

AADA20 | Shell + Core

Digitala Verktyg 5, HT18



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Task 1: Shell + Structure

shell: 1. An external, usually hard, protective or enclosing case or cover. 2. A framework or exterior, as of a building.

structure: 1. Something made up of a number of parts that are held or put together in a particular way. 2. The way in which parts are arranged or put together to form a whole; makeup: triangular in structure. 3. The interrelation or arrangement of parts in a complex entity.

Working individually, develop a single surface (either open or closed) using techniques covered in day 1 tutorials and rationalize the surface using Paneling Tools with 3 different structural + paneling strategies. The surface should be offset in order to create a separate structural layer and paneling layer.

rationalization: systemic organization, the act of organizing something according to a system or rationale.

Objectives: To become familiar with basic commands and surface modeling techniques in Rhino + Paneling Tools 2D.

Task 2: Pattern + Variance

pattern: 1. An arrangement of repeated or corresponding parts.

variance: 1. The act of varying. 2. The state or quality of being variant or variable; a variation.

Part A: Forming into groups of 3 -4 students per group, but continuing to work individually, select one of the artists listed below (each group should have just one artist). Using the artist's work as precedent, each person in the group will develop an individual surface model (developed within a rectilinear bounding box) that is inspired by principles from the selected artist's work. Principles such as, but not limited to, continuity, modularity, symmetry / asymmetry, repetition / variation.

Part B: Continuing to work individually, develop a single closed surface and panel the surface, using techniques covered in day 2 tutorials, with the surface developed in Task 2, Part A. Develop 2 more variations on your paneling strategy using other Paneling Tools - Panel From Grid 3D techniques. You may also modify the geometry of the target surface to be paneled and / or modify the panel geometry.

Objectives: To become familiar with intermediate - advanced commands and surface modeling techniques in Rhino using Paneling Tools 2D + 3D.

Artists:

Cha Jong-Rye
Enrico Castellani
Eva Hild
Jan Schoonhoven
Lars Englund
Ross Lovegrove
Ruth Leavitt (Diamond Transformations)

Task 3: Site + Core

site: 1. The spatial location of a structure or set of structures. 2. The position or location of a town, building, etc., esp. as to its environment. 3. A place that is used for a particular activity.

core: 1. The central, innermost part. 2. The center of an object

Part A: Working as a group, select one of the sites provided (see below) and synthesize your individual studies from Task 1 + 2 into a single building envelope design for your final group project. You may select any of the investigations from Task 1 + 2, synthesis multiple geometries / models to create a hybrid, or develop an entirely new geometry influenced by your previous studies. You may wish to nest the geometries and / or find three scales in which each best fits (e.g., surface / structure / skin, etc.). Further transformation is expected of the work as you adapt the models to your group's design strategy and siting. Keep in mind principles from the artists selected in Task 2.

Note: Your group's building envelope should be developed in Rhino using the techniques and tutorials covered in Task 1 + 2 and imported into Revit for further CAD development.

Part B: Using object-oriented CAD in Revit, each group will develop

- 1 - Site plan
- 1 - Entry / Ground plan (entry area and core(s))
- 1 - Vertical section
- 1 - Rendered perspective (can be done in your choice of software (e.g., V-Ray for Rhino, Revit, etc.))

Note: Your final building designs should be more than 2 floors and show vertical circulation.

Note: Detailed 3D information for your site and surrounding buildings is not required for the final project. The purpose of selecting a site is to introduce a context / environment to further inform your modeling techniques and design ideas (e.g., orientation, access, circulation, etc.). CAD files for Lund and Malmo will be provided in the workshop.

Objectives: To become familiar with transferring modeling data from Rhino to Revit and basic object-oriented CAD / BIM for architectural drawing sets.

Final Presentation Materials

- 2 - A3s for each individual
- 4 - A3s for each group

Note: Each person in the group is responsible for 2 - A3s (diagrams/drawings/renderings) that communicate their individual process from Task 1 + 2. Each group is responsible for 4 - A3s (diagrams/drawings/renderings) that communicate the final group work from Task 3.

References

- The Function of Form
- The Function of Ornament

Software

- Autodesk Revit
- Paneling Tools for Rhino
- Rhinoceros
- VRay