

Challenge #1
15.057
Spring '03
Network Modeling

The challenge in this project is to develop a schedule for the space suit components to meet NASA's requirements for the shuttle flights, the international space station and testing and maintenance. The process is described in some detail in the presentation Challenge #1 EMU Logistics.ppt.

The workbook EMU_Data.xls contains four sheets:

- EMU Inventory: This sheet identifies each relevant component, the different sizes of the component and the number NASA has of each size.
- Volume & Weight: This calculates the Crew Transfer Bag Equivalents (CTBE's) of each component
- SSA Crew Sizing: Identifies what sizes of each component each Astronaut requires
- Crew Assignments: Identifies which Astronauts will serve on which missions.

The crew assignments identify how many components of each size must be on the shuttle, on the international space station and on the ground for vacuum testing or maintenance & repair during each mission. This challenge asks you to formulate a **network flow model** in Excel and one in AMPL to help NASA manage the logistics of its EMU space suit components to meet these requirements (if possible). Turn in an Excel Spreadsheet with your self-documenting model and a text document with your AMPL model at the beginning of Lecture 4.