**SysEng 6104 Project Task I**

**Scoping the Customer Need as a System**

1. Provide a need statement of the system of your choice around 200 words.

There is a need to determine the optimal method for transporting raw materials in space back to Earth, as it can serve as a cost-effective way of supplementing Earth’s limited resources. The system must be able to sufficiently decrease the velocity in a large inert mass such that the mass can be transported safely, timely, and cost-effectively back to Earth, isolate the useful raw materials of the mass in a place and way conducive to mining, and maintain the composition of the large inert mass(es), asteroid(s), so as to preserve the economic value of the raw materials when extracted. The system should be able to use correlated asteroid composition and trajectory data to forecast how the functioning model will slow down an asteroid enough to capture the mass for safe, economic, and timely transport back to Earth, such that the valuable raw materials retain their properties enough to make extraction worthwhile. The system shall integrate with a system on Earth to support extraction of the asteroid(s)’ raw materials. The prototype design must be completed by December 6th, 2019.

1. concepts discussed in details in chapter 2 of System Architecture book by Crawley, Cameron and Selva answer the flowing questions.
   1. What is the capability of your system?
   2. What are the functions of your system? How many basic functions are designed into the system?
   3. What are the relationships between functions and capability of your system?
   4. What are the key performance attributes of your system?
   5. Adapt the below Kiviat chart to the key performance attributes of your system.