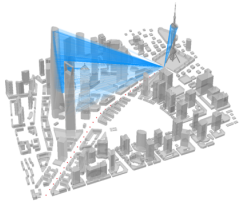
Spring 2019 **School of City and Regional Planning and School of Architecture**
College of Design, Georgia institute of Technology
CP6836-C/ ARCH6447-PY/ ARCH4447-PY

Urban Ecological Design



Perry P. J. Yang
Contact: perry.yang@design.gatech.edu
Time: Friday 9:00am-12:00pm
Venue: Architecture East 207 (TBA)

Abstract: The course engages contemporary issues of urban ecology and its articulation to design in urban settings. The new commitment of the co-habitation of nature and built environment has drawn attentions of urban designers, city planners and architects. The discourses of urban sustainability have to move away from social sufficiency, ecological efficiency to systems compatibility by linking the urban forms and ecological flows in urban, industrial and natural systems. The climate challenges require design and planning professionals to deal with how cities and urban spaces are analyzed, designed, managed, evaluated, represented and changed to meet the goals of shaping ecological, sustainable and resilient urban future. Defined by two categories *Forms* and *Flows*, the course covers theories, methods, tools and case studies of ecologically sound urban systems design. The Part One: *Foundation and Method* introduces foundational theories in urban design, urban ecology and contemporary debates in urban sustainability and ecological urbanism. The Part Two: *Forms and Flows* deals with urban form and its relationship to ecological flows such as energy, material, water, landscape ecology and information. The Part Three*: Urban Systems Design* covers theories and issues that address the concepts of urban ecosystems, urban metabolism and how cities are structured and designed based on those principles. The course concludes with a synthesis of design method for ecological urban systems, in which *Urban Systems Design* is seen as an ecological intervention and modeling tools for synthesizing complex system issues. Students are expected to participate in lecture series, seminars and tutorials and projects actively. The course this year has a special focus on Georgia Tech's global campus at Shenzhen.

Course Schedule

Foundation and Method

1. 1/11 Urban design as a normative theory
2. 1/18 Ecological urbanism, urban sustainability and smart city movements
3. 1/25 Design method 1: Urban form and urban sensing environment
   Global carbon project and smart city, Guest lecture by Dr. Yoshiki Yamagata
4. 2/01 Design method 2: Site planning and Geodesign
   Urban modeling tutorial I (by TA Helen Chen)

Urban Forms and Flows

5. 2/08 Urban ecology as a science of cities
6. 2/15 Urban-nature edges and landscape urbanism
7. 2/22 Downtown urban environment and organized complexity
8. 3/01 Energy flow and urban form
9. 3/08 **Project presentation I**
10. 3/15 Urban building energy modeling, Guest Lecture by Professor Tarek Rakha (TBA)
11. 3/22 Spring Break

Urban Systems Design

12. 3/29 Urban modeling tutorial II (by TA Helen Chen)
13. 4/05 Design for urban metabolism
14. 4/12 **Project presentation II**
15. 4/19 A Synthesis: Urban systems design