

ESD.34 System Architecture

Opportunity Set #2

Deliverables due:

Part A - 1/11

Part B - 1/19

Learning Objectives

- Learn how to identify the form and function of simple systems
- Analyze and compare various approaches for analyzing structural connectivity and expression of function
- Learn how to represent simple systems in OPM

Part A

1. For the following systems:

- Your design in Design Challenge I
- Three of the "simple" systems listed in the posted "matrix of simple systems" on the class server.

Develop a graphical decompositional view and graphical structural view for the form of the system

2. For one of the three "simple" systems in question 1: develop a list-like representation of the decompositional view and of the structural view. How did you choose to translate the structural information to a list-like view?
3. What do the lines on graphical representation of the structural view, and what every entries you made in the list-like view actually convey or mean? Are they really describing form? Can you identify the classes of structural relationships?
4. Discussion question in team, not for submission: how is structural information conveyed in your field or discipline?

Deliverables

2 charts for each system in Question 1

1-2 charts each for Questions 2,3

Bring a print out of your charts to class as noted below.

Part B

5. For the same four systems analyzed in question 1:

- What is the externally delivered function, what is the operand, what is the benefit, and to whom is it delivered?
 - What are the principle internal functions?
 - How do the internal functions map to elements of form? And to each other?
6. For at least one of the three simple systems, do an OPM of the operand, delivered function, internal functions and form.
 7. For at least one of the three simple systems, suggest an alternative architecture to the one presented, which delivers the same externally delivered function. Create a mapping of function to form of the alternative, and contrast with the one of question 5. Did you find it difficult comparing architectures?

Deliverables

4 charts for Question 5

1-2 charts each for Questions 6,7

Bring a set of your charts printed on paper to class to present, and submit electronically before class to the class server as OS2IAP2007_groupN. Include the list of group members on the first page of the submission.