The AAHF30 Arkitektur i samtid course experiments with digital design processes aimed at developing novel spatial and structural typologies through the use of surface modeling, simulation, animation, and digital fabrication. The course is explicitly focused on contemporary architectural discourse, through research and readings, which examines prospects and opportunities of digital design and fabrication processes. Students will engage in design experiments driven by digital methods and technologies, critically examine how these methods are evaluated in practice and theory. The course will raise question of relevance for the development of architectural discipline in the contemporary world, such as: how will the role of the architect evolve as the design process becomes more automated?; how can we use spatial and structural design to communicate the urgency of environmental crisis?

The design task is to develop an architectural proposal for a Naturum; each student will select one site for intervention, either at the Limhamn Limestone Quarry in Malmo, or at Kivik Art Centre in Lilla Stenshuvud, Kivik. The individual project should evolve in correlation with aspects of the Agenda 2030, taking one of the Sustainable Development Goals as the engine for innovation; as a point of departure for critical reflection, creating a solid foundation for design experimentation rooted in the urgency of environmental crisis. The design project is supported by lectures, workshops, and literature. The final examination is organized as a public briefing with invited external critics.
In the quote above, the American architect Lebbeus Woods described one aspect of the life he envisioned with his 1988 project *Underground Berlin*. Written more than 30 years ago, the description resonates today, in the most uncanny way, with the task that architecture is facing in the light of environmental crisis. The environment, today, does not anymore reflect a stable climatological condition; something that can be passively enjoyed by means of architectural conformity. The environment of today is dynamic! Shifting climatological conditions intersect with the socio-economic and political complexities of the contemporary world to usher immense challenges for the construction of future societies. How can we build a house or a city when we don’t know what climatological parameters we may expect, and what impact they may have on the way we structure our life and environments? How can we provide decency and equality and, at the same time, continue to support societal progress which, implicitly, implies exploitation of natural resources? Architects have, today, the obligation to explore new solutions on how the construction of space can respond to the environmental crisis; to activate “engagement on every level” for the design of communicating environments, and to experiment with architectural design in processes where “the outcome of the work [can’t be] known in advance before the work is actually done” (Woods, 1989).

**The project**

Naturum is a building type, with a program and spatial typology feasible to use when communicating aspects of nature and environment. The Naturum has been defined as “a visitor and information center” for a specific natural site, providing “information about the local flora, fauna, geology and cultural history that visitors would be moved to explore the countryside further, to seek information for themselves” (Isitt, 2011: 26). Extrapolated as a space for framing aspects of nature, the Naturum may become an expanded field of inquiry in the light of environmental crisis. Head of Movium Caroline Dahl discusses different aspects of the Naturum. She argues that its contemporary role may not be to reflect on the beauty of nature, but rather to use space as a means of representation to communicate new relationships between nature and humanity. She says that “[n]aturum kanske kan fungera som en igångsättare med uppdraget att få oss att agera. Kanske kan naturrum snarare få oss att förskräckas över vilken påverkan vi har, men också få oss att förundras på ett nytt sätt över insikten att vi har möjlighet att faktiskt förändra, inte bara till det negativa utan också till det positiva” (Dahl, 2017). Taking the Naturum as a space for experimentation, architects can use its disciplinary conations in typology and culture to create communicating environments feasible to critically investigate and express new relationships between nature, humanity, and societal progress.
Critical inquiries need a framework of reflection. Within the discourse of environmental crisis, such framework may be the sustainable development goals (SDG) of Agenda 2030. Set in 2015 by the United Nations General Assembly (UN), the SDGs generalize 17 global goals of what to accomplish by the year 2030 in order to “achieve a better and more sustainable future for all” (UN, 2020). As the goals target specific areas of inquiry, they address multiple levels of complexities related to aspects of sustainability. The goals are not prescriptive, thus they don’t provide instructions on how to solve the environmental crisis. They are rather reflections on issues to be targeted in the comprehensive work with accomplishing sustainable environments. Thus the goals may not be comprehended as problems to solve, or checklists to obey. They can rather be adopted as engines in experimentally driven design processes; engines that force critical inquiries into those habits and norms that continue to propel social, human, economic, and environmental degradation.

