This path of university education gradually transformed from what we might call a classic system, with disciplines well-defined for a specific professional aspect, into an integrative educational system. The results obtained in the initial system, though qualitative for each individual subject, were not reflected directly and immediately in the core Design subject; even though students gradually assimilated information, they only managed to achieve a coherent synthesis of it during their final thesis project, at the end of the 3rd year. Through this new concept of integrative education, we aimed to correlate theoretical notions with practical tasks and to connect the transition from one subject to another in a more fluid way as it can be seen in Figure 2. Thus, the small projects from different seminars are directly linked to the major semester Design project. It was observed that through this *sui-generis* holographic approach, where disciplines are found in a certain proportion within each other, the results obtained were certainly better. Semester projects have become a synthesis of all subjects studied from the first year, first semester.

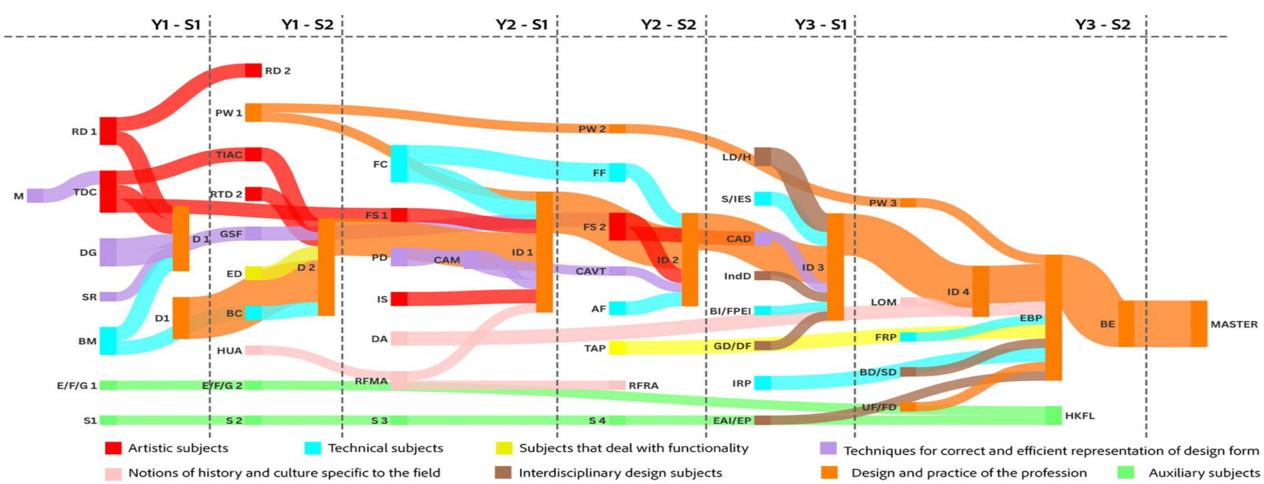


FIGURE 2. Correlation of subjects and gradual accumulation of information throughout the years of study [3].

Figure 2 graphically presents this fusion of study subjects, the information acquired by students, and the intimately correlated application requirements. By implementing this new integrative education concept, students were able to provide innovative and aesthetically coherent answers, transitioning from a thematic study system to one that synthesizes multiple, interrelated themes. The results obtained both in the study themes completed in seminars and in the semester project were evidently improved. This blend of information between subjects, as well as the reflection of secondary subjects within the core subject (which involves the completion of the Design or Interior Design project), has crystallized into an integrative system. This system ensures that each course and seminar is reflected to a certain extent in the main subject, and this one, in turn, is reflected in all others, resulting, by analogy, in what we can call a pluridisciplinary holographic system, an approach that involves multiple distinct subjects.

Although the study highlights these results only for the first year of the Furniture and Interior Design specialization within the Faculty of Architecture and Urban Planning in Timișoara, this approach has been implemented across the entire Furniture and Interior Design specialization.

