

# Hurry Up and Refresh: Jockeying Pace and Overlaps in Beginning Design

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## Introduction

We find ourselves at a moment where image is everything and everything is fleeting. Not long ago an architectural cynic could pose that when it comes down to it, any newly christened building needs to generate only five good photographs to claim its fifteen minutes of fame. If a handful of images could perhaps be enough to capture the soul of a project, it is worth noting that this year alone it is projected that the number of photographs taken globally will top 1.3 trillion with more than seventy-five percent of these images being recorded via a smartphone (Heyman 2015). Optically inundated and constantly connected, our collectively attention span is waning at best if not (hold on let me check my phone) more critically impaired. How do we instill grit in beginning design students as we educate and prepare them for the relative glacial pace of design and the realization of projects when compared with the immediacy of our everyday social milieu? #alternatetimescales

Nearly twenty years ago the architects Tod Williams and Billie Tsien wrote an essay lamenting the increased expediency in architectural practice and the value their firm found in the slowness of method, design, and perception. Near the essay's conclusion, Williams and Tsien (1999) convey: "As our work matures, the perception of it is less and less understandable through photographs. One can only understand it by being there and moving and staying still" (p.136). While there is no going back to the days of ink on mylar and the Xerox, it is nonetheless a worthwhile endeavor to reexamine speed and the three aforementioned topics in the context of contemporary pedagogy.

This paper explores how we as academics can facilitate the pacing and critical overlaps of instruction across courses to not only get beginning design students rapidly up to speed but also pause to allow for moments of meaningful self-reflection and insight. Utilizing analog and digital methods from the simultaneous instruction of a first architectural studio and a fundamentals of digital computation course, design themes of iteration, legibility, and reinforcing concurrent curriculum will be discussed as well as issues of perception related to having students embracing uncertainty and fostering self-critique.

## Background

This study focuses on the intersections and overlaps of two seminal architectural courses at the American University of Sharjah over the period of a semester. A post-foundations program, first architectural studio and a highly recommended but not required computational elective entitled Fundamentals of Digital Design.

As a studio, Architecture Design Studio I (ARC 201) serves as an intense initial foray for second year students into the school's coordinated architectural core sequence. Delving into the fundamental principals of spatial systems, hierarchy, and formal language the semester's established curriculum is comprised of three projects. The first is an analysis exercise of a Le Corbusier artwork from his Taureau series through hand delineated two and three-dimensional means culminating in a series of generative physical models. Starting the fifth week, a group based precedent study provides students the opportunity to practice drawing conventions as they garner insights related to site response, parti strategies, and spatial ordering systems. Beyond being exposed to a survey of notable residential

projects, the two and half week case study introduces analysis and representation via computational means, serving as a bridge from the direct haptic approach of the previous assignment to more agile and hybridized methods of operation in the second half of the semester. The final seven-week long Spatial Landscape project is comprised of a series of “modest spaces”, and it asks students to be “expansive in scope and profound in experience” all the while exploring sequence and interior exterior relationships in developing the project on a topographically varied site on the coast of Cyprus.<sup>i</sup>

The Fundamentals of Digital Design (ARC 265) course is a primer on building associated capabilities and practicing computational workflows. Two sections of twelve to fifteen seats are typically offered, with second year Architecture students making up the vast majority of the enrollment. In practical terms this means that while not a required course, from a third to a half of students in their sophomore year are co-enrolled along with the corresponding ARC 201 studio. Interestingly enough, even with only half of the cohort or less taking the course, information and skills are propagated informally across the whole of the class. Three years ago the course’s curriculum was significantly revised with the bulk of the course work intentionally frontloaded. In the ensuing years there have been tweaks but this pacing allows for students to quickly garner skills that will be directly applicable in support of their studio work. Over each of the first six weeks, in-class workshops and assignments introduce skills related to two-dimensional drawing, three-dimensional modeling, and digital representation across multiple software platforms. These assignments build on one another and culminate collectively in the first project, which is completed by week nine. With a foundation of digital skills developed the remaining two assignments and final project indirectly and directly relate to the studio based Spatial Landscape project.

