

## Space Systems Engineering

### Topic: Logistics Support

### HOMEWORK #

Due: One week from assigned for individual work and two weeks for group work.

#### Individual Work (40%)

1. (15%) For one maintenance facility, one part is consumed at the constant rate of 1,000 units per year. Each order of this part incurs \$200 for processing and shipment no matter what the size of the order. Holding one unit of this part in the inventory incurs \$10 per year. Assume the replenishment lead time is negligible. Please calculate the Economic Order Quantity to minimize the total cost.
2. (15%) For a system with one operating unit and one spare (stand-by unit). The two units are identical with the same constant failure rate of 0.03 per day. Please calculate the overall system's reliability of the system for 30 days.
3. (10%) Please explain the relationship between logistics support with reliability and maintainability.

#### Group Assignment (60%)

##### Documents to use in this assignment:

Case\_ United Space Alliance.pdf

Logistics Support lecture notes

- (a) Please read the document of *Space Flight Operations Contract between NASA and United Space Alliance* as the file of "Case\_ United Space Alliance.pdf" in the reading material.
- (b) Please prepare a report to discuss whether you think the contract was a good idea to define the relationship between NASA and its major contractors. Please discuss it from the viewpoint of supply chain management and supportability. Please also discuss why the contract was not fully implemented and your suggestions to NASA.