FIRST YEAR OF FID. CONNECTIONS BETWEEN SUBJECTS AND THEIR CONVERGENCE TOWARDS DESIGN

The correlation of the contents of the subjects from the first year of study during a semester and between the two semesters, together with the direct service of the needs of the main subject - Design, are part of a strategy that targets the entire bachelor's degree cycle in Furniture and Interior Design, without neglecting the necessary contribution of long-term information, synthesized in the bachelor's thesis and then used in the practice of the profession or in a master's degree dedicated to interior architecture.

Although all subjects provide knowledge necessary for design, not all of this information has immediate applicability in the semester project, some of it being useful for other subjects in the current semester, for other subsequent courses and projects located in the next semester or even next year as it can be seen in Figure 2. This is natural, as long as the entire structure is concerted, and the teacher specifies to the students the purpose and usefulness of the information when it is issued and at the same time, its provenance when it is used later. However, the higher the percentage of notions used immediately, the lower the risk of it being lost. The convergence of information towards the Design subject becomes beneficial because, given its predominantly applicative character, students learn by doing, experimenting with theoretical notions through a practical process.

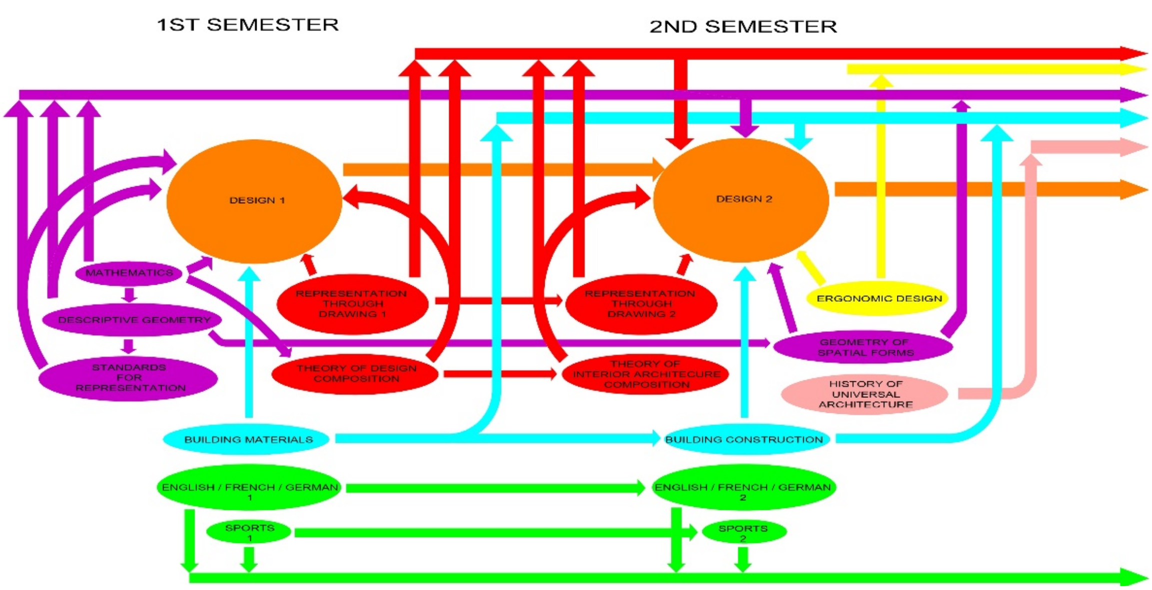


FIGURE 3. Correlation of subjects and their gradual convergence towards Design in the first year. [3]

Before presenting how certain subjects directly serve the main subject of Design, in a synchronized manner with its work stages and assignments, a brief presentation of the general relationships between them is necessary.

The new course and seminar in Mathematics, which traditionally would fall into the category of "core subjects" or "general culture", in its revised version, focuses initially on geometric constructions, useful for Descriptive Geometry and Design, and then on numerical ratios and geometry that contribute to the structuring of form in the idea of its correct management to achieve certain desires related to harmony (proportion systems related to rational numbers, the Fibonacci Series, the golden section, multiplication by $\sqrt{2}$, etc.), in-depth notions in the Theory of Design Composition and the Theory of Interior Architecture Composition.

Descriptive Geometry supports, in addition to the Standard Representation and Design subjects, the Geometry of Spatial Forms in the second semester.

