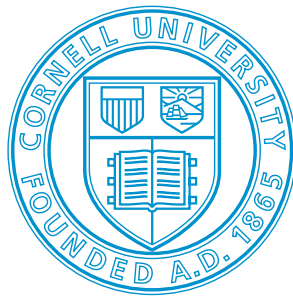


COLLEGE *of* ARCHITECTURE, ART & PLANNING
DEPARTMENT OF ARCHITECTURE

FALL 2015
OPTION STUDIOS



Cornell University

Architecture Machines

ARCH 4101/4102/5101/7912: Option Studio, Fall 2015

MWF 12:20-4:25pm

201 Milstein Hall

Peter Stec, Visiting Critic (ps856@cornell.edu)



Architektura CSR, 1956.

The studio will imagine building machines. Avoiding universal robots, it will focus on specific construction tools and their bespoke spaces. It will be an experiment in new contemporary ideas linking construction and design. Construction technology is an elusive part of architecture: scaffolding disappears, cranes are dismantled, construction gantry is relocated. This technological envelope should nevertheless become tangible in the studio.

Considerable research has been undertaken in architecture to utilize complex machines from other industries such as car making robots and 3D printing. One of the studio's premises will nevertheless be that by linking digital construction tools closely with their spatial outcome, the former can be relatively simple, while the latter innovative and surprising. Coincidentally, matching spaces to specific construction mechanisms creates an interesting inversion of the standard design and construction process.

Tracing relations between tools and spaces, the research should uncover opportunities for the application of new digital instruments inseparable from specific spatial structures. It will provide a historical background of tool-space systems, from Schindler's drawing machines to the symbiosis of e.g. panel prefabrication - gantry crane construction - cellular module extrusion etc.

As a first exercise, we will build drawing machines producing scaled plots of their constructible spaces. These will be mechanical assemblies starting to incorporate the Arduino electronic platform and experiment with digital operations.

In the next iteration, scaled versions of building machines will be tested - as inseparable systems of tool and spatial output. These could use various materials (to be poured, assembled, excavated...) and design (polar, kangaroo, frame cranes...). They are expected to operate on the scale of the building rather than of prefabricated discrete panels. Their operations can include cutting, bolting, melting, welding, pouring, scaffolding etc. Ideally, the materials used will be local.

These tool-space systems will be destined for extreme environments. They should isolate a specific environmental issue and become a vector of its transformation. They may be parts of recovery scenarios after a natural disaster. Alternatively, they can start punctual settlements overcoming inhospitably hot, cold, airless or extraterrestrial climates. The size and spatial program of each unit will be limited, but an important aspect to consider is scalability: Can the spatial units merge into clusters? How do they replicate in time? What variation of the unit is meaningful?

DESIGN PLAN 2.0

Design + Histories / Design + Desires + Fears / Design + Living / Design + Identity
A Cornell Architecture Option Studio



Entrance to Bzionkow estate, Southern Poland (Silesia) circa 1920's and 2014 (with Silesian Coat of Arms)

This course is part of a series of “Design Plan” studios that work with stakeholders across the globe to investigate and precisely define problems that can be solved with the input of designers and architects. Ranging from design of objects, buildings and cities, to strategies, organizational principles, and policies,

CORNELL UNIVERSITY DEPARTMENT OF ARCHITECTURE
STRAUCH VISITING PROF, DIR. OF RESEARCH QUEENS UNIV, BELFAST GREG KEEFFE
VISITING CRITIC MICHAEL JEFFERSON
FALL 2015
STUDIO MWF 12.20- 4.25 PM
201 MILSTEIN HALL
6 CREDITS
SYLLABUS DATED: AUGUST 18, 2015

ARCH 4101/4102/5101/7912 OPTION STUDIO

EVO-DEVO – Mapping the evolutionary morphology of the distributed city.



Genome Sequencing.

'Any sufficiently advanced technology is indistinguishable from Nature. Basically, either advanced alien civilizations don't exist, or we can't see them because they are indistinguishable from natural systems. I vote for the latter.'

-Karl Schroder, *Permanence*.