## Method

The “Slowness of Method” that Williams and Tsien (1999) longed for twenty years ago in their essay “On Slowness” isn’t a practical consideration in today’s architectural education. There is no doubt our students are investing time in order to garner skills and ways of thinking critically, but expediency dictates that more needs to be covered in less time. This means that as facilitators we need to be clever in what we emphasize and how we do it. Not long ago, debates regarding analog versus digital methods of design and production were common occurrences. Three and half decades after the dawn of computation in design, it is time for academia to put these debates regarding a binary choice to rest. In order to succeed in contemporary practice, graduates must be well versed in a multitude of working methodologies. As Stan Allen (2009) muses, “The computer is not just another tool, but it is a tool nonetheless—a tool with very specific capabilities, constraints, and possibilities” (p.74).

With this in mind, it is important to get the post-foundations students rapidly up to speed in terms of both analog and digital workflows. While Architecture Design Studio I and Fundamentals of Digital Design have different approaches toward this end, both courses value agility relative to the task at hand. The first project of ARC 201 is solely a haptic exercise. This allows for students to take their foundations based skills and immediately employs them from analysis to generative endeavors. In this way, students aren’t delayed due to technical difficulties. Even with the final requirements of the second and third studio projects being digitally generated, iterations of hand worked drawings on trace with printed references below are an often advocated method for efficient refinement.

For the Fundamentals of Digital Design students, the initial modes of production are novel, but the concepts behind them also build on the students’ drafting exercises in the first year foundations program. As the name implies, the methods of the elective are very much computational in nature. That being said, workflows are emphasized rather than the teaching of a particular piece of software. Integral to tutorials of leveraging particular pieces of software are discussions of digital concepts such as raster versus vector graphics, as well as practice minded concerns such as file and layer management and digital craft. Due to the course being front loaded, pushing students to find methods of working

smarter rather than harder are of particular importance. More times than not, this means advocating use of the right tool for the job at hand.