Due to the complexities in SGDs, their inherent meaning and aspects of implementation needs to be creatively interpreted and communicated -- to all sectors of society. Only by challenging the norms by which things generally are done will humanity enable to reconceptualize the processes that drive environmental crisis. Architects have both tools and mind-sets to guide such endeavor. Our discipline is contextualized in representation, and our action draws on aptitudes of envisioning alternative worlds and environments. By adopting new tools and techniques, creativity and experience may merge in experimental processes to challenge our own habits while communicating knowledge and alternative prospects for sustainable development. Using the design of a Naturum to critically engage in aspects of the environmental crisis, the interaction between fabrication and site may become a communicative environment that clarifies, generalizes, or problematizes some areas of the SDGs.

To develop your Naturum project, you should:

- Select a site that engages your creativity/curiosity (scale, sightlines, atmosphere, setting, etc).
- Explore your site through multiple means (photography, drawing, writing, modeling, fabrication etc).
- Identify one SGL that engages your creativity/curiosity.
- Describe your site through literal processes and metaphors about your SGL.
- Experiment with forms and spatial sequences in computation to create a total environment that communicates the literal processes and metaphors about your SGL. Insert predefined functions in your spatial sequences according to the Schedule of Accommodations. Obs: Do not compromise the communicating aspects of your environment by means of functions – the functions should be subordinated the experience and spatial sequence of your communicating environment.
- Present your total communicating environment and its relationship to the site by means of drawing, rendering, and text at 3x A1 format pages (horizontal orientation) stacked vertically (Note: follow the template linked in the course website). The logo of your selected SDG should be included in the panel.
### Schedule of Accommodation

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Exhibition</strong></td>
<td></td>
</tr>
<tr>
<td>Constant exhibition space(s)</td>
<td>TBD</td>
</tr>
<tr>
<td>Movie room</td>
<td>TBD</td>
</tr>
<tr>
<td>Foyer/meeting point</td>
<td>TBD</td>
</tr>
<tr>
<td>Rotating exhibition space(s)</td>
<td>TBD</td>
</tr>
<tr>
<td>Storage space(s)</td>
<td>TBD</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td></td>
</tr>
<tr>
<td>Ticket office/counter</td>
<td>TBD</td>
</tr>
<tr>
<td>Staff Office (including a meeting room)</td>
<td>TBD</td>
</tr>
<tr>
<td><strong>Auxiliary</strong></td>
<td></td>
</tr>
<tr>
<td>Café</td>
<td>50 – 100 sq.m.</td>
</tr>
<tr>
<td>Museum shop</td>
<td>30 – 60 sq.m.</td>
</tr>
<tr>
<td>Lavatories</td>
<td>TBD</td>
</tr>
<tr>
<td>Building Services Plant Room</td>
<td>Approx. 30 sq.m.</td>
</tr>
<tr>
<td>1 loading/unloading parking bay for heavy vehicles</td>
<td>TBD</td>
</tr>
<tr>
<td><strong>Landscape</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Large portion of the design effort needs to be directed towards designing appropriate surrounding landscape which would have symbiotic relation with architectural forms of the Naturum.</td>
</tr>
</tbody>
</table>
### Teaching Plan