Fall 2015 David Eugin Moon Studio

THE INSTITUTION AND THE CITY

A NEW MUSEUM FOR SHENZHEN



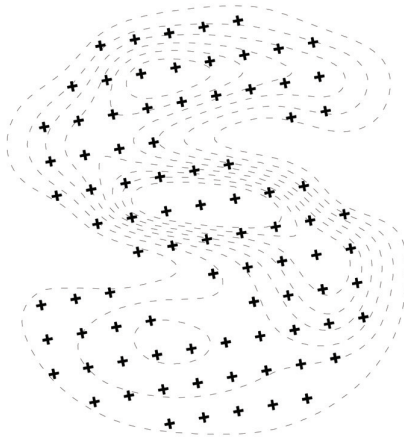
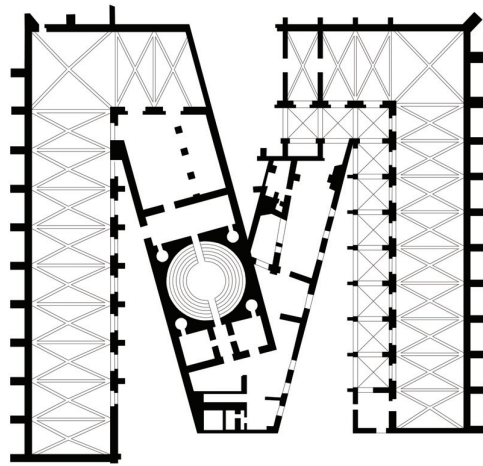
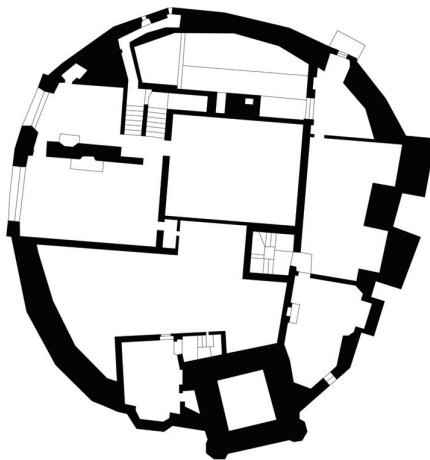
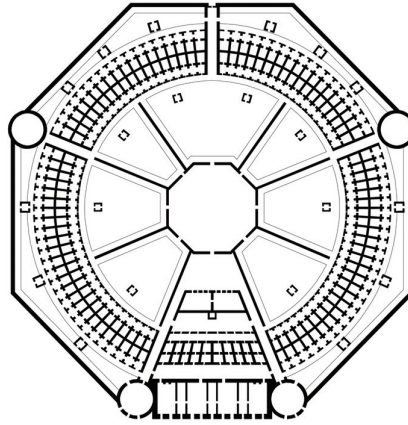
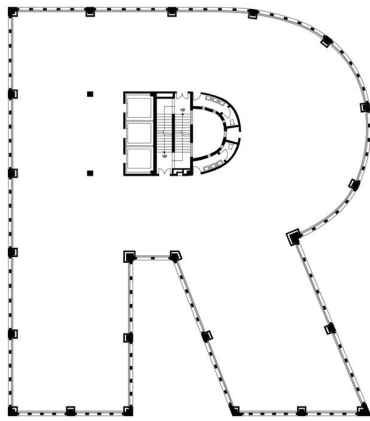
Studio Description

Shenzhen is a city in transition, from its rapid growth as a Special Economic Zone to a city that is dealing with how to create its own cultural institutions and civic spaces. An existing city with its own vast system of existing buildings, parks, and infrastructure, Shenzhen is also in some ways just beginning to create its own modern identity beyond its industrial and traditional heritage. Directly north of Hong Kong and part of the Pearl River Delta, the Chinese city is one of the most important industrial hubs in Asia. The immediate region is a source of increasing excitement in providing opportunities for new institutions such as the forthcoming V & A Design Museum in Shekou and the M+ Museum in Hong Kong.

