Hot Topics

Schedule Management
Introduction

This knowledge area requires you to understand six processes, as described in the book PMP®

Those processes are: plan schedule management, define activities, sequence activities, estimate activity durations, develop schedule, and control schedule.

For the exam, you’ll need to be familiar with network diagrams and how to crash, fast track, and optimize the schedule.

Remember, your schedule must be realistic, approved, and agreed to by everyone. Also, make sure it’s a standard you’re willing to be held to.
What is the process of schedule management?

Plan schedule management
Define Activities
Sequence Activities
Estimate Activity durations
Develop schedule
Control schedule
What is the key output of the plan schedule management process?

Schedule management plan
What are the key outputs of the define activities process?

Activity list

Activity attributes

Milestone list

Change requests
What is the key output of the sequence activities process?

Project schedule network diagram
What are the key outputs of the estimate activity Durations process?

Duration estimates

Basis of estimates

Updates to project documents
Describe the develop schedule process.

What are some of its key outputs?

An iterative process that creates a project schedule that is bought into, approved, realistic, and formal

Project schedule

Schedule baseline

Change requests

Schedule data
What are the key outputs of the control schedule process?

Work performance information
Schedule forecasts
Change requests
Updates to the schedule management plan, performance measurement baseline, and project documents
What is triangular distribution?

What is beta distribution?

- Triangular distribution: a simple average giving equal weight to each of the three-point estimates when calculating the expected activity duration or cost; it uses the formula \((P+O+M)/3\)

- Beta distribution: A weighted average that gives stronger consideration to the most likely estimate; it uses formula \((P+4M+O)/6\)
What is alternatives analysis?

Alternatives analysis involves evaluating the impact of each option on project constraints, including financial investment versus time saved and level of risk.

This process will result in the determination of the best approach to completing project work within the constraints.
What are the two types of reserves being evaluated in reserve analysis?

Contingency reserves and management reserves
What is rolling wave planning?

Planning at a higher level and developing more detailed plans when the work is to be done.
What do network diagrams show?

The network diagram shows just dependencies (logical relationships)

If estimates and leads and lags are added to the diagram later in the schedule management process, it can also show the critical path

If plotted out against time (or placed against a calendar-based scale), the network diagram is a time-scaled schedule network diagram
What are the four types of logical relationships between activities in the precedence diagramming method?

Finish-to-start (FS): An activity must finish before the successor can start

Start-to-start (SS): An activity must start before the successor can start

Finish-to-finish (FF): An activity must finish before the successor can finish

Start-to-finish (SF): An activity must start before the successor can finish
What are mandatory dependencies?

What are discretionary dependencies?

- Mandatory: the order in which activities must be done, due to the inherent nature of the work or as required by a contract; also called "hard logic"

- Discretionary: the order in which the organization has chosen to have work performed; also called "preferred", "preferential" or "soft logic"
What are external dependencies?
What are internal dependencies?

- External: Dependencies based on the needs of a party outside the project
- Internal: Dependencies based on the needs of the project; may be under the control of the project team
What is a lag?

What is a lead?

Lag: Waiting time inserted between activities

Lead: How soon an activity can start before its predecessor activity is completed
What tool can be used when creating complex project schedule network diagrams that include leads and lags (as well as other dependencies)?

An automated scheduling system that is part of the PMIS
What are some inputs to Estimate Activity Durations?

- Activity list and activity attributes
- Assumption log
- Lessons learned register
- Resource breakdown structure
- Resource requirements
- Project team assignments
- Resource calendars
- Risk register
What does a resource breakdown structure show?

The categories of resources required for the project
What is padding?

What is the problem with padding?

-A pad is extra time or cost added to an estimate because the estimator does not have enough information

-Padding undermines the professional responsibility of a project manager to develop a realistic schedule and budget
What is analogous estimating?

When is it done?

- Analogous estimating uses expert judgment and historical Information to predict the future.

- It can be done at various times, and the level of accuracy depends on how closely the project or activity matches the past historical data used.
What is parametric estimating?

What tools might an estimator use to create parametric estimates?

- Parametric estimating involves creating a mathematical equation using data from historical records or other sources, such as industry requirements or standard metrics, to create estimates

- Regression analysis or learning curve
What is an example of a heuristic?

The 80/20 rule

A heuristic is a generally accepted rule, or best practice
What is three-point estimating?

A technique where estimators give an optimistic (O), pessimistic (p), and most likely (M) estimate for each activity.

Three-point estimates can be used to calculate a risk-based expected duration estimate for an activity by taking either a simple average (triangular distribution) or a weighted average (beta distribution) of three estimates.
How does a schedule model differ from a schedule?

The schedule model consists all the project data that will be used to calculate the schedule, such as the activities, duration estimates, dependencies, and leads and lags.

The project schedule is the output of the schedule model-consolidates the schedule data that becomes the schedule baseline and part of the project management plan.
What is the critical path method?

What is near-critical path?

Critical path method: Determining the longest duration path through the network diagram, the earliest and latest an activity can start, and the earliest and latest it can be completed.

Near-critical path: the path closest in duration to the critical path; the closer in length the critical and near-critical paths are, the more the risk to the project.
Define total float, free float, and project float.

Total float: the amount of time an activity can be delayed without delaying the project end date or an intermediary milestone.

Free float: the amount of time an activity can be delayed without delaying the early start date of its successor(s).

Project float: the amount of time the project can be delayed without delaying the externally imposed project completion date required by the customer or management (also referred to as positive total float).
What are the two formulas for calculating float?

Late start (LS) - Early start (ES)
Late finish (LF) - Early finish (EF)
How does the critical path help us manage the project?

Helps prove how long the project will take

Shows which activities have float and can therefore be delayed without delaying the project

Provides information needed to compress the schedule during project planning and whenever there are changes

Helps determine where to focus your project management efforts

Helps determine which activities have more risk associated with them

Helps determine if a delayed activity needs immediate attention
What is crashing?

What is fast tracking?

- Crashing: Adding or adjusting resources in order to compress the schedule while maintaining the original project scope

- Fast tracking: compressing the schedule by doing more critical path activities in parallel
What is Monte Carlo analysis?

A technique that uses computer software to simulate the outcome of a project, based on the three-point estimates (optimistic, pessimistic, and most likely) for each activity and the network diagram.

Monte Carlo analysis is also used as a risk management tool to quantitatively analyze risks.
What is resource optimization?
Finding ways to adjust the use of resources
What is resource leveling?

What is resource smoothing?

Resource leveling: A resource optimization technique that allows you to level the peaks and valleys of the schedule from one month to the other, resulting in more stable number of resources.

Resource smoothing: A modified form of resource leveling, where resources are leveled only within the limits of the float of their activities, so the completion dates of activities are not delayed.
What are the main presentation formats for a schedule?

- Network diagrams
- Bar charts
- Milestone charts
What do simple bar charts show?

What do milestone charts show?

- Bar charts: progress reporting and control; they are weak planning tools.

- Milestone Charts: high-level project status; they only show major events.
What is the schedule baseline?

The schedule baseline is the version of the schedule model used to manage the project; it is what the project team's performance is measured against.
What is reestimating?

Estimating the project against at least once during the life of the project to make sure you can still satisfy the project objectives within the schedule, budget, and other project constraints, and to adjust the project if you cannot.

This is part of the monitoring and controlling process group.