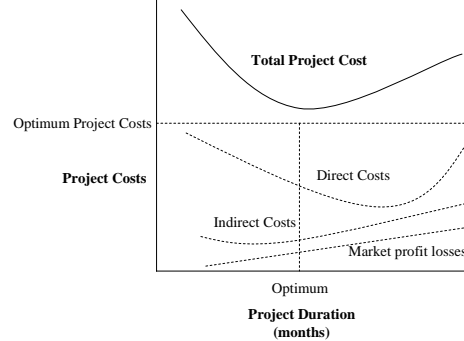# Integrating Cost and Schedule

Week 10
Construction Estimation, Planning and Control

---

## Time Cost Trade-offs



---

## Assumptions

- Increasing or decreasing and activity duration increases cost for that activity
- Decreasing a project's duration leads to lower indirect costs
- A project's duration can be decreased by decreasing duration of critical path
- Delta diff from increasing direct cost and reducing indirect cost: the optimal time and cost

---

## Cost + Schedule

- Guidelines for integrating cost and schedule data
- Pioneered by US Defense agencies in the 1960s
  - DOD: Cost and Schedule Control System Criteria (C/SCSC)
  - DOE: Performance Measurement System (PMS)

---

## Earned Value

|  | Budgeted | Actual | Forecast |
|---|---|---|---|
| Work Scheduled | BCWS | ACWS | |
| Work Performed | BCWP | ACWP | |
| At Completion | BAC | | FAC |

---

## Parameters

- Schedule Variance (SV) = BCWP – BCWS
  - SPI = BCWP/BCWS (Sched. Perform. Index)
- Cost Variance (CV) = BCWP – ACWP
  - CPI = BCWP/ACWP (Bud. Perform. Index)
- EAC = ACWP + (BAC – BCWP)
- Earned Value = % Comp. x BAC