The Building Materials course is absolutely necessary for their correct use in the Design project and naturally precedes the Building Construction course in semester 2, the same professor being the titular of both. The articulation of materials between them is studied from an aesthetic point of view in the Theory of Design Composition, and the subtraction method – as a process of modeling the design form – is experimented with through a study model in Building Materials.

Representation through Drawing is connected in both semesters with Design, by the same titular teacher, a graduate of a high school of fine arts. In addition to the specific notions of artistic representation, within the subject Representation through Drawing the final posters from Design 1 and Design 2 are elaborated.

The subjects most closely connected with Design are the Theory of Design Composition (TDC), the Theory of Interior Architecture Composition (TIAC) and Ergonomics, both through the specific notions delivered and through their phasing in close interdependence with the requirements and assignments of the main subject. The details of the direct collaboration between TDC and Design 1 will be made after a brief statement of the theme of Design 1, followed by the description of the collaboration between TIAC and Ergonomics with Design 2.

Design 1 Project Theme Description

As the first year of study in the Furniture and Interior Design specialization is intended to be predominantly conceptual-artistic, the first-semester project aims to develop students' creative abilities, aligning with the strategy of progressive accumulation of project notions throughout the three years of the bachelor's program. Creativity is encouraged, in the context of progressively acquiring, accumulating, and experimenting with elements of visual language grammar, insisting on the cognitive component, through the conscious application of compositional principles and means specific to the field of abstract arts. The project required the creation of a complex spatial composition, featuring relaxation, exhibition, and creative areas, highlighted through mobile elements and architectural finishes. Is is communicated to students in stages, divided into three main parts.

The **first part** of the assignment, carried out over 5 weeks – Weeks 2 to 6, provides the plan of a single room, in which the integration of a relaxation, exhibition, or creation area for a visual artist is required, alongside a modular ensemble of seven seating places, configured in a spatial composition with one or two focal points. In addition, compositional attention will be focused on a complete intervention on the floor plan, ceiling, and the "blank" wall – an empty white background.

The **second part** of the assignment takes place over 4 weeks – Weeks 7 to 10, during which the plan previously given to the students is completed with an adjacent day area and an office space. The detailed and contrasting psychological profiles of the beneficiaries are integrated: she – an extroverted visual artist, passionate about avant-garde artistic creation; he – an introverted, neo-expressionist poet.

The composition of the artist's room will remain unchanged in its initial perimeter, but the rest of the space will be composed in such a way as to accommodate:

- a common library area for the 2 artists but occasionally accessible to family guests
- the office – the poet's creative space
- a "buffer space" connecting to the hall of the house

Taking into account the notions of defining space with vertical elements and spatial dynamics learned in the "Theory of Design Composition" course, it is required to create a compartmentalization with flat vertical elements (solid wall, with gaps, massive, excavated, skeletal, network, translucent, transparent), and/or linear (pillars, bars, etc.), whose materiality should support from a gestalt point of view the characteristics of:

- extrovert (artist's room),
- semi-public/semi-private (common area, buffer space),
- introvert (poet's room)

The location and the dimensioning of the vertical elements will be done after deciphering the structuring rules of the compositional system of the house's planimetry.

Horizontal flat elements (false ceilings) will also be inserted, at different levels, depending on the desired state for the respective space, in correlation with the upper level of the perimeter glazing and with the position and configuration of the new compartments.

The common space has the main function of a library. In this space, family members relax by reading, drinking tea, coffee or wine sometimes alone, usually together or less often with friends (they 2 + max 6 people). Thus, the place(s) intended for the book stock and a mini-bar will be foreseen from this phase. Locally, the floor of this space can be perforated to create a zenithal skylight.

The **last part**, carried out over 4 weeks (Weeks 11 to 14), concerns the detailing of a multifunctional furniture object, extracted from the arrangement proposed by the students. The exercise is based on the notions of modular composition, addition/subtraction, rhythm.

The ensemble will be positioned on one of the existing walls of the house or on a new one (between the common space and the artist's room, between the common space and the poet's office, etc.). Its Materiality is at the student's choice. If necessary, the complex/multifunctional piece of furniture can completely replace one of the proposed walls.