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>03.17</td>
<td>Course briefing Site 1 (Malmo) visit</td>
<td>Room: A:C, 09:15.</td>
</tr>
<tr>
<td>03.18</td>
<td>Site 2 (Kivik Art Center) visit</td>
<td>Individual transit to Malmo, meeting 13:15 at Limestone Quarry Lookout, Kalkstensvägen, 216 17 Limham.</td>
</tr>
<tr>
<td>03.23-04.02</td>
<td>Digital tools workshop and metaphor workshop, including Assignment 1, 2, 3</td>
<td>Room Computer Lab</td>
</tr>
<tr>
<td>04.03</td>
<td>Review: Site analysis and workshop outputs</td>
<td>Room: A:C</td>
</tr>
<tr>
<td>04.06-04.09</td>
<td>Study trip: Lisbon, Portugal</td>
<td>See separate program</td>
</tr>
<tr>
<td>04.14-04.16</td>
<td>Lecture series by Gediminas Kirdeikis and Per-Johan Dahl</td>
<td>04.15, 15:15, Kirdeikis, Room: A:C 04.16, 15:15, Dahl, Room: A:C</td>
</tr>
<tr>
<td>04.17</td>
<td>Review session</td>
<td>Design studio</td>
</tr>
<tr>
<td>04.22</td>
<td>Review session</td>
<td>Design studio</td>
</tr>
<tr>
<td>04.29</td>
<td>Mid review</td>
<td>Room A5012</td>
</tr>
<tr>
<td>05.08</td>
<td>Review session</td>
<td>Design studio</td>
</tr>
<tr>
<td>05.15</td>
<td>Review session</td>
<td>Design studio</td>
</tr>
<tr>
<td>05.28</td>
<td>Submission deadline for the Final Review and the Spring Exhibition</td>
<td>See instructions for final review submission</td>
</tr>
<tr>
<td>05.29</td>
<td>Final Review</td>
<td>Room A:C</td>
</tr>
<tr>
<td>06.01-06.05</td>
<td>Time-frame for thesis booklet amendments</td>
<td>See instructions for final thesis booklet submission</td>
</tr>
</tbody>
</table>

### Assignments

**Assignment 1: Site analysis**

Once both site visits are done, the students are expected to choose one of two sites and do an analysis of it. Aspects of the sites to consider:

1. **Formal/informal access points:** What are possible ways to reach certain points on the chosen site? Speculate how these access points could be used to reach an architectural object located within the site.

2. **Atmospheric gradients and their catalysts:** How does the special atmosphere change throughout the site and what might be the catalysts that trigger the change? Speculate how these qualities could be reacted to when designing the naturum and it’s surroundings.
3. **Scale**: what enables us to grasp different scales of the site? Are there specific qualities that work on more than one scale? Speculate how found qualities at different scales could influence the architecture/artificial landscape condition of a naturum.

4. **Geological formations and their influence**: What processes led the site to be as it is now. Speculate how architecture could react to these processes as well as current geometric condition of the site.

The selected examples are to be analyzed in detail through the use of your own photos, hand or digital sketches and diagrams (including 3D diagrams).

### Deliverables

Maximum of 8 slides should be created for Assignment 1.

- **Size**: A3,
- **Orientation**: horizontal,
- **Delivery method**: Digital presentation

**Note**: Assignment 1 will be presented together with Assignment 2 and 3.

### Assignment 2: Metaphore workshop

The metaphor workshop will be pursued on March 27. During the workshop, the students will create metaphors to link aspects of site with the selected SDGs and architectural form concepts. Before the workshop, each student should prepare minimum six A3 format prints of the concept model at the Digital Tools Workshop. The Metaphore workshop will include both individual assignments and group work.

### Preparations & Deliverables

- Hyper image, metaphore matrix, transient image
- **Size**: A3
- **Orientation**: Decided individually,
- **Delivery method**: Hard copy presentation

**Note**: Assignment 2 will be presented throughout the workshop, and together with Assignment 1 and 3.

### Assignment 3: “Architectural blockout”

During the digital tools workshop, the students will be taught multiple different methods on geometry creation/manipulation/control. Each student will use these methods to create an abstract architectural sculpture as a reaction to site analysis and a base for the upcoming design process. The best parallel to draw is that of a traditional sculpture shape blockout – the first step of any traditional sculpture is arranging main, very rough, shapes which will later be polished into a sculpture. In case of an architectural project (specially working
with geometry generating tools), the “blockout” should not be considered as series of rough shapes, but rather as series of rough ideas and approaches which drive the geometry. Sub-tasks shall be listed and explained during the digital tools workshop.

