17

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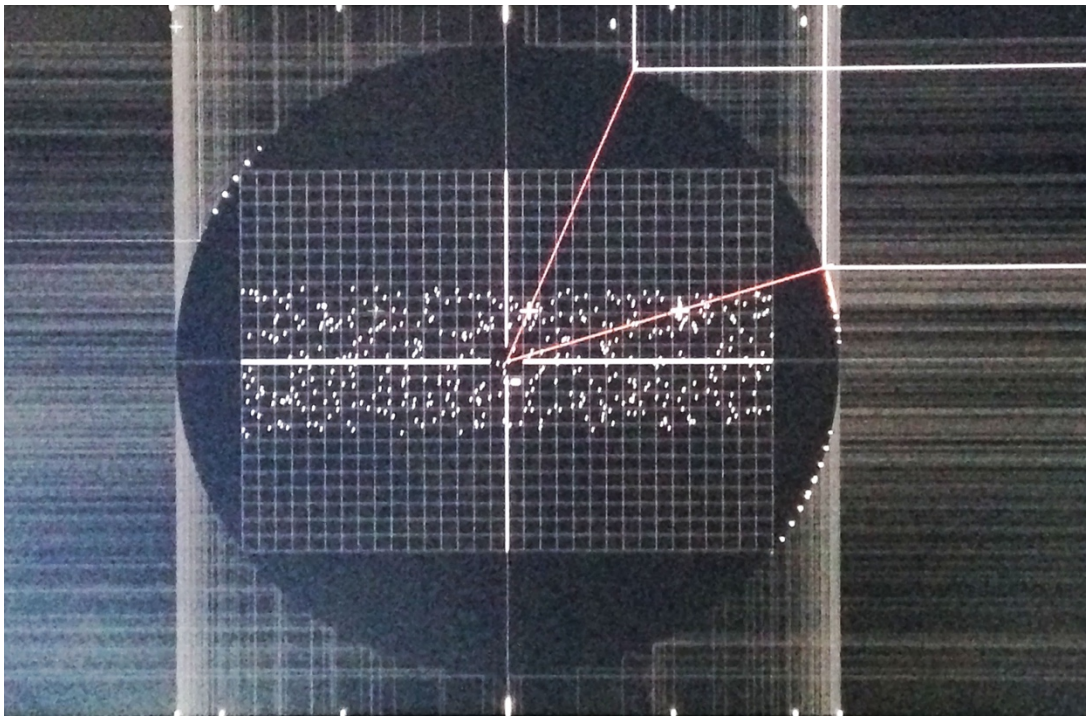

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Unit 17 takes a progressive and experimental approach to architecture that is specific to place and culture. Our work develops through open inquiry. It is founded on the recognition that the architect works both as scientist and poet being equally engaged in empirical analysis as well as abstraction, speculation and invention.

Last year we designed and built collectively a concrete-formed building. Students learned through creative collaboration, particularly by working with experts in material research and construction. Our theme was time, linked with place and history. This year we would like to take a different take on the subject of time and extend it to explore its more mathematical aspects: periodic and cyclical rhythms, simultaneity, alternating and nested structures in the fabric of our landscapes and urban environments. We aim to work outside our comfort zone to explore architecture through some of the most fascinating mathematical ideas that are embedded in the world we live in—in nature, inside our bodies and the multitude of external networks that condition our routines and daily lives. We are interested in how our evolving human condition and knowledge shape in turn our understanding of mathematics in a continual dialogue between experience and abstraction.

Mathematical concepts have shaped our perception of the universe and the evolution of the cosmos since Babylonians' astronomy in the first millennium BC. They influence and explain how animals, landscape, people and politics interact. They model contemporary global systems, commodification, finances, communications, data and work flows, health and population statistics. They condition nature, governance, economy and human experience.

Architects currently tend to associate mathematical space with computation. One of our interests is to understand this and unpack its possibilities. But our intention is much broader. We would like to avoid positions such as the simplistic acceptance of digital parametrics on the one hand and its severe criticism on the other. Instead, we will aim to explore the spatial, social and aesthetic consequences of mathematical ideas with an open mind. Contrary to the view that sees mathematics exclusively as the basis of science, we will examine how mathematics has influenced the spectrum of human creativity and imagination across the sciences and humanities: from natural philosophy, biology and quantum physics to architecture, literature, painting and music. Think about Bach, Theo van Doesberg, Jorge Luis Borges, and contemporary Ryoji Ikeda; and architects from the Ancient Egyptians to Palladio and Xenakis. Can a fresh spatial study of mathematics, that is not reductive, utilitarian or sacred, push architecture to novel directions?

1: Mathematical Forms

In the first five weeks students will research and experiment with an array of mathematical concepts. They will explore their spatial consequences physically through making objects, drawings, films or performances. Year 4 students may chose to work collaboratively to create large scale works.

2: Nested Rhythms

In early November we will fly to Montevideo to visit the remarkable structures created by architect and engineer Eladio Dieste in various locations across Uruguay. Dieste explained that his buildings aimed to achieve 'cosmic economy', 'forming a dialogue with reality and its mysteries'. We will then cross by boat to Buenos Aires to experience the cultural life of Argentina's capital and its surrounding landscapes, including visiting buildings by Amancio Williams and Colorindo Testa. Students will closely look and listen. They will record and measure systems and sites of their choice, found in the capital cities or in the landscape and seascape that lay in-between.

The students' work will gradually evolve into their main design projects. Having researched a mathematical question that is embedded in the world, whether in the digital, the musical, in nature, climate, the human brain, economy or social infrastructure, they will then make propositions for an architecture that accommodates a range of nested rhythms. Programs of co-living and sharing work places will be among those explored. Year 4 students may have the option to continue to work in teams to realise ambitious large scale pieces.

Image: 'Supersymmetry' at The Vinyl Factory by Ryoji Ikeda, photographed by Yeoryia Manolopoulou.