COURSE INTRODUCTION

ARE 413

CONSTRUCTION MANAGEMENT

BY

MOHAMMED JALALUDDIN

LECTURER

CONSTRUCTION ENGINEERING & MANAGEMENT DEPT

FEBRUARY 13/2006

Handout # 1

ARE 413 Overview

- Syllabus
- Text
- Course description
- Course objectives
- Software
- Course Website
- Grading plan
- Class participation / feedback
- Term projects
- Assignments/ HWs
- Examinations
- Contact information

ABOUT ME

Mr. Mohammed Jalaluddin

Construction Management (ARE 413)

Contact Information & Class Timings

INSTRUCTOR: Mr. Mohammed Jalaluddin
860-1623 (Day)
860-5221 (Evening)
Email: jalals@kfupm.edu.sa

OFFICE HOURS: Office at 331 Building 19
Sunday 1:30 P.M. – 3:30 P.M.
Tuesday 1:30 P.M. – 3:30 P.M
After class and by appointment

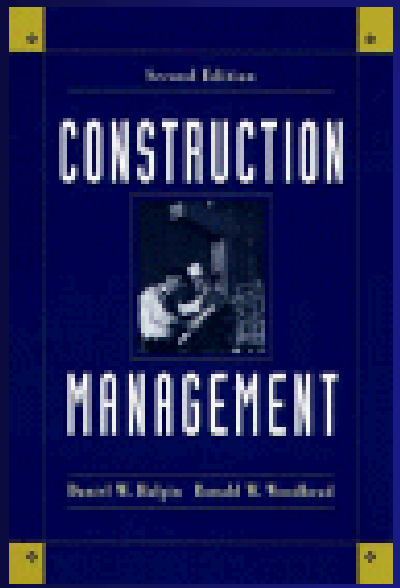
TIME & PLACE: Saturday, Monday and Wednesday
9:00 - 10:00 AM
Room 450 Building 19.

AGENDA

ARE 413: CONSTRUCTION MANAGEMENT

1. **What are the aims & objectives of the course**
2. **What will be covered in this course?**
3. **What is the importance of this course ?**
4. **What is expected to be successful in course?**

Text



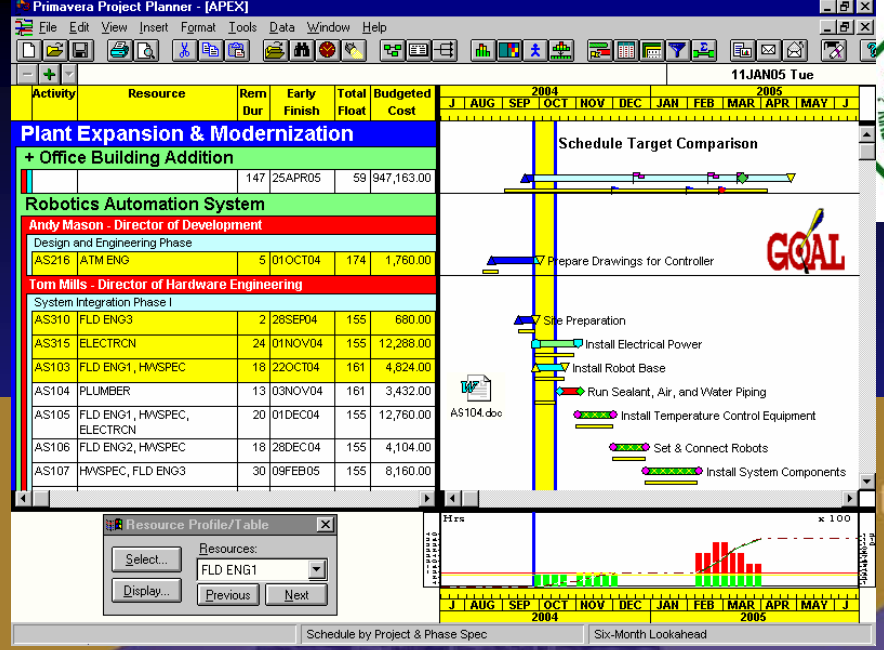
- "Construction Management", by **Daniel W. Halpin** and Ronald W. Woodhead, 2nd Edition , John Wiley & Sons

