Design Process – Define Requirements & Requirement Review & System Review

General Description (Framework):

- **Scope** – *As a group*, you are expected to present a *Requirement & System Review* for each of your three selected problems. You need to present either three different applications on one technology (Bottom-up) or three different products on one application (Top-down). As part of the discussion, one of the problems will become your group capstone project.

- **Presentations** - Timetable (30 min total per group)
  - Introduction to the core driver of your proposals – 3 mins
    - The technology if you’re doing bottom-up
    - The application if you’re doing top-down.
  - Problem 1 – 8 mins
  - Problem 2 – 8 mins
  - Problem 3 – 8 mins
  - Plans to narrow the three to a single project plan – 3 mins
  - Feedbacks - (Offline)

- **Review** – Review the class slides as you prepare for the presentations

Detailed Description:

- **Prepare a PowerPoint including three parts:**
  - Part 1: Explicate the Problem – Part 1 will be a repetition of the initial presentations such that each subject is addressed in detail
  - Part 2: Requirements Definition
  - Part 3: Block Diagram

- **Part 1: Explicate the Problem**
  - Formulate the Problem Precisely - Describe the problem in a precise but also concise, easily understandable manner.
  - Position and Justify the Problem –
    - **Context** - Clarify in which practice the problem appears. Explain why the problem is important and to whom.
    - **Ensure the Problem Is of General Interest** - Make clear that the problem is of interest not only to a local practice.
    - **Ensure the Problem Consists of Both Design and Algorithms Aspects** – Clearly state the problem includes interest and importance in designs and algorithms
    - **Ensure the Problem Is Solvable** - Define and analyze the problem so that it becomes small enough to be solved.
  - Find the Rood Cause – Perform a root cause analysis using the fish bone diagram using the 5Ms
Define Resources
- **Specify the Sources of the Problem** - Describe the literature and the stakeholders that have previously identified, studied, and experienced the problem.

Define Strategy & Methods
- **Describe How the Problem Has Been Explicated** - Explain what has been done to explicate the problem, in particular, how the stakeholders have been involved and how the research literature has been reviewed.
- **Research Methods** - Among the 10 research methods, select one or more and use them for the purpose of defining the problem. For example, look for similar products in the market, search for scientific papers related to the topic, study the market via statistical information, or a dialogue with stakeholders.

Part 2: Requirements Definition
- **Element Definition** - Identify the artifact context and anatomy and clearly describe them:
  - Intended Practice / Other practice
  - Artifact
  - Problem
  - Technology
  - Uses
  - Perception
  - Addresses
  - Environment
  - Function
  - Behavior
  - Structure
  - Intended Effects
  - Side Effects

Part 3: Block Diagram –
- Define a block diagram of the system. Each block should have a clear definition of output and input.
- Examines the allocation of requirements to individual configuration items (sub system, i.e., blocks in the diagram)
Deliverables/Method of Reporting

- This is a group assignment
- All group members should take part in the group presentation while turning the camera on during the presentation.
- Generating the group video presentation
  - **Single Shoot** – In a single shot scenario the team leader will organize a time where all the team members will be available and present their respected into a single video session. It is the group leader responsibly to recorded it and share the link on Comingle along with the slides in PDF.
  - **Multiple Shoots** – In a multiple shoots scenario, Each student or subgroup will record the assigned part of the presentation. The group leader is expected to stich all the parts into a single video and share the link on Comingle along with the slides in PDF.
- Upload the content into Coauthor under Week 5 Presentation thread with your team name as a title.
- It is recommended to use Zoom meeting recording (cloud recording preferred), but any other software is acceptable for recoding and stitching the individual parts.
- It is required for all the students to watch all the team presentations and provide feedback on Coauthor via a form that will be shared separately.