VISITING CRITICS
Ramon **BOSCH-CAPDEFERRO** Bet

Adrià ESCOLANO
TEACHING ASSISTANT

OPTION STUDIO
Arch 4101/4102 & 5101 - Arch 7912
Fall Semester 2015



CORNELL UNIVERSITY
COLLEGE OF ARCHITECTURE,
ART, AND PLANNING

Unfolding Elements:

Scripting a New Architectural Totality

Jr-Gang Chi, Visiting Assistant Professor

Shingo Masuda, Visiting Critic

Fall / 2015 / 201 Milstein Hall / MWF 12.20 - 4.25pm / 6CR Graded



Introduction:

René Magritte's *The Human Condition*, Stéphane Mallarmé's *The Windows*, James Turrell's *Itar*, and Gerhard Richter's *Window of the South Transept at Cologne Cathedral* each conceptualizes window in its own unique manner.

Architectural elements, such as windows, columns, fences, trellis, furniture, foundations, roof, stairs, and drainpipes, carry great intelligence about a building and its conditions. They assimilate various values, from conceptual to perceptual, culture to science, and metaphor to abstraction. Important as they are, why are these elements often forgotten, or merely considered secondary or purely technical in the design process?

Since the second half of the twentieth century, the role of an architect has transformed from a total designer to a total selector (Sylvia Lavin). Instead of designing a building from inside out, an architect habitually becomes a master organizer, selecting and arranging ready-mades in the object universe (e.g. the general use of Sweets catalogue).

The Origin of Steel

Ecological Projections on the Post-Industrial Landscapes of Pennsylvania



Shaun O'Boyle, *Carrie Furnace*

'Glass before its time, premature iron. In the arcades, both the most brittle and the strongest materials suffered breakage; in a certain sense, they were deflowered. Around the middle of the past century, it was not yet known how to build with glass and iron. Hence, the light that fell from above, through panes between the iron supports, was dirty and sad.'

Walter Benjamin, F12, *The Arcades Project*

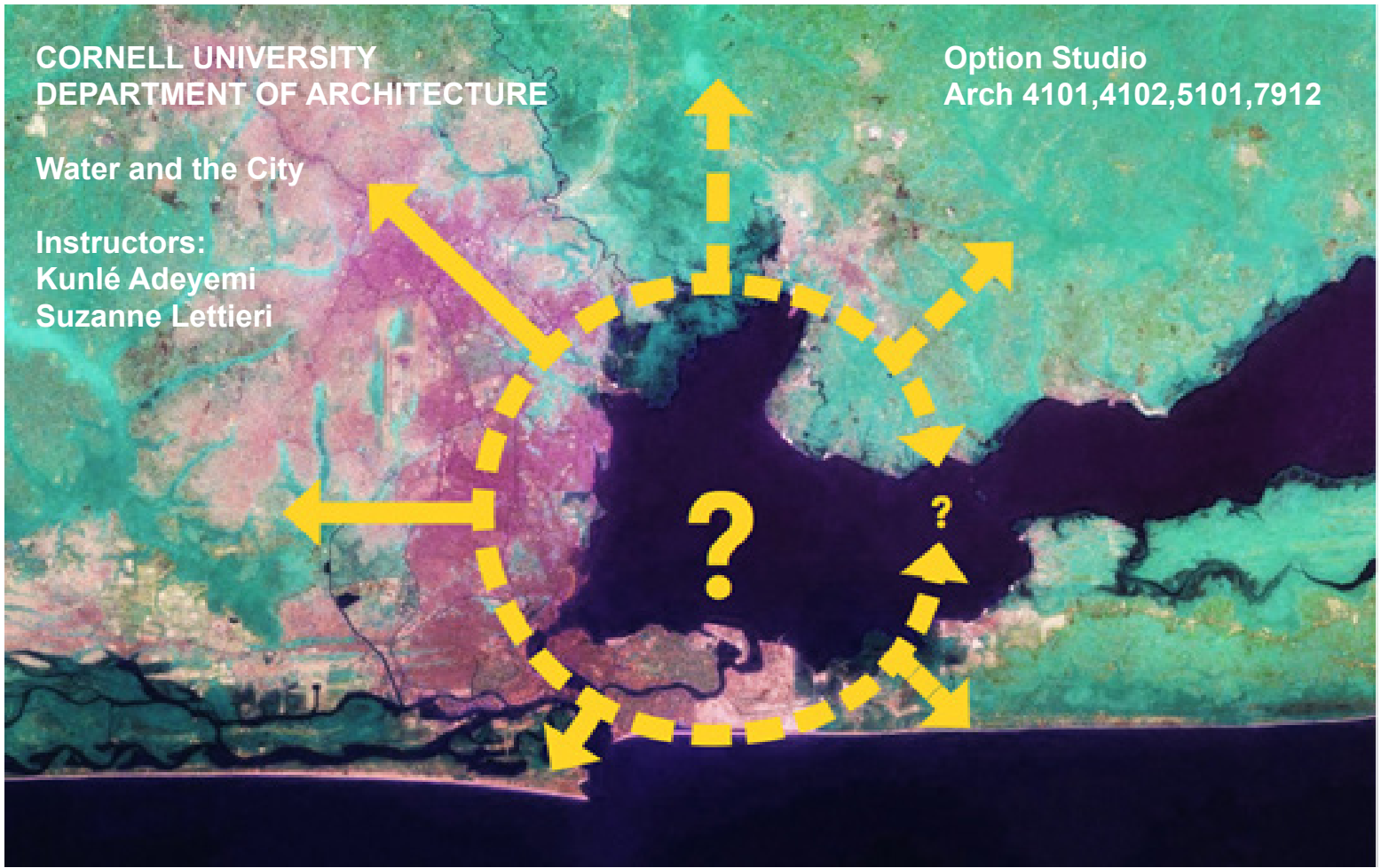
Instructor:	Tao DuFour	tns29@cornell.edu
TA:	Nicolas Azel	nja43@cornell.edu
Meeting times:	Mon, Wed, Fri, 12:20pm-4:30pm	
Class location:	Third floor E. Sibley	
Office Hours:	Thursday 10:00am-12:00pm and scheduled times	
Grading:	Letter grade only / 6 credits	