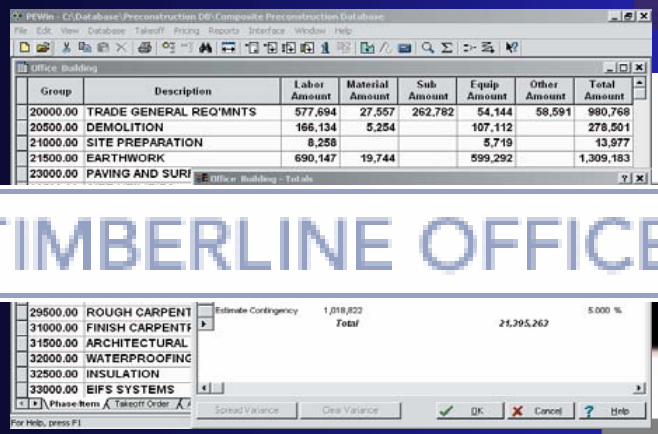
- *Class Notes and Handouts*
- *Course material will be made available through the **WEBCT** web site*

Software –

- Access to project management software is a benefit.

- Primavera
- MS Project
- Timberline/US Cost
- Expedition





TIMBERLINE OFFICE

PRIMAVERA
Expedition
Complete Project Control

Course Aims & Objectives

- At the completion of this course, the student will:
  - Understand the construction industry, its process, characteristics , principal project phases
  - Identify, describe, and discuss the types of project delivery methods, contracts, organization Structures
  - Identify and apply planning & scheduling techniques, tools and computer software
  - Understand key basic elements of the construction estimation.
  - Identify and be familiar with the application of various construction equipment
  - To gain an understanding of the principal concepts and issues in Value Engineering, Construction productivity; construction safety etc.

Course Organization:

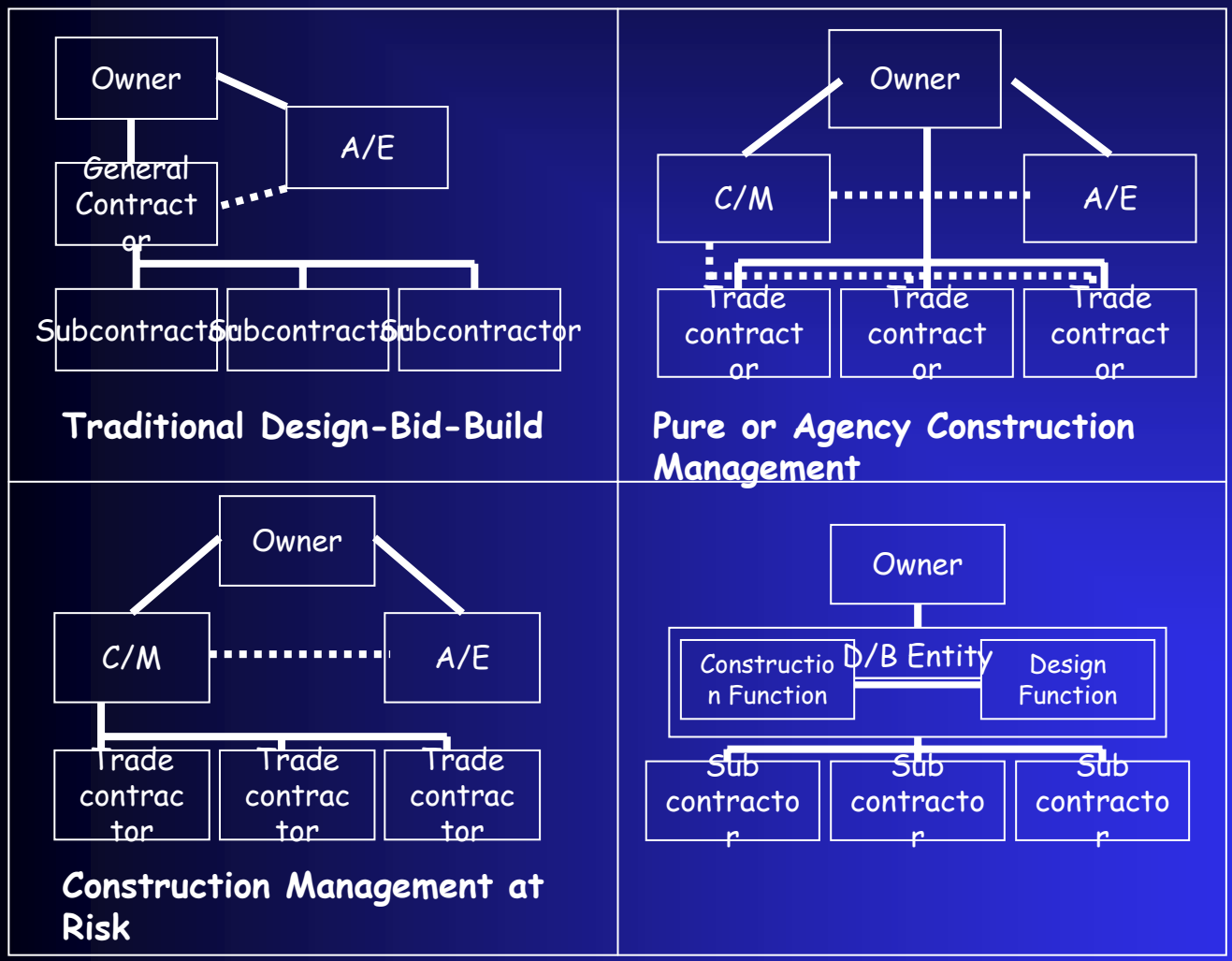
The course is divided into major subject areas:

