12030 –デザインスタディーズ（GIGA） Design Studies

Keio University
William Galloway, Ph.D.

Spring term, 2015

Course Summary

Sustainable Architecture and Urbanism

The world's cities, and the buildings that fill them, consume the majority of the world's resources. As the size and number of cities increase around the world the question of sustainability and the need for innovation in design can only grow in importance.

This survey course examines the relationship between sustainability and the physical form of cities and of architecture. Taking a multi-disciplinary approach we will look at the intertwined effects of human behaviour, technology, and economics on the search for sustainable urban form and sustainable building practices. Key issues include energy use, social equity, economics, and demographic change.

世界各国の都市とそこに建つビルの数々は世界中の大部分の資源を消費している。それら都市の規模と数が増えるに従い、サステイナビリティについての課題と、設計におけるイノベーションの必要性に対する重要度は高まる一方である。　本コースでは、サステイナビリティと都市や建築の物理的形状の関係性について考察する。持続可能な都市形状や建設工事の探求をするに当り、 分野横断的な取り組みをしながら人間の行動パターンや技術そして経済が絡み合ってできた成果に目を向ける。本コースの目的は、エネルギー使用、社会的公正、経済、そして人口の変化などの問題に関して、都市建築環境の役目は何であるかを紹介することである。

Textbooks

There is no core textbook. Related reading materials, handouts, links, and powerpoint presentations will be provided as necessary. Detailed material can be provided for those with an interest in pursuing topics further.

Grading

Participation – 20% – Regular class attendance, reading assignments, and participation in class discussions. Participation enriches the class for everyone and effort is expected in this regard.

Presentation – 30% – Students are required to prepare a short presentation to be given in class.

Paper – 50% – Students choose a topic and research issues related to the content of the course.

Contact

galloway@sfc.keio.ac.jp

Schedule

1 Introduction - Innovation, Sustainability and the world we are building

Why do we need to rethink the way cities and buildings are made? Rachel Carson, QWERTY, and the evolution of a problem.

2 Energy Use and resources - the limits of what we have

The importance of energy and other resources in the pursuit of sustainability. Introduction to the challenges of vulnerability and resiliency-building in the built environment.

3 Thinking about the City

Considers the origins of urban form, from the industrial revolution to the present, and looks to the ways cities are changing under contemporary pressures.

4 Thinking about Architecture

The way that we consider architecture in terms of sustainability today is strongly influenced by the history of modern architecture and its view of technology.

5 The Role of Society

The three pillars of sustainable development. Can architecture and planning be used to take on the social issues related to sustainability?

6 From Cradle to Cradle

What would the world be like if there was no such thing as pollution? Innovation in design is essential to the creation of sustainability, but our focus tends to be on improving efficiency and on technical fixes. The possibility of an entirely different approach is introduced.

7 Engineering Society

Utopia lost its potency as a concept for much of the last 30 years. Planners and architects instead devoted their time to less encompassing ideas, as confidence in their ability to create perfection through design was lost in the face of the grim results of previous experience. In recent years confidence in big ideas is returning, with the philosophical centre being replaced with ideas about sustainability. The question remains open, is utopia possible, or even desirable?

8 Presentations

9 The compact city

One of the central ideas of sustainable urban design is that cities should be compact, walkable and defined by mixed land use. The origin of this idea in the theories of Ebenezer Howard and the garden city, and its continuing influence are discussed.

10 Energy revisited

Is energy efficiency enough?

11 Broadacre City and Motopia

Low density is the norm in many Western cities. The role of private transportation transformed modern cities and is difficult to ignore. Is density or dispersion the better approach towards creating sustainable urban form?

12 Searching for alternatives

Setting aside the "traditional" motifs of sustainable design, several new ideas are slowly emerging in design and in architecture, including bio-mimicry and landscape urbanism.

13 From Mitigation to Adaptation

The need for resiliency in the built environment is demonstrated with nearly every natural disaster. What lessons can we take from these occurrences and how do we apply them?

14 What Can A Building Do?

Looking back to previous lectures, what does a successfully green building look like? What criteria are sufficient and how do they measure up in terms of the three pillars?

15 Where To From here

Possible futures in sustainable design.