

國立臺北大學自然資源與環境管理研究所
九十七學年度第二學期
『環境系統分析』課程講義（四）

進度：網路模式與專案管理

● NETWORK MODEL

- Introduction => c.f.: Continuous Mathematical Programming
- Terminology: Node (Vertex), Arc (Link), Path, and Graph (Tree); Flow and Direction
- Classical Network Programming Models (Hillier and Lieberman, 2001, Chap.9)
 - ⇒ Shortest-Path Problem; Minimum Spanning Tree Problem
 - ⇒ Maximum Flow Problem; Minimum Cost Flow Problem
- Other Models: Traveling Salesman Problem

● PROJECT MANAGEMENT AND PERT/CPM

- Introduction to Project Management
 - ⇒ A project is a collection of tasks that must be completed in minimum **time** or at minimal **cost**.
 - ⇒ Other Resources: Human resource, materials..., etc.
 - ⇒ Presentations: Gantt Chart, Arrow Diagram (Network)
- The Prototype Example: Hillier and Lieberman (2001), Reliable Construction Co.

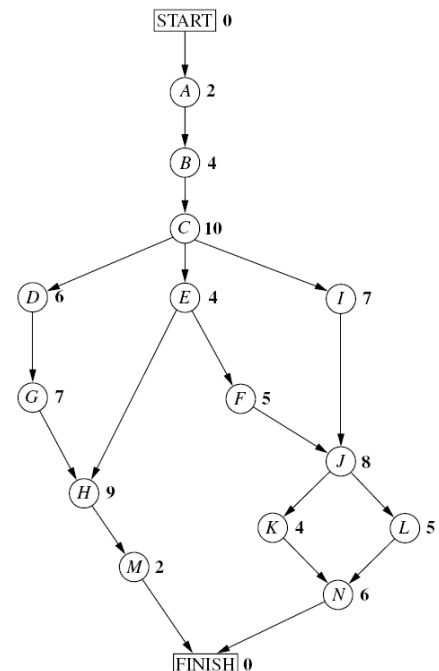


TABLE 10.1 Activity list for the Reliable Construction Co. project

Activity	Activity Description	Immediate Predecessors	Estimated Duration
A	Excavate	—	2 weeks
B	Lay the foundation	A	4 weeks
C	Put up the rough wall	B	10 weeks
D	Put up the roof	C	6 weeks
E	Install the exterior plumbing	C	4 weeks
F	Install the interior plumbing	E	5 weeks
G	Put up the exterior siding	D	7 weeks
H	Do the exterior painting	E, G	9 weeks
I	Do the electrical work	C	7 weeks
J	Put up the wallboard	F, I	8 weeks
K	Install the flooring	J	4 weeks
L	Do the interior painting	J	5 weeks
M	Install the exterior fixtures	H	2 weeks
N	Install the interior fixtures	K, L	6 weeks