PART - A: CONSTRUCTION INDUSTRY

Haradh Gas Plant

- ✓ Introduction to the construction industry
- ✓ Unique characteristics of Construction projects
- ✓ Difference between manufacturing and construction
- ✓ Types of construction projects
- ✓ Size of Construction Industry
- ✓ Key players and participants, roles, and relationships
- ✓ Project Phases and project lifecycles

PART - B: Project Delivery Methods

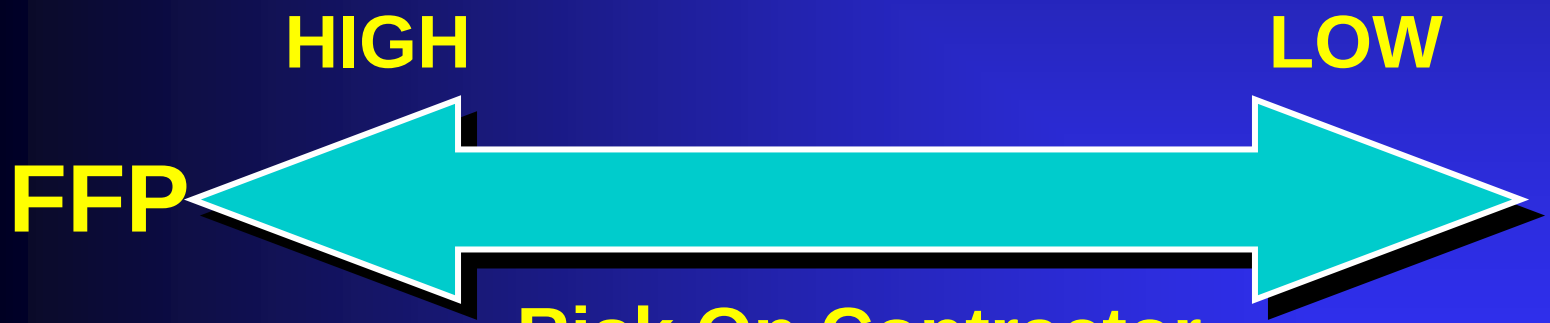


- ✓ Overview of the Project Delivery Methods:
- ✓ Traditional
- ✓ Design-Build
- ✓ Construction Management
- ✓ Build Operate Transfer (BOT).

