Programme: Computation in Architecture

Title: Tactical Experimentations: Research Informed Design Inquiry

Semester: 2	**Period**: **Period**: 5 February – 27 June 2024 **ECTS-points**: 30
Contents: This semester focuses on introducing research methods for supporting design-led architectural inquiry [methodology]. Students are required to personally direct a competent, inventive and ambitious architectural investigation of appropriate complexity. The semester begins with the writing of a programme of study that critically reflects upon the work to date in order to identify a personal territory of architectural interest and appropriate methods of investigation [concept & programme]. Focus is placed on the use of research methods, research-by-design primarily, as a critical support for design-led inquiry and the development of innovative practice [practice]. Skill building in computational, simulation and digital fabrication methods is structured to support and enable design investigation. Over the semester, courses and lectures are run in parallel with the design project. These courses introduce and build skills in the use of computer programming as an architectural design tool; in designing and working with bio materials; and developing awareness of digital design practice. Parallel understandings of these same themes are developed through lectures from practitioners and researchers. The semester will include the following courses: **-Fundamentals of Computation** introduces students to the use of scripting/programming techniques as an architectural design tool. The course contextualizes programming topics relative to questions of design methodology, information flows, geometry, building practice and aesthetics. -**CITAsessions**. The course introduces students to a broader community of digital practitioners. It includes scheduled visits to architectural practices with particular expertise in simulation, sustainability and materiality as well as presentations given by invited academics, practitioners and researchers from related fields.	**Learning Outcomes (Knowledge, skills and competences):** Knowledge of design-led research methods and a critical understanding of their merits, limits and contexts of use. Ability to use relevant architectural theory to define, inform and position design-led research informed investigation Can define a personally directed research informed architectural investigation of appropriate complexity Competent use of simulation techniques with developed understandings of their assumptions, abstractions, limits and opportunities within design contexts Competence in deploying appropriate digital design strategies for addressing architectural, structural, fabrication, programmatic and site-based issues. Competence with specific material forming techniques and their potential for informing complex architectural proposition. Propositional project work that develops personally-directed competencies and knowledge via research methods

-Designing with Living Complexes introduces students to bio-based material practices through design-led enquiry. With a particular focus on the design and production of mycelium-based composites, the course will allow students to gain competencies with biolab practices and protocols.

- Thinking Architecture 2 – Political Ecologies introduces students to modes of conceptualization of the relation entertained by computational architecture practices to nature, ecology, sustainability and society. In continuity with the first part of the Thinking Architecture class, the class is based in reading, discussion and production of short written texts.

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 work (including representations, photographs, drawings, models, 1:1 prototypes, time-based media, etc) Verbal presentation of study.

Syllabus:

The syllabus includes:

CITA - Complex Modelling

Adamatzky, A., Ayres, P., Belotti, G. and Wosten, H. - Fungal architecture.

Thomsen MR, Tamke M, Karmon A, Underwood J, Gengnagel C, Stranghoner N. - Knit as bespoke material practice for architecture.

Ramsgaard Thomsen M, Nicholas P, Tamke M, Svilans T. - A New Material Vision.

Jeremy Caradonna - The Industrial Revolution and Its Discontents

Method of assessment: Oral examination, 30 minutes

Grading: Danish 7-point grading scale

Censor: Internal

Rockström et al. A safe operating space for humanity.

Descola, Philippe, Beyond Nature and Culture, University of Chicago Press, 2013.

Despret, Vinciane, Living as a Bird, Polity Press, 2021.

Latour, Bruno, We have never been modern, Harvard University Press, 1993.

Rigobello, Adrien & Nadja Gaudillière-Jami, “Designing the Gross. In search for social inclusion”, Design Culture(s): Cumulus Conference Proceedings Roma 2021, 2021.