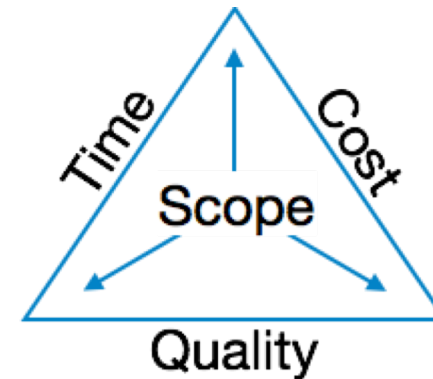# CS350 Lecture 2
SW Project Management

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Need of SW Project Management

- Most of large-scale project failed due to lack of proper project management

- Business and environmental constraints bring risk in software development

- Essential to incorporate *requirements*

  along with *budget* and *time*

Project Effort(Cost) Estimation

- What to estimate
  - Cost, Size, Man month
  - Q: Which one first? How to do?
- Effort estimation
  - Estimation by analogy
  - Expert judgement
  - Algorithmic approach (COCOMO,(Constructive Cost Model))
  - Based on consensus, Delphi
  - Parkinson's law
  - Pricing to win

SW PM Activities

- Project planning
- Scope management
- Project estimation
- Project staffing
- Project scheduling
- Project execution & monitoring
- What else
    - Configuration management
    - Communication management
    - Resource management
    - Risk management, …

Team Organization

- Chief-programmer team
- Democratic team
- Hybrid team

- Let us discuss pros and cons of each.

- Q: which organization is more suitable for
  - less understood problem

Staffing

- Need SE skills, Domain knowledge, Communication skills,...

- A common misconception
  - Every engineer is as productive as another.
  - Having more SW engineers will help improve productivity of the project

Agile Project Management (Scrum)

- Scrum: a framework for implementing agile processes in projects.   It utilizes
  - Short iteration of work, called sprints (two-four weeks)
  - Daily meetings, called scrums
- Three key roles
  - *Scrum master, product owner, team members*
- Product owner creates and prioritizes a product backlog (work to do)
- Teams select items from the backlog, determine how to complete the work
- Scrum master meets with teams briefly each day to get progress updates
- Reviews are conducted at the end of each sprint

General Principles for Organizing a Team

- Use Fewer and better people
- Try to fit tasks to the capabilities and motivation of people available
- It is wise to select people such that a well-balanced and harmonious team results
- Someone who does not fit the team should be removed