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Curriculum Development and Teaching Reform of the Architectural Design Methods Course in the Context of Urban Renewal

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Abstract: China's ongoing urban renewal strategy has placed new demands on environmental design education, exposing persistent gaps between conventional curricula and actual industry needs, particularly in terms of practical competency. This paper reports on a one-year curriculum reform project for the course Architectural Design Methods course at Tangshan Normal University. The redesign reorients the course toward urban renewal by restructuring content into six interconnected modules, adopting a blended teaching model that combines project-based learning with co-teaching by academics and practitioners, and embedding value-oriented education through the lens of "spatial pedagogy." A digital resource platform was also developed to support instruction. The reform has led to measurable improvements in learning outcomes, student engagement, and the alignment of teaching with professional practice. The experience offers a transferable model for similar programs in other institutions.

Keywords: Urban renewal; Architectural Design Methods; Curriculum development; Industry-education integration; Value-based education

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1. Introduction

China's urban development has entered a phase centered on stock renewal. The Central Urban Work Conference set out six goals for future cities—innovation, liveability, beauty, resilience, civility, and intelligence—and subsequent policy documents have elevated urban renewal to a national priority. This shift fundamentally changes what is expected of architectural designers. Beyond conventional design skills, they now need to handle adaptive reuse, age-friendly retrofitting, heritage conservation, and other issues that arise in existing urban fabrics.

In practice, however, most Architectural Design Methods courses remain tied to "new build" paradigms, relying on outdated case studies and rigid pedagogical routines [1,2]. There is a clear mismatch between what

is taught and what the field requires. How to embed urban renewal thinking into the curriculum, while also fostering a strong sense of professional responsibility, has become an urgent question for educators [3].

At Tangshan Normal University, our course team took on this challenge with support from a university-level teaching development grant. Over the academic year, we systematically revised the Architectural Design Methods course. This paper outlines our starting point, the goals we set, the changes we implemented, and the outcomes we observed.

2. Course background and aims

2.1. Existing foundation

The course Architectural Design Methods has been a core disciplinary course for Environmental Design majors for many years [4]. Over time, we have built up a stable teaching model with a decent stock of resources, including student work samples, lecture slides, and video tutorials on model-making. Our teaching team consists of five members—two senior professors and three lecturers, with complementary expertise and a strong track record in both environmental and architectural design instruction.

Previous reform efforts had already experimented with joint teaching across courses, notably linking Architectural Drawing with Architectural Design Methods, which proved effective [5,6]. On the research side, team members have been actively working on topics related to urban renewal, historic district revitalization, and age-friendly design, producing over 30 publications and participating in more than 20 research projects. This scholarly background provided a solid springboard for rethinking the course content.

2.2. Objectives

Our overarching aim was to align the course with national urban renewal priorities while strengthening students' applied skills, ultimately turning it into a model of "policy-responsive, industry-integrated, and innovation-oriented" teaching. More concretely, we set six targets:

- Update the course objectives to balance "values," "knowledge," and "competence."
- Revise the syllabus to include real-world urban renewal cases across 3–5 new modules.
- Adopt a "blended + project-based + co-teaching" format, incorporating AI-assisted design tools.
- Build a comprehensive digital repository of teaching materials.
- Forge stronger links with local government and design firms to enable authentic project work.
- Strengthen value-based education through the "spatial education" framework, aiming for demonstration-classroom status.

3. Reform measures and implementation

3.1. Content restructuring: Six thematic modules

We reorganized the course into six modules, each explicitly tied to urban renewal:

1. Introduction to Architecture and Urban Renewal – covers basic concepts, a brief history of architecture, and the professional landscape, but with extended emphasis on national policies, the rationale for renewal, and what these mean for designers.

2. Drawing and Drafting – teaches standard graphic conventions and drafting techniques, with added focus on site surveying and the conversion of field measurements into working drawings—skills essential for

renewal projects.

3. Spatial Perception and Design Thinking – uses site visits, sketching, and physical model-making to sharpen spatial awareness, paying special attention to the latent potential of existing buildings.

4. Form and Composition – explores formal principles and spatial organization through exercises in massing, enclosure, and light/shadow, using examples from micro-renewal and public-space upgrades.

5. Small-Scale Design Studio – centers on "community micro-renewal" and small public buildings, with briefs such as "campus space retrofit," "pocket park pavilion," and "infill intervention in a historic district."

6. Advanced Topics in Urban Renewal – introduces design guidelines, the "three-specialist" collaborative model (planner, architect, appraiser), and AI-driven tools for renewal projects.