PART - B: Construction Contracts

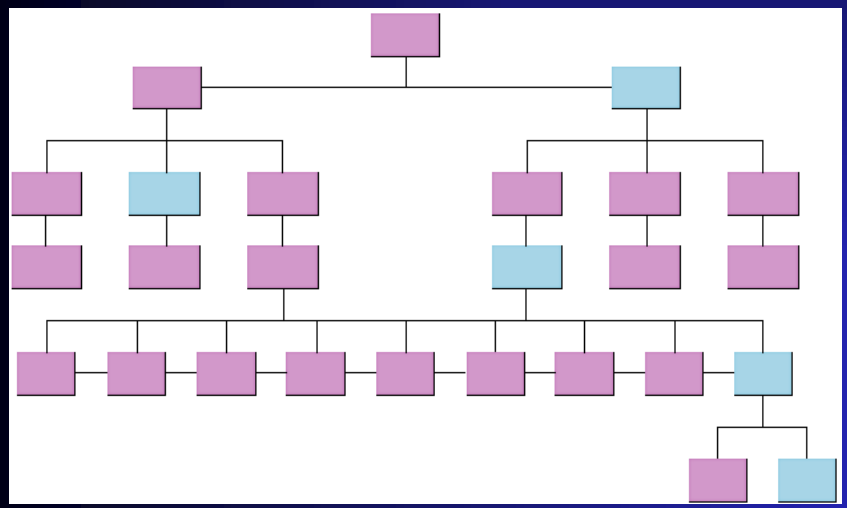
Construction Contracts

Types of Construction Contracts, Lumpsum, Unit Price and Cost Plus types of contract, Advantages and disadvantages of each .



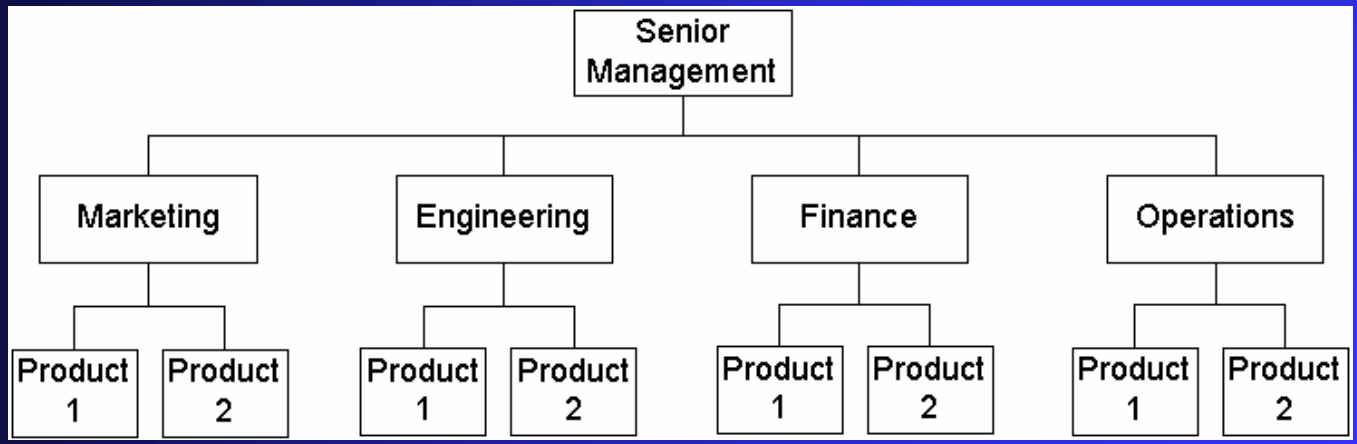
LEGEND	
FFP	FIRM FIXED PRICE
CPFF	COST PLUS FIXED FEE

