



Programme: Computation in Architecture

Title: Relational Strategies: Performance/Making/Modelling

Semester: 1	Period: 4 September 2023 – 26 January 2024 ECTS-points: 30
Contents: <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 & 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">- Fundamentals of Rhino & GH will introduce students to parametric modelling concepts and techniques, with focus on building basic understandings and skills- Thinking Architecture 1 - The Computational Turn 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.- Tactics of Materialisation 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.- Life Cycle Analysis will introduce students to critical considerations and applied workflows for Life Cycle Analysis	Learning Outcomes (Knowledge, skills and competences): <ul style="list-style-type: none">Knowledge of relevant architectural theory related to digital practiceKnowledge of material and environmental simulation techniques, their assumptions, abstractions, limits and opportunities within design contextsKnowledge of research-based methods for testing and evaluation of material performanceSkill in applying core concepts of digital practice related to design, analysis, simulation and fabrication.Skill in deploying appropriate digital design strategies for addressing architectural, structural, fabrication, programmatic and site-based issues.Competence in working effectively within a group-working contextCompetence in critically reflecting upon architectural issues through direct material engagementCan use appropriate fabrication technologies to support design investigation and synthesisCompetence in integrating material performance data with design conceptCompetence in developing appropriate representational methods and toolsPropositional project work that exercises and further develops the competencies and knowledge introduced throughout the semester



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-**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