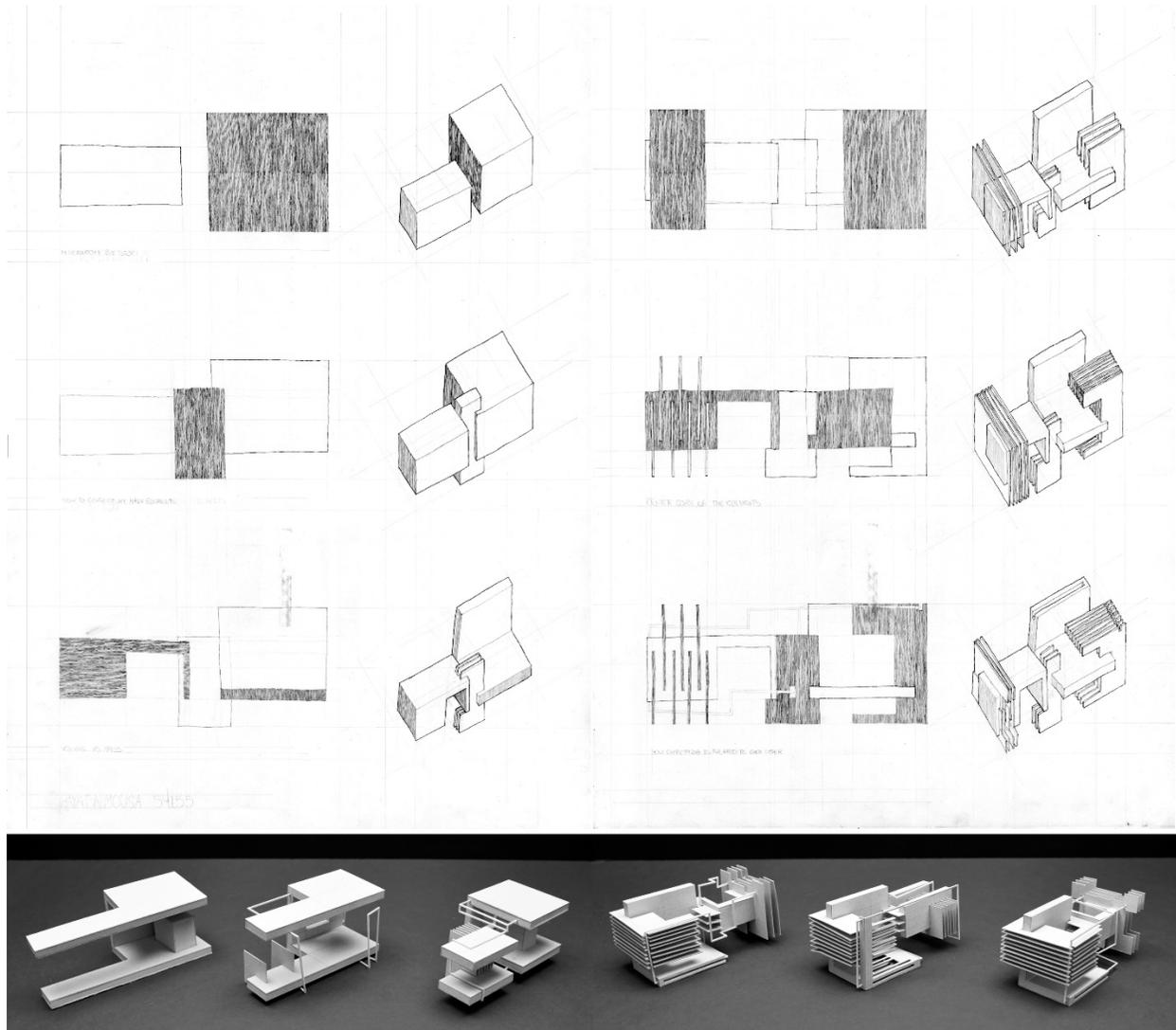


Fig. 1. Architecture Design Studio Project #1 | Student: Hayat Almousa

Even in a digital course, analog methods have a time and place. Project one of the elective represents the cumulative efforts of the previous six assignments. Students are asked to represent their process through one compelling A2 board. Due to its immediacy, a detailed storyboard done by hand serves as a required process submission and allows students to rapidly visualize potential ways to communicate information. When it comes to getting beginning design students rapidly up to speed it can't be an instance of either-or but rather the mantra "yes, and..." (Leonard & Yorton) that must rule the day.

## Design

### Iteration

Iteration is critical to successfully completing the learning objectives of both of the courses. Though they do take advantage of this design technique in slightly differing ways, depending on the nature and length of the project, the courses expect differing amounts of revision to take place. Iteration in a

studio setting can mean the proposal of various alternatives just as easily as it can mean refinement of an existing design. Both types of iterations, alternatives and refinements, are employed in Architecture Design Studio I just as they are vital in nearly all architecture studios.