### Deliverables

**Models:**
At least 1x 3d-printed model should be made of the conceptual form. Alternatively students can choose to use CNC-milling, Laser cutting or traditional crafting for model creation as long as the technique used has benefit over other listed techniques.

**Graphics:**
Maximum of 5 slides should be created for Assignment 3. Size: A3, Orientation: horizontal, Delivery method: Digital presentation

**Note:** Assignment 3 will be presented together with Assignment 1 and 2.

### Submission instructions

**Submission 1: Digital Tools Workshop (Assignment 1, 2, 3)**

At the Digital Tools Workshop submission you will present your impressions and analysis of the site, and how those relate to your selected SDG and architectural form concept. Your site analysis, hyper image, metaphore matrix, transient image, and the slides from Assignment 3 should be comprised into a pdf or ppt presentation. You should additionally present physical 3D-printed artifacts and fragments from Assignment 3.

Deadline 1, soft copy presentation and physical models: Thursday April 2, 09:00.

**Submission 2: Mid review**

The mid review is an occasion of outreach and feedback. You will gather your work until the mid review deadline, and construct a soft copy presentation in pdf or ppt format that clarifies relationships between your site and architectural intervention, your concept of communicating environment including the literal and metaphorical aspects of your selected SDG, and the program. You should keep in mind the main task, which is to create a total communicating environment. Thus your presentation should communicate the design of both landscape, exterior, and interior space.

Deadline 2a, soft copy presentation, email to gediminas.kirdeikis@arkitektur.lth.se, Wednesday April 28, 23:59.
Deadline 2b, physical models and artifacts: Thursday April 29, 09:00.
Submission 3: Final review

For the final review, the students are required to produce 1) one hard copy presentation of three A1-format panels and 2) one soft copy presentation in pdf or ppt format. The hard copy presentation should follow a template that will be provided by the tutors; it will be used both for the final review and for the 2020 Spring Exhibition, which opens on May 29. The soft copy presentation should be individually crafted to correlate with the oral presentation on May 29.

Deadline 3a, hard copy presentation: Pin-up in the foyer Thursday May 28, 17:00.
Deadline 3b, soft copy presentation, email to gediminas.kirdeikis@arkitektur.lth.se, Thursday May 28, 23:59.
Deadline 3c, physical models and artifacts: Friday May 29, 09:00.

Submission 4: Final thesis booklet

Use the feedback from the final review to improve your project. Produce a final booklet of your thesis project, where you illustrate your concept and the ideas behind the SDG you used, your site analysis with reflections on the environment, your models, processes, sketches, and final prospects. You should upload your final booklet to //temp/unprotected/aahf30.

Deadline 4, soft copy of your final thesis booklet: Friday June 05, 17:00.

Literature

Required readings for the Course Introduction, March 17:
UN. “About the Sustainable Development Goals,” retrieved 7 February 2020

Required readings for the digital workshop, March 23:
Mode Lab, “Grasshopper Primer V3.3”, 2015
**Required readings for the Kirdeikis lecture, April 15:**

Allen, Stan. “From object to Field.”
Carpo, Mario. “Breaking the curve.”
Kim, Dongil, and Seojoo Lee. “A systemized aggregation with generative growth mechanism in solar environment.”
Lai, Jimenez. “Citizens of no place.”
Lynn, Greg. “Embryologic Houses.”
Retsin, Gilles. “Discrete and Digital.”
Sanchez, Jose. “Combinatorial design.”
Trummer, Peter. “Associative Design: from type to population.”

**Required readings for the Dahl lecture, April 16:**


**Recommended readings:**