Connections Between Theory of Design Composition and Design 1 Subjects

The general objectives of the Theory of Design Composition subject are to understand the fundamental concepts specific to composition, master the grammar of visual language, develop a plastic vocabulary for communication, comprehend the design product as a synthesis of articulated and concerted voluntary processes, and appropriately utilize these concepts in future works and projects. To understand how visual and spatial configuration influences human sensory and psychological perceptions, the grammar of visual language, through morphology and syntax, is experimented with through specific seminar topics.

To support the activities for Design 1, the content taught and the additional emphasis placed on certain notions have been particularized and even locally modified. The order of teaching and experimentation in seminar activities has been partially changed according to the specific requirements of the work stages in the main subject, to serve in advance or in parallel with their smooth running, without, however, diminishing the general objectives established for the medium and long term.

At the same time, the process also worked in reverse, in that the design project topic for Design 1—its requirements, phasing, and establishment of performance criteria—has been prepared, starting from the 2021-2022 academic year, together with the holder of the Theory of Design Composition course.

During the first 6 weeks, preceding the delivery of the first project phase, the first new notions, predominantly from the theory of visual arts, are de-abstracted both through intuitive seminar themes and through their direct application in the semester project. In the first week, students learn that visual composition refers to two seemingly distinct things: the organization of elements within a "contour" and the creation, structuring, construction, and modeling of form [4]. Since the objects in the project are placed within a given contour, they learn that the shape of the frame can generate a (virtual) system of axes and regulatory paths, according to which the centers of interest will be positioned. This is the so-called "compositional framework," invisible but conferring rigor to the composition. The proportion of the frame—the room in the project—is chosen from the beginning so that the ratio between the sides is harmonious. With the possibility of applying to project requirements regarding the room's centers of interest and the static or dynamic nature of the composition, the seminar topics deal with the occupying the compositional space - dynamic composition, with 2 centers of interest and with the rectangular grid - static, closed, symmetrical composition.

The fourth lecture, "Compositional Medium & Language Elements," introduces concepts of expression and materiality for managing the project's floor, ceiling, and background wall.

In the 5th week, the "Gestalt Composition" lecture and seminar (using squares to convey order, tension, crowding, movement, playfulness, or comfort) precede the second design theme, which defines beneficiary personality traits and the introvert-extrovert dichotomy.

In Week 6, coinciding with the launch of the extended design project, the "Theory of Design Composition" class focuses on defining and dynamically exploring interior compositional space. Drawing on Ching's *Form, Space and Order,* [5] this lecture addresses both visual and kinesthetic spatial perception, illustrating principles like opening placement and zenithal light. Subsequent lectures delineate local inter-elemental relationships (juxtaposition, superimposition, interference) concerning object interaction and defining spatial boundaries. The articulation lecture expands on large-scale spatial connections [6] and intermediate-to-small-scale material articulation. Concurrently, a seminar on juxtaposition, superimposition, and interference tasks students with generating Gestalt compositions to evoke specific spatial qualities.

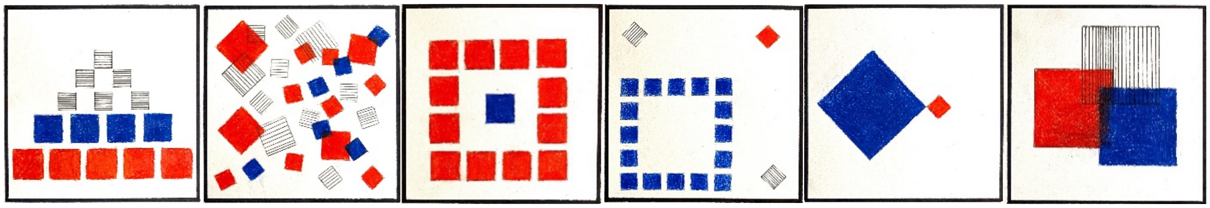


FIGURE 4. Gestalt composition (calm – agitation – inclusion – exclusion – conflict - reconciliation) [7]

The presentation of the divisional system of musical durations suggests a logical and efficient model for managing the proportion of spaces and elements by referencing a dimensional module.

