UG10 Informed by Materiality  Guan Lee and Kostas Grigoriadis

UG10’s credo is firmly set within the realm of architecture projects shaped by concerns with material tectonics. This year, through engagements with your architectural design project, we would like you to consider materiality in relation to industrial production and emerging digital tools.

Architectural Design Project
The life of a city is occupied by architectural artifacts, being built, used, replaced and some in the pipeline. The cohesion and dynamism of a neighbourhood are often intimately linked to the ‘yet to be’ and the ‘no longer there’. Urban infrastructures, as a result, are constantly in flux. At a material and tectonic level, architectural design can provide continuity and resonance in different scales. This ecology of construction demands architects to ‘work with’ and not ‘work on’ the context. Your design project will focus on the notions of fabricatio
not to produce buildings devoid of context, but using the environment itself as means of intervention. This approach is also an invitation to reject object-orientated tendencies in design practices that are associated with prevalent research in fabrication techniques and technologies.

Materiality
Hands-on engagement with materials in a design project in architecture is necessary. Our emphasis on material and making can serve both as a vehicle for experimentation, as well as a theoretical framework for exploring ideas in design. Materiality is not an abstract construct, but tangible. The matter resides not only on the surface but also at the core of construction. Whether industrially manufactured or bespoke, conversations surrounding material can go beyond its properties. Your design with materials must critically examine their characteristics that are ‘least like nature and yet most natural.’ Thinking behind tectonics of architecture is inevitably tied to application and assembly of materials. Working with materials with precise considerations for both, we aim to design with tactility and stability.

Industrial Production
Mass-produced and standardised construction materials introduced during the industrial revolution of the 19th century are now ubiquitous in our building fabric. The invention of materials like plywood, plasterboard, and concrete has irreversibly changed the methods through which architects design and build. Dimensions of materials used in construction today are derived from means of production or limitations of onsite construction tools. How can we engage building design beyond simple economic or logistic argument? Can we approach research in architecture with strategies compatible with ones employed by the manufacturing industries? Material issues are also closely linked to environmental and sustainability-related parameters. These challenges can be perceived as opportunities and not obstacles. Imaginative design solutions cannot preclude pragmatic concerns.

Emerging Digital Tools
The introduction of digital tools is not a clear-cut process. Fully automated mode of fabrication is on the horizon, but what confronts us at the moment is a plethora of hybridised systems. Digital tools can enhance human capabilities, things can be hand-made with robots, and we are currently starting to think through artificial intelligence. Digitally controlled machinery has delivered a clear shift in manufacturing workflow. But, factories are not making the same things just with different tools. The interaction between machine and material with emerging digital technologies has opened up significant questions in architecture. For instance, why is implementation in digital fabrication often simply about the technique, devoid of cultural and historical context? How can established modes of production based on site specific knowledge inform emerging fabrication technologies?
Project Outline:

**Piraeus and the Sea**

The site of our design project for the year is the Greek port city of Piraeus. Having connected the sea to the Athenian hinterland since classical times, Piraeus is currently the 8th largest container port in Europe and 3rd in the Mediterranean Sea. Additionally, it is the largest passenger port in Europe and one of the largest in the world. In 2007, the automobile terminal handled in total 260,605 trucks, 612,840 cars and 9,920 buses in total. Its municipality has a density that is larger than Hong Kong, mainly due to the lack of open spaces and unregulated expansion during the 1950s and 60s. The recent privatisation of the port authority and plans for expansion of its handling capacity aim to increase even further the pressure that the port will put on its adjacent urban tissues. The residential areas next to the port are under threat, part of the coastline is turning into a vast logistical no man’s land, the city is disconnecting from the sea itself. On the other hand, the liveable city landlocked between the sea and the lack of space for expansion is facing various architectural issues of its own. Recent attempts to reinvigorate parts of the waterfront, converting it into a so-called ‘Cultural Seafront’ and instilling new civic character back to the city have not been fruitful. These efforts are constantly being clouded by ineffective public administration and lack of funds due to the recent economic crisis.

**Project One:**

**Island Before, Island After**

In project one, working with digital and physical models, we would like you to propose a small intervention in a dense urban part of Piraeus. Day after day, this port city ferries tourists to and from Greece’s beautiful islands: this in turn facilitated the growth of its surrounding neighbourhood. Through initial research from afar, your aim is to identify a clear ‘urban conflict’ and propose a ‘material’ response. This exercise should be driven by your imagination of the place. Perhaps it is not about the right or the wrong answer, but about prioritising design resolution through an iterative process. The ritual of going back and forth between design proposition and material experimentation can facilitate your individual research into the site context. How do the two modes of design practices inform on another? Can material studies operate simultaneously at different scales? We encourage you to pick up tools that are not familiar to you and explore with them. Navigating through untried methods of working or handling new materials can be intimidating but also rewarding.

**Project Two and Three:**

**A Hybrid Waterfront**

At the beginning of term 2 we will visit Athens and in particular Piraeus for you to resume your research in-situ. All of the new facts, first hand experiences and information collected can be tested against your ‘urban conflict’ in Project one. Through your building proposals in projects two and three, your initial ‘material’ intervention will morph and shift accordingly. Our aim in effect is to become an urban surgeon, strategically placing your proposals in the context in order to reconcile infrastructural, cultural, residential and recreational uses. Your design will involve deploying materiality in a deliberate manner, allowing various contextual forces to mould it into inhabitable forms and spaces. Recursive-making explorations and drawing studies will allow you to generate unique building design, and most importantly material proposals that can address issues of this contemporary seaside metropolis. Through a speculative design, one of your main focuses is to form a critical position on the relationship between digital design and material outcome. If arrival or departure is merely a point of view, how can we return to a destination we have never been before?

1 KVA: Material Misuse, Sheila Kennedy, Christoph Grunenberg, AA Publications, 2001