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Refocusing Structure in Architectural Education: Integrating Technical Logic and Creative Design

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Abstract

Traditional architectural education has long approached structural courses as extensions of civil engineering, emphasizing static calculations over design integration. This approach often relegates structure to a mere technical necessity, disconnected from the creative process. However, structure is a fundamental design element that influences architectural identity and aesthetics. Our course reimagines that approach, encouraging students to perceive structure as both a technical and visual component of design.

The redesigned curriculum follows a three-phase experiential model. First, students analyze the structural logic of iconic buildings via case studies. Second, they simulate various systems using computational tools. Finally, they translate these simulations into physical models in the workshop. Covering timber, reinforced concrete, and steel systems, this method allows students to compare how material and structural choices influence proportions, spatial experience, and behavior. Implemented over two consecutive years in a second-year architecture course, the approach ensures consistent observation of learning outcomes. Through hands-on modeling, students discover structural logic and materiality as integral parts of architectural creativity—not as isolated technical aspects.

Findings indicate this method fosters deeper structural comprehension, enhanced awareness of material-system dynamics, and more informed design decisions. Ultimately, this pedagogical innovation reframes structural knowledge not as constraint but as a vital driver of architectural inventiveness.

Keywords: Architectural Education, Structure as Design, Material-System Interplay, Experimental Pedagogy, Design Integration