The lecture on tensorial composition procedures addresses methods for structuring and sculpturally modeling form in design. This, along with the lecture on additions and subtractions, precedes the launch of the project's third stage.

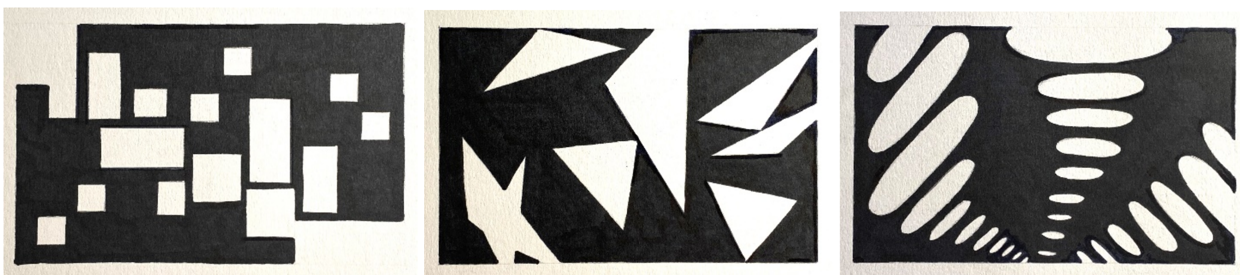


FIGURE 5. Subtractions from Solid [7]

The concluding lectures on rhythm revisit concepts related to proportioning systems, modularity, hierarchies, positive/negative space, local contrasts regarding dimension, form, position, materiality. These concepts are directly applicable to the multifunctional sculptural furniture piece in the Design 1 project, as shown in the Figure 6.

FIGURE 6. Reflections of Theory of Design Composition, Standards of Representation and Representation Through Drawing 1 classes in Design 1 projects [7]

Connections Between Theory of Interior Architecture Composition, Ergonomic Design and Design 2 Subjects

"**Design 2**" is a studio-type class that deepens previously acquired knowledge by applying it to real-world interventions in existing buildings. The project serves diverse beneficiaries based on the theme, location, and functional necessities, requiring the integration of living spaces with work or hobby areas. The project is divided into three main stages that follow a gradual development from general study to detailed interior design.The first stage, carried out over 3 weeks (W1–W3), involves creating a general design study, selecting a concept, and defining a functional layout. The second stage continues over 8 weeks (W4–W11) and focuses on the functional organization of the space and its relationship with the exterior, including both semi-public and private access. The final stage covers the last 3 weeks of the semester (W12–W14), emphasizing the design and detailing of a multifunctional piece of furniture to be integrated into the previously designed space, as well as the creation of a scale model.

At the **Theory of Interior Architecture** classes, students analyze elements such as shape, materiality, color, light, and rhythm, applying concepts such as overlapping, proportion, juxtaposition, scale, and transparency in tridimensional practical exercises, directly connected to the Design 2 student projects. At the seminar, they create quick sketch studies (croquis) of two compositional variants for the same space, practicing creativity and adaptability as in 'Figure 7'. The goal is to stimulate innovative and conceptual thinking, resulting in more complex and coherent projects.

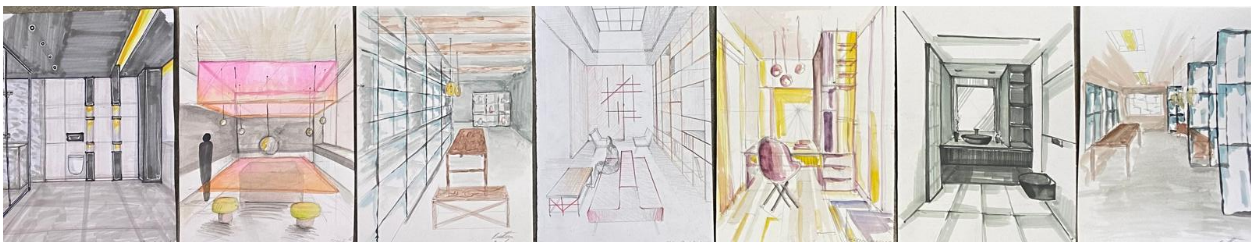


FIGURE 7. Sketch studies for Design 2 projects [7].