CORNELL UNIVERSITY
DEPARTMENT OF ARCHITECTURE

Option Studio
Arch 4101,4102,5101,7912

Water and the City

Instructors:
Kunlé Adeyemi
Suzanne Lettieri



'Water and the City II' examines two of the most significant challenges of our time: rapid urbanization and climate change, in the continent with many of the world's greatest opportunities, Africa.

It is an established fact that about seventy percent (70%) of the world is covered by water. A less established finding is that nearly seventy percent (70%) of the world capital cities are also situated by water. And more specifically, again nearly seventy percent (70%) of African capital cities are also by water. Although it is said that Africa is the least to contribute to climate change, it is the most likely impacted by its affects, with a large number of these rapidly urbanizing cities and communities by the water within the high to the extreme high-risk zones. This clear and present danger, calls for an immediate response through adaptation and resiliency measures for future development on the continent. Lagos (lay-gos) - Africa's second most populous city and the commercial capital of the continent's most populous nation and largest economy, Nigeria – is home to nearly 17 million people living on and by an area covered by over 30% water. Lagos is a name given to the settlement by the Portuguese in the 15th century meaning 'Lakes' due to the nature of the area, which consisted of abundant bodies of water, creeks and lagoon. The city's proximity to the Atlantic Ocean made it an ideal post for trading along the West African coast. The geographic center and heart of Lagos is water - the Lagos Lagoon - a body of water that creates a large fissure in the urban fabric and morphology of the city. Today, Lagos has become the most attractive destination for economic opportunities leading to its rapid urbanization and population explosion. With this growth and the city's peculiar morphology, several physical challenges have emerged including housing shortages, poor transportation networks, inadequate infrastructure and underutilization of its natural asset – water. In the face of these challenges, we unravel the incredible ingenuity, resilience and opportunities taken up by some of the city's settlers - Makoko, Iwaya, Badagry - who have slowly carved out unique solutions for building and living on water in the city.

'Water and the City II' will explore Lagos water bodies to examine the challenges and opportunities presented by the forces of urbanization in the physical and environmental context of Lagos State, to produce a series of architectural, infrastructural and urban solutions learning from the local environment such as in the case of Makoko. Thorough documentation of international and regional intelligence will serve as a base, as we zoom in and focus on Lagos to investigate a specific city and its edge conditions, to understand its transformation and adaptation as a 'Water City.'

The studio will explore the advantages, necessities and models of small interventions – houses on water, schools, markets, clinics, sanitation, energy solutions, transportation etc. - with the aim of combining international expertise on water management with local and indigenous techniques, in order to confront the big issues surrounding climate change in sites that require alternatives to large scale infrastructural solutions.