Process & Project Mgmt - Intro

SWEN 256 – Software Process & Project Management
What do the following have in common?

- Civil Engineering
- Mechanical Engineering
- Industrial Engineering
- Chemical Engineering
- Electrical Engineering
- Software Engineering

They all have common themes:

- Product Design
- Process Creation and Refinement
- Project Activity
What does “Well Engineered” Mean?

Quality Factors:
- Usability
- Reliability
- Safety
- Well constructed
- Use of technology
- Aesthetically pleasing

Also consider:
- Costs (within budget)
- Schedule (on time)
- Maintainability
“A process is a series of steps involving activities, constraints and resources that produce an intended output of some kind.”

Processes need to be appropriate both for the type of development organization and the type of application being developed.
What makes a project successful?

- Avoiding Mistakes
- Strong Teams
- Managing Risks
- Proper Planning
- Understanding Good Methodology
- Good Estimation (Looking ahead)
- Good Perspective (Looking Back – Measurement & Metrics)
- Proper Testing
- Results and a Happy Customer
Projects
- Have a Beginning and End
- Have Unique Goals/Objectives
- Are not ‘Business as Usual’

Operational Work
- Most ongoing work
- Often completed projects are handed off to ‘operations’
- ‘Business as Usual’

Each has very different management techniques, although some core skills and competencies are the same
Product Life Cycle

Conception

Project

Growth

Project

Maturity

Project

Decline

Project

Withdrawal

Project
Project Life Cycle (Cont)

- Enter Phase/Start Project
- Initiating
- Planning
- Executing
- Closing
- Monitoring and Controlling
- Exit Phase/Close Project

Start Project

End
Project Terms

- Project Sponsor
- Stakeholders
- Scope
- Project Charter
- Project Management Office (PMO)
- Postmortem
Organizational Structure

- **Functional**
  - Most Common “Classic”
  - Grouped by specialization
  - Team members have both departmental and project work

- **Projectized**
  - Project is king
  - Staff are moved from project to project

- **Matrix**
  - The two types mixed
  - Two bosses, Project Boss and Functional Boss
AKA: Good, Fast, Cheap – Pick 2
AKA: Quality, Resources, Schedule
What is Project Management?

- A Discipline
- Planning, Organizing, Motivating, and Controlling resources to achieve defined goals.
- Requires the Development of Distinct Technical and Management Skills
- Projects
  - Have a Beginning and End
  - Have Unique Goals/Objectives
  - Are Not Business as Usual
Traditional Engineering
- Developing Schedules
- Establishing Budgets
- Securing & Allocating Resources
- Managing Risks
- Tracking Progress
- Coordinating Teams (often across organizational boundaries)

Software Engineering
- Formulate the problem
- Design, Modeling, Prototyping
- Evaluate different solutions / trade-offs
- Detailed Technical Specifications
- Construction or Manufacturing
- Testing / Evaluation
- Delivery & Maintenance
How Do Projects Succeed?

- Executive support
- Experienced project manager
- Clear business objectives and priorities
- Minimized scope
- Standardized infrastructure
- Firm basic requirements
- Predictable costs
- Communication between parties
- Formal methodology
- Reliable estimates
Questions/Discussion