The **Ergonomic Design** course complements the Design 2 project by integrating functional, aesthetic, and user-centered principles into interior design.

While interior design focuses on aesthetics, spatial organization and visual identity, ergonomic design ensures that these environments meet users' physical and psychological needs in order to enhance comfort, safety, and efficiency in use. Their integration is essential in furniture layout, material choices, lighting, and circulation flows. A key example is the design of a multifunctional furniture and a storefront display, where ergonomic criteria such as visibility, accessibility, and lighting were refined through cross-disciplinary input, implemented within the interior design project. This collaboration highlights how ergonomic design provides the functional foundation for spatial concepts, enhancing both usability and aesthetic quality.

Integrating ergonomic design into the interior design project helps optimize the studied space. The common study assignment is the design of a multifunctional furniture detail proposed in the interior design project. This collaboration between the two disciplines is also essential in current projects, where the emphasis is increasingly on sustainability, inclusivity, and health. Thus, as seen in figure 8, we can conclude that ergonomic design acts as a functional foundation for the interior design project, providing the necessary framework for developing spatial solutions that are not only aesthetically pleasing but also efficient in relation to the actual needs of users.

FIGURE 8. Integrating ergonomic design into the interior design project (Design 2 and Ergonomic Design) [7].

An example of how this collaboration functioned was applied to the design of the storefront display from the Design 2 project theme, with emphasis on lighting, materiality, the ergonomic positioning of the exhibits in relation to the user, graphic text, advertisements, and more. Although the design of the display was one of the elements students were required to present for their Design 2 project, the aesthetic and ergonomic aspects of the relationship between the commercial space and the exterior were addressed in depth only in the Ergonomic Design assignment, where the focus was solely on this topic. This serves as a simple and effective example of beneficial cross-disciplinary integration, with clearly visible results.

FIGURE 9. Correlation between Design 2 (left image, where the storefront proposal is presented as a sketch or conceptual idea) and Ergonomic Design (right images), which shows a significantly higher level of detail [7].

The ergonomic design for the storefront focuses on lighting conditions (day/night scenarios) and also incorporates elements from Composition Theory, which have been transferred into the facade's overall composition. This illustrates a progressive refinement of the concept, as well as an interdisciplinary approach that bridges conceptual design with applied ergonomic and compositional principles.

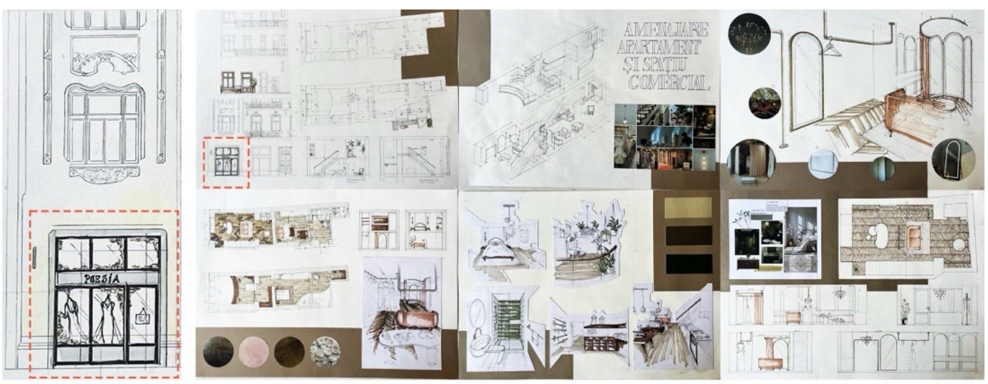


FIGURE 10. Correlation between Design 2 project (upper images, where the storefront proposal is presented as a sketch or conceptual idea) and Ergonomic Design (down images), which shows a significantly higher level of detail.