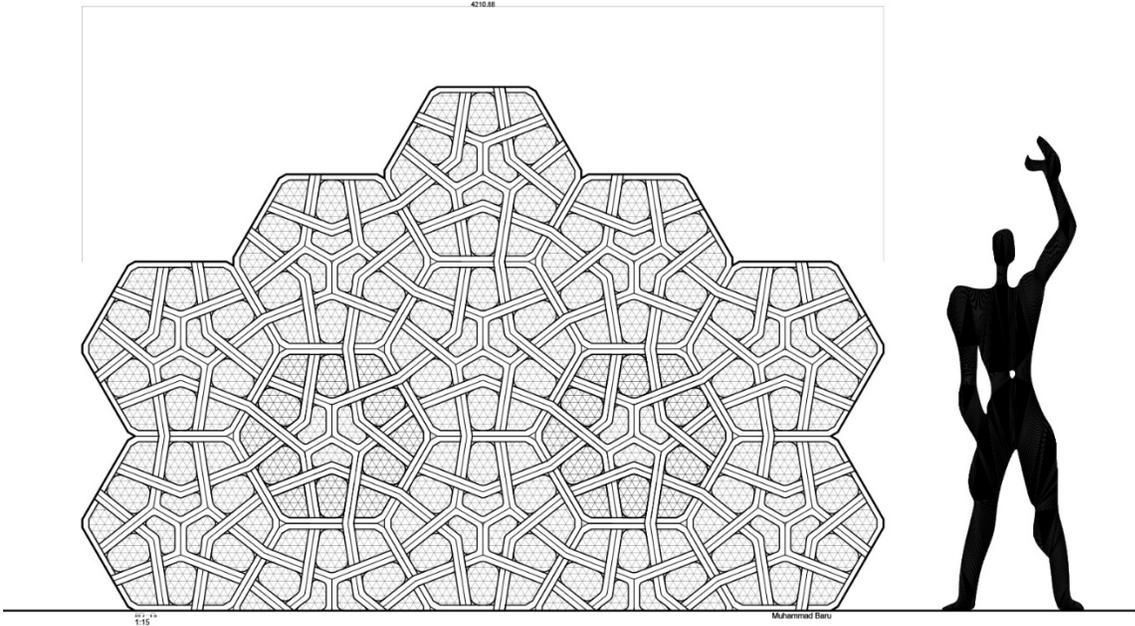


Fig. 2. Fundamentals of Digital Design Assignment #2 | Student: Muhammad Baru

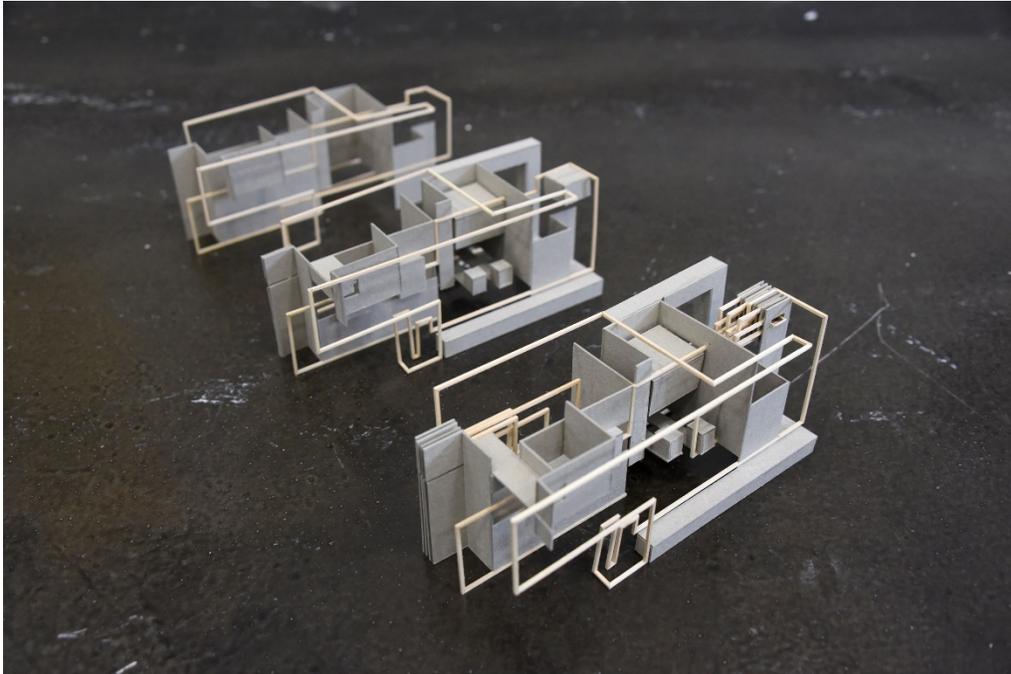


Fig. 3. Architecture Design Studio Project #1 Models | Student: Mehiar Bitari

What is perhaps more atypical is the structure of the first six assignments of Fundamentals of Digital Design which build on one another toward the culmination of the first project. The assignments' weekly outcomes employ a natural geometric and operational progression of requirements, allowing the students to become more familiar with different software platforms and their corresponding approaches. Lines are drawn and combined to create surface; surfaces join, intersect, and split to represent volumes and masses. As the students become more familiar with these types of procedures they naturally become faster at doing what is being asked of them. This increased capacity means that the ARC 265 students are encouraged to reiterate on previous submissions that will be the basis for the forthcoming assignment(s). While never explicitly stated, due to the breakneck pacing of the first half of the course, it is anticipated that not all assignment submissions will be particularly compelling. However, due to their newfound efficiency, reflective iteration is less burdensome and allows further opportunities to practice recently acquired skills.

