Study Objectives

• Project Estimation Contd.
  – Critical Path Method, PERT

• Project Control Frameworks, practices, and Tool
  – WBS, Gantt Chart
  – Project Plan
  – EVA
  – Scope Management

• Project success factors and risk
Scheduling

• Critical Path
  – sequence of activities whose sum is longer than any other path
  – Slack

• Gantt Charts
  – Scheduling activities
  – Exhibit 3.6 (CISA Review Manual)

• PERT (Program Evaluation Review Technique)
  – More sophisticated than CPM (Critical Path Method)
Critical Path – Exercise (5 mins)

Determine the Critical Path Time. What’s “slack”?
Critical Path – Exercise (5 mins)

A-D-E-C is part of the critical path from A to M. A-C has 2 days of “slack”
PERT—Exercise (10 mins)

Determine the PERT Time
PERT – Exercise (10 mins)

PERT CHART

PERT TIME = \frac{\text{Optimistic} + \text{Pessimistic} + 4 \text{ (Most Likely)}}{6}

A \rightarrow D \rightarrow E \times N \rightarrow M = \frac{12 + 28 + (4 \times 20)}{6} \text{ Days}

= 20 \text{ Days}
Scheduling - WBS

What is Work Break Down Structure?

- Exhibit 3.3 (CISA Review Manual an example)
- Identify the SDLC deliverables and “sequence” them in optimal way
- Microsoft Project is a common tool used for this

Example WBS Template:
WBS Example – Sample Web Project

1. Feasibility
   1.1 Feasibility
   1.2 Business Case
   1.3 RFP

2. Requirement
   2.1 Business Requirements
   2.2 Systems Requirements

3. Design
   3.1 Architecture
   3.2 HLD
   3.3 DD
     3.3.1 UI Design
     3.3.2 Service Design
     3.3.3 Database Design

4. Development
   4.1 Coding/UT
   4.2 Testing
     4.2.1 QA
     4.2.2 Integration Testing
     4.2.3 Systems Testing

5. Implementation
   5.1 Deployment Plan
   5.2 Change Request
   5.3 Operational Readiness
   5.4 Data Conversion
   5.5 Deployment

6. Post Implementation
   6.1 Lesson Learned
Where do we use Gantt Chart?
Project Controlling

Which of these a Project Manager do for tracking and oversight?

A. Actual time and resources spent against baseline (EVA – Earned Value Analysis)
B. Cost and Overrun
C. Coding when needed
D. Scope Management (Change Control Board)
E. Risk Management
F. Communication
G. Auditing
H. Issues identification and resolution
EVA – Earned Value Analysis

• Budget spending to date
• Hours to date

EVA helps understand the progress made in the project

It also helps fine-tune size/cost estimates vs. actuals for future projects
Understanding Project Plan

• What’s a Project Plan?
  – A valuable task detailed used by the PMs to schedule the task, assign the resources, track the progress of the tasks
  – Will discuss in detail in the next class (SDLC Phases)

Sample Project Plan (For Better Viewing)

Sample Project Plan (For Printing)
Scope Management

• Scope is typically locked after the Specification or Design phase (Baseline)

• Making changes to the original scope may have adverse impact as the time progresses during SDLC. It costs way more to make the changes during testing phase than during requirements or design phases

• Any changes to Baseline is typically managed through CCB (Change Control Board)
Risk Management Related to Software Development

Why Software Risks be analyzed and managed?

- To prevent loss of corruption of Information and IS Assets
- To prevent Disruption of customer service and other operations
- To prevent inefficient Management Decisions
- To help meet software development goals
- To meet Business Objectives
- All of the Above
Software Development Risks

• Benefit Risks
  – To avoid a new system may not meet business goals and expectation

• Delivery Risk
  – Within the Project across SDLC phase
  – With Partners and Suppliers
  – Within Organization
  – Technology Risk
  – With External Environment
Risk Management Process Steps

• Typical Process Steps
  1. Inventory Risks – Possible ones
  2. Assess Risks – Quantitative and Qualitative Analysis
  3. Mitigate Risks – Mitigate, Avoid, Transfer, or Accept
  4. Discover Risks – That materialize
  5. Review and Evaluate – Effectiveness
Risk Mitigation

• Mitigate
  – Lessen the probability or impact

• Avoid
  – Where feasible, choose not to implement certain activities

• Transfer
  – Deflect, Share with partners, Insurance

• Accept
  – Acknowledge and monitor
Risk Management – More Details

• When can risk occur?
  – during entire SDLC

• When should the Risk Management Plan be developed?
  – during entire SDLC
  – Part of the Planning, Tracking and Oversight

• Section 2.8 of textbook (reference)

• A Risk Management Template Example
Auditing Project Management

• Adequacy of the level of oversight by the Steering Committee/Project Committee
• Adequacy of typical Project Management Areas such the PMI Knowledge areas as below
  1. Project Integration Management
  2. Project Scope Management
  3. Project Time Management
  4. Project Cost Management
  5. Project Quality Management (including signoff process, issue management)
  6. Project Human Resource Management
  7. Project Communications Management (including senior management communication)
  8. Project Risk Management
  9. Project Procurement Management
Questions

Which of the following risks could result from not baselinine the software?

A. Scope creep
B. Sign-off delays
C. Software integrity violations
D. Inadequate controls
E. Financial Overhead
A project manager is in a process of identifying tasks responsible for project delays. What approach should he take?

A. Create Gantt analysis
B. Use Function point analysis
C. Come up with a Risk Analysis
D. Determine Critical Path
E. Complete PERT
Upcoming Assignments/Tests

1. Individual Case Study - 1 (Feasibility Study): Mon 9/15 before the class


3. Group Project -1 (Business Case, RFP): Mon 10/6 before the class

Questions?
Summary of Today’s Class

• Project Estimation
• Project Tracking and Oversight
  – WBS
  – Project Plan
  – Risk Management Applied to Software Development
• Focus of the Next Class and Reading
• Questions