

# Sketch Thinking and Volumetric Deconstruction: An Interest-oriented Innovative Practice in Small-scale Architectural Design Course

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## **Abstract**

Against the backdrop of structural adjustments in China's domestic construction industry and a deceleration in urbanisation growth, the disconnection between design theory and practice in traditional architectural education, alongside the misalignment between training models and student interests, has become increasingly prominent. In response to the practical constraints of the architectural design course for the Environmental Design major—characterised by "small credits and short class hours"—the Environmental Design programme at Xi'an University of Technology has offered a small-scale architectural design course over four years. After four rounds of teaching refinement, a three-stage teaching model has been developed: "practical cognition – sketch thinking – volumetric decomposition." The course first guides students through site visits and scale perception to establish a systematic connection between "body – scale – space" in real-life scenarios. Subsequently, sketching is employed as a visual tool for design thinking, with teacher-student revision sessions training spatial conception and logical reasoning abilities. Finally, Adolf Loos's Raumplan is introduced as the core design method, requiring students to independently define and reorganise spatial volumes under given functional conditions, facilitating a transition in design thinking from two-dimensional plan layout to three-dimensional volumetric organisation. Teaching practice demonstrates that the course effectively stimulates students' intrinsic motivation; several lower-year student works have received awards in professional competitions, and a number of students have used their Raumplan-based design projects as core portfolio pieces for admission to renowned architecture schools abroad, including Politecnico di Milano and the University of Manchester. This teaching model achieves the synergistic goals of design thinking training and practical skill enhancement within limited class hours, offering a replicable pathway for spatial design instruction in general design-oriented courses.

## **Keywords**

Small-scale Architectural Design, Interest-oriented, Sketch Thinking, Raumplan, Environmental Design, Teaching Reform