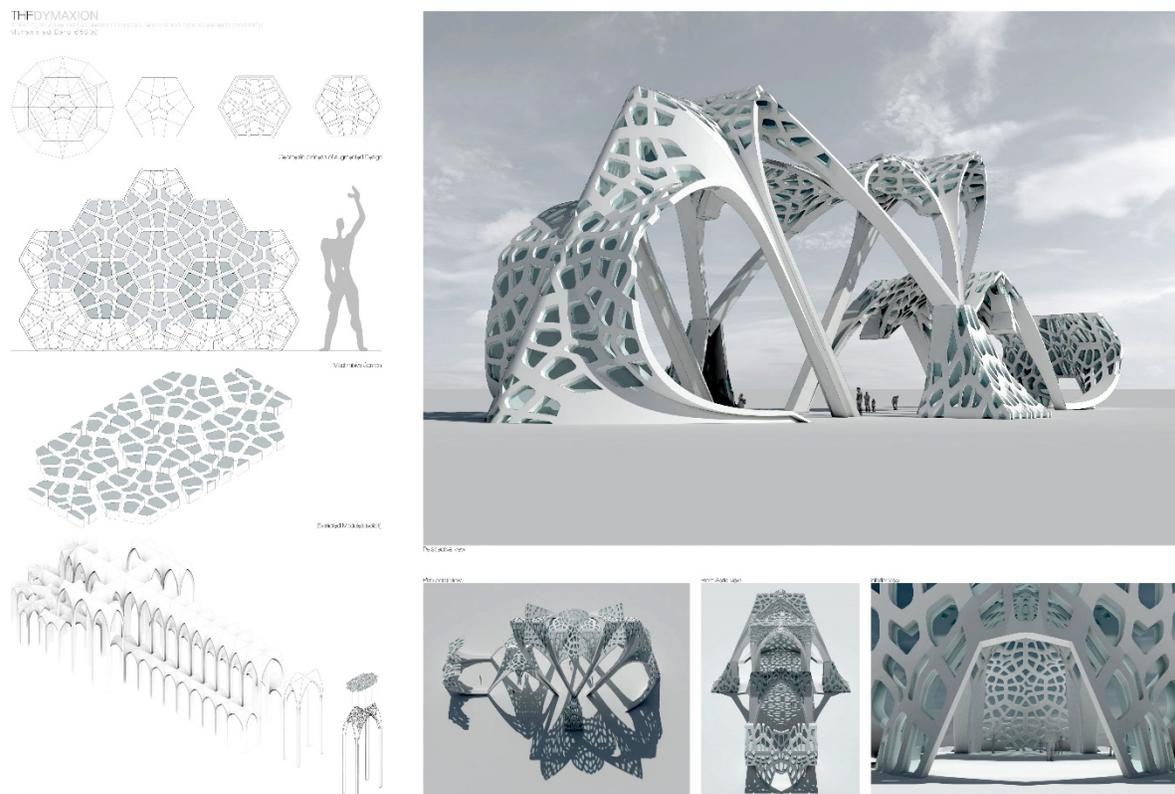
