Division of Geosciences and Civil Engineering	Research field	Sustainable Future Urban Design	Lab. ID GC23
Laboratory web site	https://kanazawa-ub.jimdofree.com/		

Research subjects

The Future Urban Design Laboratory aims to promote the creation of sustainable and advanced urban and architectural environments, focusing on the following four key research themes:

1. Research on National Spatial Policies
Conduct international comparative studies on national spatial policies, legal systems, urban planning, and architectural design systems, and analyze the characteristics of institutional frameworks and their practical operations in different countries.

2. Simulation and Analysis of Future Urban Forms Based on National Spatial Policies**
Based on national spatial policies, simulate changes in urban spatial structures caused by policy changes and land use regulations, and quantitatively analyze the evolution of urban forms.

3. Digital Twin Simulation of Architecture and Urban Environments Using VR Technology and Sensors
Utilize VR technology and various environmental sensors to accurately reproduce real spaces in virtual environments. Conduct simulations at both urban and architectural scales for disaster prevention, energy management, autonomous driving, and other applications.

4. Construction Technology and Energy Management Visualization for Zero-Carbon Buildings Using AI Technology
Develop design guidelines for Zero Energy Buildings (ZEB), and utilize AI technology to visualize energy consumption at both the building and urban levels, creating optimized energy management systems.

Master/Doctor course: Education policy, curriculum, typical activity in the laboratory

We provide comprehensive guidance ranging from policy research to practical planning applications, digital simulation, and the materials and construction technologies of zero-carbon buildings.
We offer individual supervision for writing academic papers in English, presenting at international conferences, and submitting peer-reviewed journal articles.
We conduct practical training in policy simulation, VR, GIS, BIM, and digital twin development.
We continuously support research activities with a long-term perspective, from the master's program to the doctoral program, and further into practical implementation.

Daily life in the laboratory, etc.

We hold weekly seminars to enhance students' ability to identify issues and improve presentation skills through research progress reports and discussions.
For academic writing, we provide regular progress checks along with individual guidance to support the entire process up to journal submission.
We conduct practical technical training that combines policy simulation, VR visualization, GIS analysis, BIM modeling, and digital twin development.
Our laboratory consists of members from diverse backgrounds, including international students, and actively promotes interdisciplinary collaboration and international joint research.

Message or comments by the laboratory faculty staffs

The Sustainable Future Urban Design Laboratory aims to create next-generation urban and architectural models by integrating policy, planning, design, and digital technologies in a cross-disciplinary manner.
In our laboratory, we place emphasis not only on understanding systems and theories but also on the ability to apply them to real-world society and connect them to practical problem-solving.
We welcome students who have an international perspective and a proactive attitude toward utilizing cutting-edge technologies such as AI and VR to foster innovation.
We look forward to working together to envision and realize sustainable and smart future urban and architectural forms through continuous challenge and exploration.

Laboratory mail address	riendyteng@se.kanazawa-u.ac.jp