IE 4351 & IE 5351 Final Project
Due Dec 13 (Electronic Files submitted by Dec 12 11:59pm CDT)

The format for the project will be a presentation with (a) a title slide with all of the names of the members of your group and contact information for your team's point of contact, (b) a slide that restates the tasks, and (c) slides that provide the responses to the questions or tasks. Please present your responses in the same order as requested. Provide appropriate references using APA format (in both **body of presentation** AND **reference list at the presentation end**).

The oral presentation will be performed by team members in person during the class when requested by the instructor. Distance students in sections 002, 003 can present in real-time or are allowed to embed audio into the presentation for their segments. All team members are expected to be involved with the project and are required to present portions of the project presentation. Any team member may be asked to answer questions. The oral presentation should be a maximum of 12 minutes. In case the presentation has the potential to be greater than 12 minutes add backup slides and reference the backup slides in the presentation to ensure all your content is covered. The project presentation must be submitted electronically via Canvas. Multiple files are permissible.

Deliverables:

- SEBoK Summary: Review information related to the Systems Engineering Body of Knowledge (SEBoK) and perform the following (**IE 5351 – 20%**):
  - Provide an introduction to the SEBoK including history, purpose, description, current status, relationship to other systems engineering reference sources (e.g., INCOSE handbook, systems engineering standards).
  - Provide an overview of the SEBoK including each of the major parts.
- Topic Analysis: (**IE 5351-40%; IE 4351-50%)**
  - Select and develop a presentation for one of the following topics: (1) value engineering, (2) security engineering/cyber security, (3) Delphi method, (4) cost as an independent variable (CAIV), (5) ethnographic techniques related to requirements engineering, (6) resilient systems, (7) force field analysis, (8) soft systems methodology, (9) systems of systems, (10) machine learning methods, (11) artificial intelligence ethics, (12) engineering safe systems, (13) sustainability, (14) systems engineering applied to healthcare, (15) system dynamics modeling, (16) application of systems engineering to a specific domain – must be approved by instructor.
  - Note that each team must select a different topic. Send an email to me and the course GTA with your top 2 topic choices in priority order by **Nov. 6 at 11:59 pm**. You will receive a confirmation from the GTA for your selected topic. Teams who have not identified their topic choices will have one selected for them by the instructor.
  - A topic may not be selected if you have previously developed a report for another university class on the topic.
  - At least 4 references must be cited for the topic **not including** the INCOSE handbook, SEBoK, Wikipedia, a consultant page, etc. Use journal papers, conference papers, books, and technical reports (INCOSE, IEEE, etc.) for your references. Note that journal papers, conference papers, and many books are now available electronically. Make sure to appropriately cite your sources (in-text and reference list) using APA formatting.
  - Provide a detailed overview of the topic including history, purpose, description, associated method(s), how the approach may be applied, current status, and other important information as applicable.
  - Identify how this topic relates to systems engineering (SE) and what SE processes it relate to (if any)?
  - Identify how Millennium Systems or another organization can use the topic (or an understanding of the topic) to its benefit.
- Develop a set of SysML diagrams for your Spirit cell phone system. (IE 5351-40%; IE 4351-50%)
  - Create and present the diagrams discussed in the class: package, use case, requirement, activity, and state machine. Develop 2 of the use cases (from your team use case diagram) in text form, detailing items such as the pre and post conditions, main success scenario (primary flow). Justify why this is a complete use case.
  - Provide information explaining each diagram.
  - Justify the level of detail supplied for each diagram.