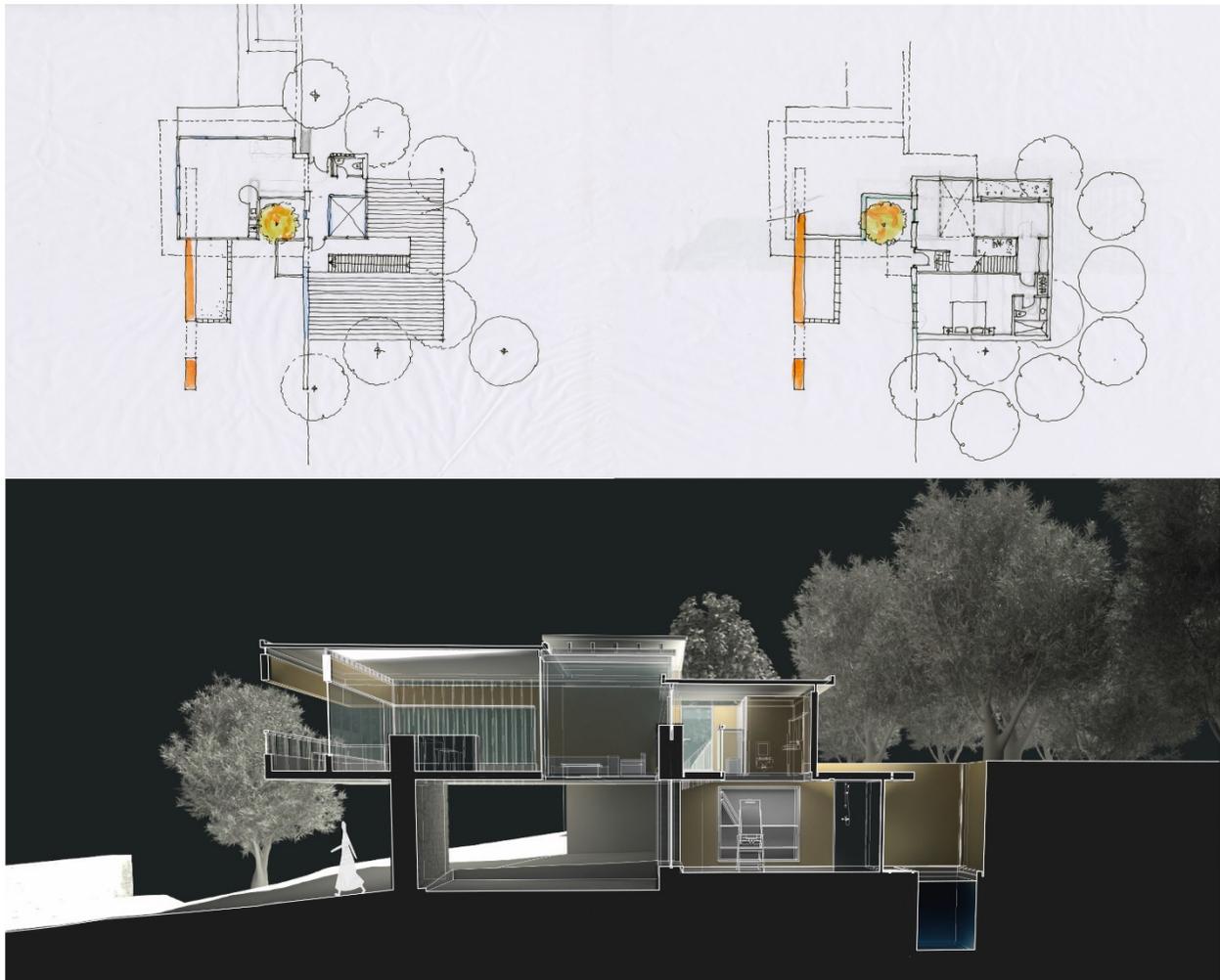