3.2. Pedagogical innovation: Blending theory, practice, and industry input

We moved away from purely classroom-based instruction in several ways:

- Real-project learning. We partnered with local housing bureaus, design institutes, and community offices to bring genuine renewal projects into the studio. Students conducted on-site surveys, interviewed residents, and developed proposals for actual sites—for instance, upgrading alleys near the campus or redesigning pocket spaces in old neighborhoods.

- Co-teaching with practitioners. Registered architects and urban renewal project leaders were invited to co-deliver sessions and join final reviews. They contributed real-world case knowledge and professional judgment, while we handled theory and skill training.

- Cross-course integration. We strengthened coordination with prerequisite and parallel courses (Architectural Drawing, CAD, Human Factors) so that urban renewal themes ran through multiple classes, breaking down the usual silos.

- Digital tools. Students were encouraged to use BIM fundamentals, SketchUp, Rhino, and AI-assisted rendering tools. Workshops and in-class demos helped them gain hands-on experience.

3.3. Value-based education through "spatial pedagogy"

We embedded ethical and civic dimensions across the course via four channels:

- Policy awareness: national renewal strategies and the "people-centered city" idea were woven into every module, so students see design as a socially embedded practice.

- Cultural grounding: local architectural heritage—traditional houses, historic lanes, notable residences—was used to teach construction wisdom and foster cultural pride, linking to broader heritage conservation goals.

- Community engagement: field trips to neighborhoods and villages brought students face-to-face with the spatial needs of elderly residents, children, and people with disabilities, reinforcing human-centered values.

- Competitions and exhibitions: we used in-school competitions, joint shows, and "one course, one exhibition" events to assess and celebrate outcomes.

3.4. Resource development

We built four new resources:

- An urban renewal case bank with 10–15 exemplary projects (domestic and international), each documented with background, design strategy, technical highlights, and post-occupancy insights.

- An expanded model-making lab stocked with eco-friendly, recycled, and composite materials.

- An online gallery and review platform for displaying student work and hosting peer/expert critiques.

- A value-education casebook compiling 10 teaching cases that link renewal issues (heritage, age-friendly design, community participation) with ethical reflection.

3.5. Strengthening university-community partnerships

We formalized cooperation with two local communities and one design institute to serve as permanent fieldwork bases, ensuring at least one site visit per semester. We also ran "micro-renewal workshops" during short sessions, where student teams rapidly prototyped small interventions for campus or neighborhood spaces, with industry mentors providing feedback.

4. Timeline and initial outcomes

The project ran for one year, phased as follows:

- Months 1–2: Reviewed existing materials, conducted stakeholder meetings, signed partnership agreements, and finalized the work plan.

- Months 3–6: Overhauled the syllabus, drafted the case bank and workbook, prepared value-education cases, upgraded lab facilities, and piloted the new briefs in one class.

- Months 7–10: Rolled out the revised course to all cohorts, brought in at least two external guest lecturers, organized a field trip, and held a micro-renewal workshop.

- Months 11–12: Completed final reviews, curated a graduation-style exhibition, compiled an "Outstanding Works" volume, and wrote a summative report.

By the end of the cycle, we observed:

- Learning gains: students demonstrated stronger skills in conceptualization, spatial reasoning, drawing, and modeling. They were better able to frame design problems within real-world renewal contexts. End-of-course evaluations scored in the "excellent" range.

- Course outputs: a full set of updated teaching documents (syllabus, lesson plans, slides, exercise bank), a case bank with 10–15 entries, and a value-education casebook.

- Scholarly products: one published teaching-reform paper, plus the final project report.

- Practical engagement: students worked on 3–5 actual renewal schemes, and we held one major exhibition.

- Broader impact: our approach has attracted interest from other departments and local government, and several student proposals were adopted by community partners for further development.

5. Conclusion

Our experience confirms that reorienting an architectural design course toward urban renewal can directly address the disconnection between academic training and professional practice. By restructuring content, integrating real projects, bringing in practitioners, and systematically embedding value-based reflection, we shifted the course from knowledge transmission to a more balanced cultivation of competence and responsibility.

We recognize that curriculum development is never finished. Going forward, we plan to refresh the case bank annually, renew partnership agreements, and keep pace with evolving industry tools and policies. The goal is to ensure our teaching remains relevant and continues to produce graduates who are ready to contribute meaningfully to urban regeneration efforts.

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Disclosure statement

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