3.1 Overview of Project Management

* Successful Project must be completed on time, be within budget, and deliver a quality product that satisfies users and meets requirements.
* Project Management – Planning, Scheduling, monitoring and controlling, and reporting on information system development.
* Project Triangle – Cost-Scope-Time: any change will affect the other legs.
* What does a project manager do?
  + Project planning: identifying all project tasks and estimating completion time and costs.
  + Project scheduling: creating a specific timetable showing tasks, task dependencies, and critical tasks that might delay the project.
  + Project Monitoring: guiding, supervising, and coordinating the project team’s workload.
  + Project reporting: creating regular progress reports for management, users, and the project team itself.

3.2 Creating a Work Breakdown Structure

* Breaking down a project into a series of smaller tasks
  + Gantt Chart
    - Horizontal bar chart representing a set of tasks
    - Shows planned and actual progress on a project
    - Simplifies complex projects using a task group
* PERT/CPM charts
  + Program Evaluation Review Technique (PERT)
    - Developed by the U.S. Navy
    - Utilizes a bottom-up technique
    - Useful for scheduling, monitoring, and controlling actual work
    - Displays complex task patterns and relationships
  + Critical Path Method (CPM)
    - Developed by private industry
    - Distinction between methods has disappeared over time.
  + Identifying tasks in a WBS
    - Task or activity: any work that has a beginning and end
      * Requires the use of company resources such as people, time, money
      * Should be small and manageable
    - Projects have events or milestones
      * Events or milestones: recognizable reference points used to monitor progress
    - Listing the tasks
      * Tasks might be embedded in a document
    - Estimating task Duration
      * Can be hours, days, weeks
    - Time estimates made by project managers
      * Best case-estimate (B), probable-case estimate (P), and worst-case estimate (W).
    - After making estimates, the manager assigns a weight to each estimate
      * Calculates the task duration
  + Factors affecting duration
    - Project size
      * Identify all project tasks and time required
      * Consider time taken for events affecting productivity
    - Human Resources
      * Assemble and guide a dev team that has the skill and experience to handle the project
      * Deal with factors that could affect the schedule
    - Experience with similar projects
      * Develop time and cost estimates based on the resources used for similar, previously developed info systems
    - Constraints
      * Define system requirements that can be achieved realistically within the required constraints.

3.3 Task Patterns

* Arrangement of tasks in a logical sequence
  + Dependent tasks
    - Completed in a sequence
      * One task can be initiated only after the prior task has been completed
  + Multiple successor tasks
    - Tasks that can be initiated simultaneously
      * Termed concurrent
      * Often, two or more concurrent tasks depend on a predecessor task
  + Multiple predecessor tasks
    - Initiation of a task depends on completion of two or more prior tasks
* Working with complex task patterns
  + When several task patterns combine, the facts must be studied very carefully to understand the logic and sequence
    - A project schedule will not be accurate if the underlying task pattern is incorrect.

3.4 The Critical Path

* Series of tasks which, if delayed, will affect the completion date of the overall project
  + If any task on the critical path falls behind the project will be delayed
* Calculating the critical path
  + Review patterns
  + Determine start and finish dates, which will define the critical path

3.5 Project Monitoring and Control

* Monitoring and control techniques
  + Structured walk-through: review of a project team member’s work by other team members.
    - Takes place throughout the SDLC
    - Known as design, code, or testing reviews based on the phase in which they occur

3.6 Reporting

* Project status meetings
  + Project managers schedule regular meetings
    - Share updates, discuss common problems, explain new techniques, and help collect data
* Project status reports
  + Regularly communicated by project managers to supervisors, upper management, or users.
* Dealing with problems
  + Deciding how to handle problems can be difficult

3.7 Project Management Software

* Project managers use software applications to help plan, schedule, monitor, and report on a project
  + Most programs offer features such as PERT/CPM, Gantt charts, resource scheduling, project calendars, and cost tracking.
* Refer to the text for a Microsoft Project task summary example
  + Work breakdown structure
  + Gantt chart
  + Network diagram
  + Calendar view

3.8 Risk Management

* Steps in risk management
  + Develop a risk management plan
  + Identify the risks
  + Analyze the risks
    - Qualitative and quantitative risk analysis
  + Create a risk response plan
    - Proactive effort to anticipate a risk and describe an action plan to deal with it
  + Monitor risks

3.9 Managing for Success

* Project management is a challenging task
  + Project managers must be alert, technically competent, and highly resourceful
* Projects get derailed for a wide variety of reasons
  + Business issues
  + Budgets issues
  + Schedule issues