Fig. 4. Fundamentals of Digital Design Project #1 | Student: Muhammad Baru

### Legibility

Another critical design theme relative to both courses relates to legibility. When speaking of legibility in beginning design studies it is important to distinguish between the practical concerns associated with drawing conventions and those of design intent. The former, while often rule-based, still manages to perplex students as they start to read drawings and graphically communicate their own ideas. However, discussions of line weight, line type, and annotation involve questions and answers that are generally straightforward. Depending on students' educational backgrounds, this momentary directness can be comforting when compared to the ambiguity of tackling open-ended queries. In regard to drawing

conventions, practice can make perfect. Both Architecture Design Studio I and Fundamentals of Digital Design pause, making time to answer and explain inquiries related to these matters of drawing legibility.



*Fig. 5. Architecture Design Studio Project #3 Process Drawings and Fundamentals of Digital Design Assignment #8 | Student: Saba Besiso*

In contrast, issues of legibility of intent typically require far broader more indirect discussions of concept, formal logics, materiality, and construction methods, while also requiring pause and reflection. These types of conversations are quintessential, hinting at the elusive nature of architectural design and practice, even in such a formative setting. Commonplace in studios such as ARC 201, these topics are also supported in the Fundamentals of Digital Design course via impromptu conversations. This could be considered uncommon content for a digital skills course, but it is particularly important to remind students that what is being drawn on the computer does in fact represent a potential physical manifestation with associated intent and implied materiality and methods of construction. By regularly emphasizing the importance of legibility in both regards across both courses, students stand a much better chance of being able to clearly communicating their designs through graphic means.

### **Reinforcing Concurrent Curriculum**

Just as iteration creates opportunities for repetition, reinforcement via concurrent curriculum provides additional avenues to bolster critical skills and concepts. While this technique is beneficial to students, it does require coordination amongst courses and instructors. In the specific courses referenced here, the established projects and schedule of the Architecture Design Studio I provides a rigid framework for the elective to interface with. Holding no accreditation requirements and fewer sections to coordinate, Fundamentals of Digital Design was far more malleable to serving a supporting role for particular key concepts while still providing unique instruction and skills. With its curriculum reworked three years ago, and tweaked in the interim, the ARC 265 elective has dramatically augmented its pacing in support of the corresponding studio.

