



## Programme: Computation in Architecture

## Title: Relational Strategies: Performance/Making/Modelling

<b>Semester:</b> 1	<b>Period:</b> 4 September 2023 – 26 January 2024 <b>ECTS-points:</b> 30
<b>Contents:</b> <p>The semester focuses upon introducing students to the theories, technologies and practices that have helped define (historical) and currently define the paradigms and state-of-the-art within the field of digital architecture. Theoretical appreciation and engagement with the field occurs through the study of given texts in association with design-led, group-based project work [theory]. Skill building design projects are structured to introduce tools and methods for addressing issues of scale and dependencies between scales, material performance and its steering, site, context, climate and programme [medium &amp; project]. Knowledge of appropriate concepts, research, and applied techniques is introduced throughout the semester via courses and research-led workshops that emphasise direct 'hands on' engagement.</p> <p>The semester will include the following courses:</p> <ul style="list-style-type: none"><li>- <b>Fundamentals of Rhino &amp; GH</b> will introduce students to parametric modelling concepts and techniques, with focus on building basic understandings and skills</li><li>- <b>Thinking Architecture 1 - The Computational Turn</b> will introduce students to digital and computational cultures in architecture. While being a field of experimentation in its own right since the 1960s, designing with the help of algorithmic tools encompasses many practices and conceptualizations. Students will be introduced to them through a historical outline and through readings, discussions and the production of short texts.</li><li>- <b>Tactics of Materialisation</b> introduces students to the diversity of fabrication tools and techniques available at the Royal Academy and how making and modelling can be intertwined through techniques of digital sensing.</li><li>- <b>Life Cycle Analysis</b> will introduce students to critical considerations and applied workflows for Life Cycle Analysis</li></ul>	<b>Learning Outcomes (Knowledge, skills and competences):</b> <ul style="list-style-type: none"><li>Knowledge of relevant architectural theory related to digital practice</li><li>Knowledge of material and environmental simulation techniques, their assumptions, abstractions, limits and opportunities within design contexts</li><li>Knowledge of research-based methods for testing and evaluation of material performance</li><li>Skill in applying core concepts of digital practice related to design, analysis, simulation and fabrication.</li><li>Skill in deploying appropriate digital design strategies for addressing architectural, structural, fabrication, programmatic and site-based issues.</li><li>Competence in working effectively within a group-working context</li><li>Competence in critically reflecting upon architectural issues through direct material engagement</li><li>Can use appropriate fabrication technologies to support design investigation and synthesis</li><li>Competence in integrating material performance data with design concept</li><li>Competence in developing appropriate representational methods and tools</li><li>Propositional project work that exercises and further develops the competencies and knowledge introduced throughout the semester</li></ul>



# Det Kongelige Akademi

Arkitektur  
Design  
Konservering

-**Thematic workshops** in Digital Fabrication, Material Performance and Sensing introduce students to core concepts and techniques for performance-led design, methods of experimentation and state of the art.

**Teaching forms:**

Workshops, Courses, Individual tuition

**Attendance requirements:**

Full attendance in the semester's core thematic workshops, courses and activities is expected

**Submission requirements:**

Comprehensive design portfolio that records and reflects upon the semester's individual and group-based work (including representations, photographs, drawings, models, 1:1 prototypes, time-based media, etc). Verbal presentation of study.

**Syllabus:**

The syllabus includes:

James Bridle - New Dark Age, Chapter 2

Gordon Pask - The Architectural Relevance of Cybernetics

John Frazer - An Evolutionary Architecture, Introduction + Section 1

James Corner - The Agency\_of\_Mapping

Stan Allen - From Object to Field-revised

Carpo, Mario, The Alphabet and the Algorithm, The MIT Press, 2011.

Cogdell, Christina, Toward a Living Architecture? Complexism and Biology in Generative Design, University Of Minnesota Press, 2019.

Terzidis, Kostas, Expressive Form: A Conceptual Approach to Computational Design, Routledge, 2003.

**Method of assessment:** Oral examination, 30 minutes

**Grading:** Danish 7-point grading scale

**Censor:** Internal