CONCLUSION

Four years after the reorganization of the subjects in the curriculum, the correlation of their contents in a concerted manner so that a large part of the information provided individually is used directly and immediately in the subject of Design, two types of observations have resulted: some related to the awareness of the usefulness of the subjects in the perception of the students, others related to the way in which the knowledge provided in the different subjects was reflected in the projects.

The observations resulted from the questionnaire answered by the current generation (2024-2025) of 1st year students and the critical analysis of the current projects, carried out by the coordinating teachers. Analyzing the projects, by comparing them with those previous to the year 2021-2022, an increase in their creative character was unanimously observed. Even if, at first glance, the previous ones seemed more "elaborate", this was due to a heterogeneous mixture of functional, graphic and technical elements that were not sufficiently in-depth, but the conceptual character, related to the coherent use of artistic and architectural language elements, was almost completely out of the equation.

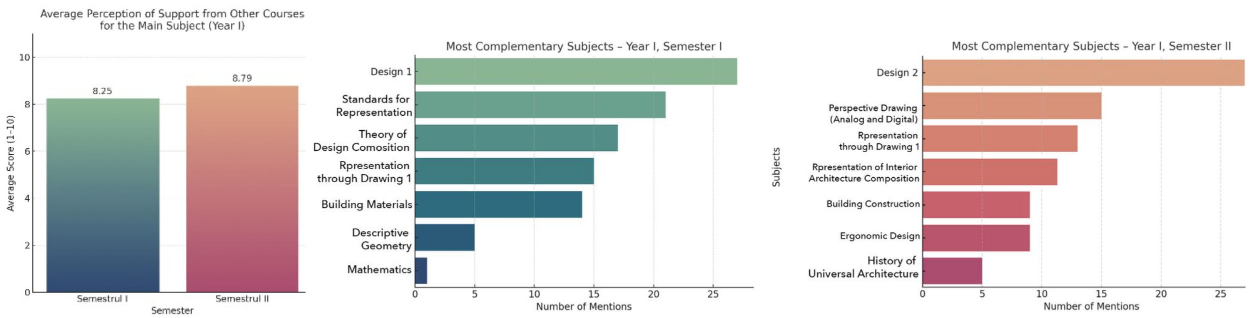


FIGURE 11. Student questionnaire results. Source: authors' representation [3]

The first chart illustrates the average perception of how much other courses support the main design subject in Year I. The slightly higher score in Semester II suggests an improved curricular integration. The second and third charts show which subjects are most frequently seen as complementary, highlighting strong interdisciplinary links between design, representation, and composition theory. These insights support the idea that coordinated teaching across disciplines enhances both understanding and project development in interior design education.

Before the correlation of theoretical aspects and study assignments from these subjects, students addressed requirements individually, failing to implement information gained from complementary subjects into their Design project.

The key aspect for Design 1 is the project's development from one phase to the next, along with careful correlation with the Theory of Design Composition. Students discovered each new stage as they go in order to encourage flexible thinking and prevent preconceived solutions and reluctance to change.

As a limitation, too close correlation of the contents of some subjects with specific themes exclusively for the semester project can lead to a restriction of the variety of concepts taught, necessary in the long term, or to an unnatural reorganization of the moments in which certain information can be introduced. These shortcomings can be reduced by diversifying the requirements of the semester project and by correlating the phasing of the project requirements with the logic of the subject in question. The close collaboration between the design holders with the holders of the TDC and TIAC subjects and the direct involvement of the latter in the very conception of the themes for Design 1 and 2 resolved possible conflicts in the 1st year of study. Being a predominantly conceptual-artistic year, the fact that all the holders of the subjects involved have, in addition to architecture, visual arts studies (high school, doctorate) at the training level was a significant advantage.

An opportunity lies in the fact that part of the Design 1 and 2 staff, including the course instructor, are also present in the Drawing Representation workshop in the same semester, which provides a highly visible relationship between the two subjects; equally, the Ergonomic Design concepts in semester 2 are taught by the same Design 2 instructor.

A study that reveals how the entire project-based learning process, carried out over the three years of the bachelor's degree, is positively reflected in the diploma projects at the end of the study, will be the subject of further research.

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