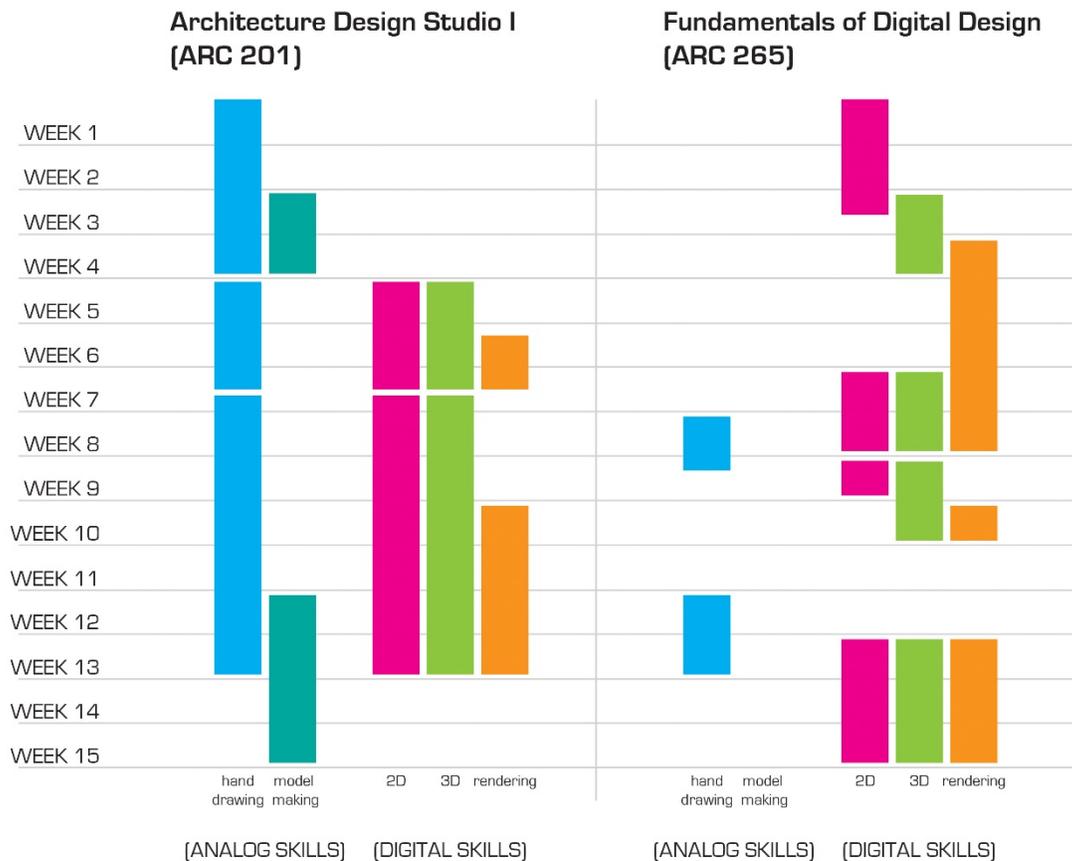


Fig. 6. Comparison of Skills Employed Throughout the Semester

In the first weeks of the semester, while the studio is using analog drawing techniques of analysis, the elective is utilizing digital orthographic projection, which will directly relate back to instruction in ARC 201. A few weeks later when conversations of craft related to physical modeling are broached, corresponding discussions of digital craft in modeling are a common occurrence in ARC 265. These are just a few examples of overlapping instruction across these courses. What makes these opportunities for concurrent instruction possible is familiarity of content, ideally through first hand experience, but perhaps more important is a willingness on the part of the instructors to serve a supporting role toward the broader comprehension of their students.

## Perception

### *Embracing Uncertainty*

For beginning designers, embracing uncertainty, is a challenging proposition. In part, this is due to design education itself being uncertain or unconventional when compared to the typical methods of instruction during students' K-12 educations. As strangers in a strange land, perhaps the greatest uncertainty of design is how to start. In both Architecture Design Studio I and Fundamentals of Digital Design, the first weeks are purposefully intense. With new lessons and assignments coming every class, the students have no alternative but to act. Initially this can be daunting as they may not be fully in control or aware of what they are doing. Nonetheless, once underway, inertia can be a driving force that allows students to weigh alternatives and deduce tradeoffs when definitive answers are few and far between. In this way acting, making, and doing must be the rallying cry to students because it is only after these have taken place that the process of perception and pause can lead to meaningful self critique.

### *Fostering Self Critique*

For design students fostering awareness and self-critique is perhaps one of the most valuable skills that can be instilled early in their educations. The challenge or ease related to developing these abilities often depends on student's previous educational backgrounds. For young designers coming from rote educational systems, alteration of existing mentalities is of particular importance. While organizationally varied, both Architecture Design Studio I and Fundamentals of Digital Design include embedded opportunities for students to step back and perceptually be critical of their work in relation to that of their peers.



*Fig. 7. Impromptu Desk Critique Among Students*

During the studio's Painting Analysis project, coordinated pinups across all studio sections occur on a regular basis. With the collective work on display in one space, students are able to walk around, observe, and review comments posted by the instructors. After a period of examination, there is time for faculty and students to engage in an informal discussion of their observations and thoughts. Prompted by broad questions from the faculty, it is the students' responsibility to understand how general critiques relate to their own efforts. Over the course of the semester the regularity of these collective pin-ups lessen but they are still useful in augmenting the students' abilities of self-critique.

In terms of the Fundamentals of Digital Design course, the structure still provides opportunities for self-reflection. Digital projection of previously submitted weekly assignments allow for critique and discussions, once again led by the students, to inform their concurrent efforts. Similar to the studio pin-ups, the faculty member serves as a moderator and steers the conversation through open-ended questions. This engagement pushes the students to critically think about their own efforts and ideally hones their abilities to self-critique. Practicing these skills in both settings helps the students more clearly articulate their work's strong suits and shortcomings, in turn giving them clearer perception of where their work stands and what their focus should be moving forward.



Fig. 8. Fundamentals of Digital Design Project #2 | Student: Jad Moura

## Conclusion

As educators working with beginning design students, we are seldom afforded the luxury of slowness in method, design, and perception. However through intelligent pacing and overlapping instruction

across courses, we can better facilitate our students' rapid growth while at the same time create additional opportunities for meaningful pause, self-reflection, and insight.

### **Endnotes:**

<sup>1</sup> The current Architecture Design Studio I curriculum at the American University of Sharjah was authored by Professor Michael Hughes

### **References:**

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