ENCS 6042 TA NOTES WEEK 4 **30TH SEP 2021**

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Class started with a summary of last session, five stages of design thinking and then continued with definition of Ideate, in this phase we come up with a solution. Ideation needs brainstorming. Brainstorming starts with problem statement and questions we wrote down in previous stage. Divergent and convergent thinking are used in a brainstorming session. At the beginning of brainstorming, we take time to get inspiration of all elements individually without influencing with the others' ideas (divergent thinking) an then we share ideas with the group members in order to mix or modify our individual ideas (convergent thinking). Then we talked about prototyping and what it should look likes and also we spoke about phase of testing. we understood that target customers are always considered for conducting the test phase.

Before starting Lecture 4, Project End Goals, one student asked a question, in which stage of design thinking do we use trial and error method? The answer is: We know that trial and error is a problem-solving method, in fact it is the simplest design of experiment approach. Therefore, it can be used in all five stages when we are faced with problems. But in many cases, it goes through a frustrating and time and money consuming process. Therefore, trial and error method is usually a last resort for a particular problem.

one student talked about her experience in doing trial and error experiments in software developing that was a frustrating experience. Another example was design of wind farms, in this case trial and error would be a prohibitively expensive experiment to achieve design goals as apposed to simulation method.

CLASS DISCUSSION

PROJECT END GOALS

The lecture 4 started with examples about some unsuccessful major projects. One student spoke about a major construction project in which two teams started digging a tunnel from two sides, but the tunnels never meet each other. In another example obstacles of constructing a bridge before its deadline was discussed. The main reason of failure here is poor communication. It shows that effective communication is very important for the success of any project. It ensures minimum risks and maximum success.

Then students create groups and started discussing about what they think they need to communicate at the beginning of projects. One spokesperson pointed to the project's specification, required resources, budget, deciding on multiple milestones, assigning the responsibilities and penalties in case of fail to meet deadlines. The other one spoke about end goals, stakeholders, budget, deadlines, responsibilities and risks. Another team chose need as clarifying responsibilities, defining scope of the project, deliverables, deadlines and risks.

project charter was the next part of the lecture, A project charter puts your vision for a project into words. It communicates the vision to all key employees and stakeholders. therefore, it can improve clarity and communication in the projects. Several components, including objective, stakeholders, requirement, resources, scope, exclusions. Assumptions and constraint, milestones, budget and risks are considered in a project charter.

Then professor explained and clarified all those components with examples. For example, scope of a project, can be defined as all of the activities, resources, and other factors that are to be involved in the execution of a project and its deliverables, to be considered a success. In other words, the project scope defines what is to be included in a project and what is not.

CLASS ACTIVITY

In continued class, students divided into several groups. Each group had 10 minutes to remember the innovation that they came up in the session 2. They chose and discussed 3 important components of project charter related to their innovation.

A summary of students' answers is below.

A group's idea was 3D visualization in endoscopic equipment. They chose objective, requirements and risks.

- Objective: 3D visualization of inside of body.
- Requirements: design of special lenses, design it thinner, capability to take high resolution images.
- Risks: difficulty of working with new technology and High cost in R&D

The next group had another idea. The topic was about more productive life planner software. They chose risks, scopes and requirements.

- Requirements: a team of programmer and Conducting research on the latest productions.
- Risk: expensive final product, unsuccessful software, lack of financial supporter
- Project scope: project will be completed over six months

Another idea was biometrics for secured payment systems. They chose requirements, stakeholders and risks.

- Requirement: regulation related to privacy of individuals, biometrics data for testing,
- Stakeholders: employee, financial institutions and customers
- Risks: getting hacked, failure due to technical issues, competitors