

Project and Team Management

Arnold Pears

Co-teaching: Hung Pham-Ngoc

Intent of Software Engineering

Understand the problem space

- What to solve?
- What defines the solution envelope?
- How should we work?

Involves aspects of

- Ideation to explore the space
- Develop several parallel designs
- Converge on an agreed design after 2-3 weeks
- Sustainable development considerations

Intent of Software Engineering

Work practices to improve

- timeliness of delivery
- reliability
- integration
- maintainability and upgrade

Involves aspects of

- requirements negotiation
- effort estimation and management
- product usability
- correctness and safety
- ethical considerations

Traditional SE

Heavy focus on technologies and processes

- requirements documentation
- design documents with acceptance tests
- implementation process control
 - decomposition and analysis
 - specification of the system and testing
 - production timelines and teams
 - productivity and quality metrics

Examples

- Waterfall model, Iterative Model, Rapid Prototyping, V-model

Group exercise

- Requirements analysis.
- What is the problem to be solved? May involve modelling the
 - environment,
 - robot,
 - sensors.
- System modules (brainstorm)
 - Overview Diagram
 - Functional description
- Communication protocols
 - Which modules communicate?
 - What data is communicated?
 - What protocols will be needed?

Group exercise

- Outline of implementation process control
 - decomposition and analysis
 - specification of the system and testing
 - production timelines and teams
 - productivity and quality metrics

Short development cycle projects

Recent work on re-factoring during implementation have resulted in some groups advocating Agile design and software development

- [Agile Alliance](#)

Placing a focus on

- responsiveness to change
- factoring in the customer and other stakeholders
- rethinking the monolithic approach to S/W development

Teamwork

Managing a project is about more than the technical content

Getting a team to work well involves

- clear communication
- commitment (sometimes called "buy in")
- flexible and accountable process

Some desirable practices include

- don't let conflict hide in the background
- face and address passivity
- make objectives explicit and documentable

Group Exercise – Teamwork Role-Play

- Your team consists of between four and six participants for the teamwork role-play exercise.
- The objective of the session is to attempt to understand and act out some team scenarios and reflect on what strategies can be used to deal with situations that arise in teamwork.

Group Exercise – Teamwork Role-Play

Scenario 1 - Team Goals

- Your team has just formed, and during the first meeting you have been asked to elect a team leader, and discuss initial plans and work schedules for the project. As the discussion about the project progresses the topic shifts from discussing the technical aspects of the project, to who will be the team leader, and what final grade the team should aim for.
- Spend a few minutes role-playing around this question using the roles and characters you have been given.

Group Exercise – Teamwork Role-Play

Scenario 1 - Team Goals

Reflection

- What happened in the discussion?
- What power strategies were used?
- Did any character dominate, or influence the outcome?
How?
- What grade did the team decide to aim for? Why? How did you reach that decision?

Group Exercise – Teamwork Role-Play

Scenario 2 - Project progress

- After about four weeks of the project things are starting to feel very disorganised. No-one really knows what anyone else is doing, and project progress is hard to measure. The team leader (see scenario 1) has called everyone to a meeting to discuss the situation, and to sort out how to solve the problems the team is experiencing.
- Spend a few minutes role-playing around this question using the roles and characters you have been given.

Group Exercise – Teamwork Role-Play

Scenario 2 - Project progress

Reflection

- What decisions were reached?
- What were the hardest aspects of the situation to deal with?
- What might have been done differently?

Group Exercise – Teamwork Role-Play

Scenario 3 - Freeloader

- The team is now more than half way through the development cycle, and it appears that some of the team members are hardly ever present on campus. The members who have not been present are out of contact and unsynchronised with the rest of the team.
- Spend a few minutes role-playing around this question using the roles and characters you have been given.

Group Exercise – Teamwork Role-Play

Scenario 3 - Freeloader

Reflection

- What did you discuss?
- What strategies were suggested in order to deal with the problem?
- Was consensus reached?
- To what extent do you believe the suggested strategies will really work and result in change?