# Video 1:

**Importance of Project Schedules**

* often cite delivering projects on time as biggest challenge
* Schedule issues are the main reason for conflicts on projects
* Time has the least amount of flexibility

**Project schedule management processes**

* Planning schedule management

The project team uses expert judgement, analytical techniques & meetings to develop the schedule management plan

Schedule management plan:

* + 1. Project schedule model development
    2. Scheduling methodology
    3. Level of accuracy & units of measure
    4. Control thresholds
    5. Rules of performance measurement
    6. Reporting formats
    7. Process descriptions
* Defining activities

Develop a more detailed WBS and supporting explanations to understand all the work to be done

Activity/task: an element of work normally found on the WBS (work breakdown structure) that has an expected duration, a cost and resource requirements

Goal:

To ensure project team completely understand all the work

Outputs:

* + 1. activity list: a tabulation of activities to be included on a project schedule
       1. Activity name
       2. Activity identifier/number
       3. Brief description of activity
       4. Activity attributes provide more information
    2. activity attributes
       1. Predecessors
       2. Successors
       3. Logical relationships
       4. Leads & lags
       5. Resource requirements
       6. Constraints
       7. Imposed dates
       8. Assumptions related to activity
    3. a milestone list

milestone:

a significant event that normally has no duration

often takes several activities & a lot of work to complete a milestone

useful tools for setting schedule goals & monitoring progress

eg. obtaining customer sign-off on key documents

completion of specific products

* + 1. project management plan updates
* Sequencing activities

Identifying & documenting the relationships between project activities

* Estimating activity durations
* Developing the schedule

Analysing activity sequences, activity resource estimates & activity duration estimates

To determine the start & end date of the project

Tools & techniques:

Gantt charts

Critical path analysis

Critical chain scheduling

PERT analysis

* Controlling the schedule

**Video 2:**

**Sequencing activities:**

Review activities and determine dependencies

Dependency/relationship: the sequencing of project activities/tasks

3 types of dependencies:

* Mandatory:

inherit in the nature of the work being performed on a project

sometimes referred to as hard logic

* Discretionary:

Defined by project team

Sometimes referred to as soft logic

May limit later scheduling options

* External:

Relationships between project & non-project activities

**Networking diagrams:**

Preferred technique for showing activity sequencing

Schematic display of the logical relationships among or sequencing of project activities

Main formats:

* Arrow diagramming method (ADM)

Also called Activity-on-Arrow (AOA)

Nodes/circles: starting & ending points of activities

Can only show finish-to-start dependencies

Burst: a single node followed by 2+ activities

Merge: 2+ nodes precede a single node

* Precedence diagramming method (PDM)

Also called Activity-on-Node (AON)

Activities represented by boxes

Arrows show relationships between activities

More popular

Used by project management software

Better at showing different types of dependencies

Task dependency:

* Finish-to-start (FS)
* Start-to-start (SS)
* Finish-to-finish (FF)
* Start-to-finish (SF)

**Video 3:**

Resources: people, equipment & materials

Resource breakdown structure: a hierarchical structure that identifies the project’s resources by category and type

Duration:

Actual amount of time worked on an activity + elapsed time

Effort:

The number of workdays or work hours required to complete a task

Three-point estimates:

* Optimistic
* Most likely
* Pessimistic

Program evaluation and review technique (PERT):

A network analysis technique used to estimate project duration when there is a high degree of uncertainty about the individual activity duration estimates

Use probabilistic time estimates:

* Apply critical path method (CPM) to a weighted average duration estimate
* Duration based on three-point estimate

Weighted average= (optimistic + 4\*most likely + pessimistic)/6

Gantt chart:

Provide a standard format for displaying project schedule information by listing project activities & corresponding start and finish dates in a calendar format

SMART criteria for milestones:

* Specific
* Measurable
* Assignable
* Realistic
* Time-framed

**Supplementary video:**

**CPM (critical path method):**

A network diagramming technique used to predict total project duration

Critical path:

the series of activities that determine the earliest time by which the project can be completed

longest path through the network diagram

least amount free slack/float (the amount of time an activity may be delayed without delaying a succeeding activity/project finish date)

total slack/float:

the amount of time an activity may be delayed from its early start without delaying the planned project finish date