Assignment 1

SUBJECT: Exploring the Open Engineering Systems Paradigm

OBJECTIVE: Begin to internalize the notion of “Open Engineering Systems”

Part I – Deep Reading Exercise

Critically evaluate the following paper through deep reading. (Note: The paper is available on WebCT)


Address the following Issues…

1. What are the principal points the authors are trying to make and what is their message?
2. What are any underlying assumptions – both explicit and implicit?
3. What do you accept? What do you not accept? Why or why not?

Based on what you have read, material presented in class, and your own insights into the matter…

1. What is your definition of an Open Engineering System?
2. How would you define openness? How would you measure it?
3. How does your view compare to that of Simpson and coauthors?
Part II – Research Exercise

Now that you have an idea of what is meant by an Open Engineering System, we want each of you to spend some time thinking about products, processes, and services that embody the open engineering systems paradigm.

1. Use the World Wide Web or any other resource available to you to find an example that you feel embodies the Open Engineering Systems paradigm.
2. Explain in detail and in the context of your definition why you have chosen this system, how the system achieves its openness, and why.
3. Characterize your example in terms of modularity, mutability, and robustness and any other attributes that may factor into your definition of openness in Part I.
4. Based on your answer to the preceding does your definition of an Open Engineering System need to be modified? If yes, please make the changes and explain why.
5. What is the difference between an Open Engineering System, such as the one you have chosen, and a natural system?

Critical Thinking…

1. What are key advantages and disadvantages in designing Open Engineering Systems? Is the pursuit of their design worth the effort?
2. Comment on what you think the future of Open Engineering Systems will be. You may wish to discuss design, manufacturing, product development, supply chains, transactions, distribution, collaboration, role of resources, environmental considerations, etc.)

Learning

1. What did you learn from completing this exercise and how does this relate to answering the question for the semester?
2. How could we treat learning as an open engineering system?