PART - C: Management and Organization Structure

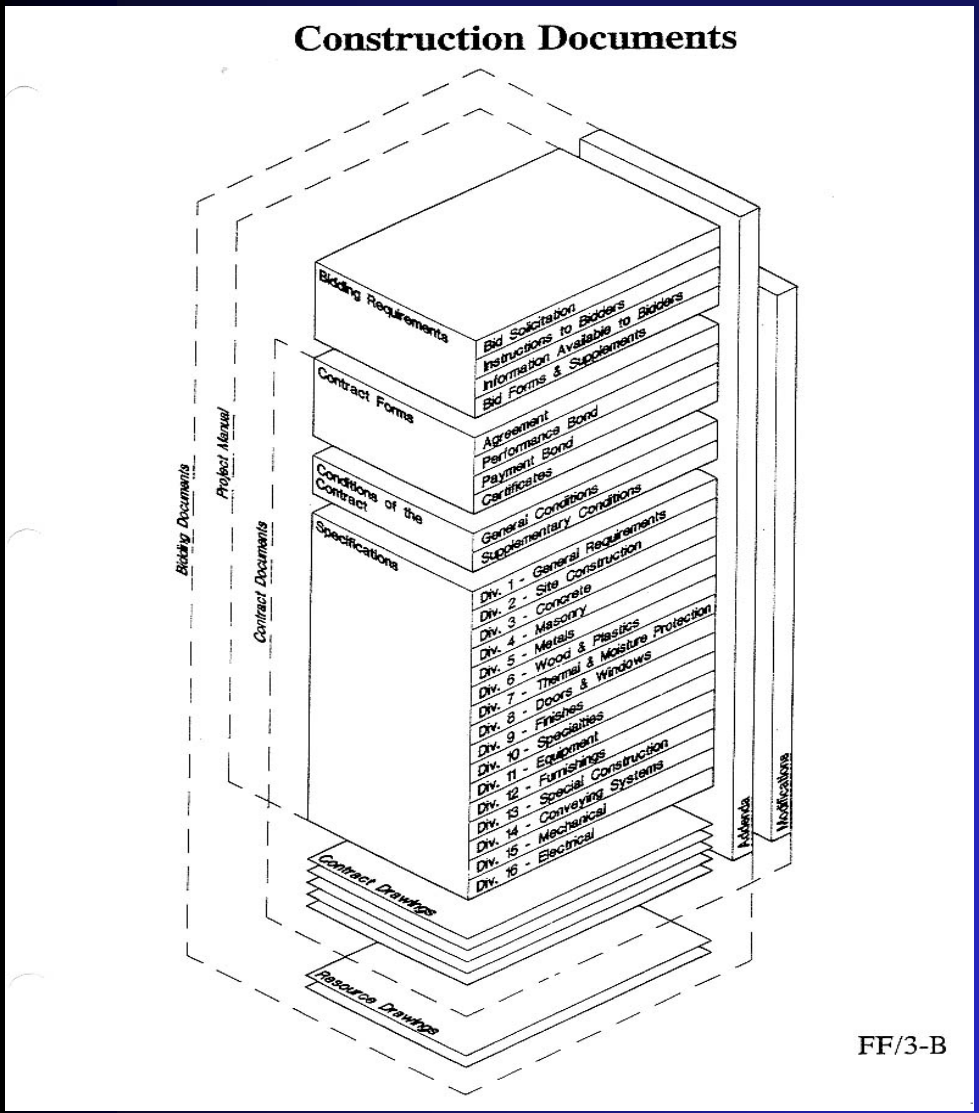


Overview of the Management and organization structure:

- ✓ Legal Aspects
- ✓ Types of organizational structure/models
- ✓ Project team concepts.



PART - D: Contract Procurement Process



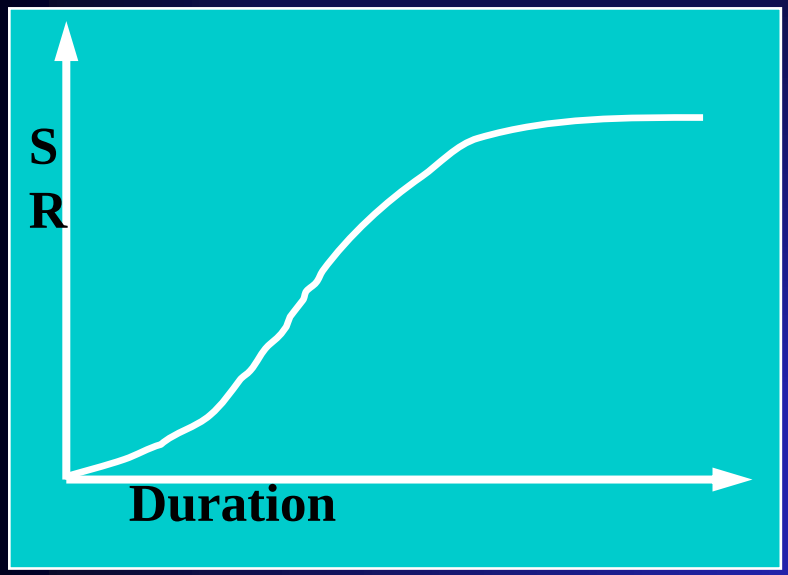
Overview of the contract procurement process:

- ✓ Contract award, bid package,
- ✓ General conditions, special conditions and contract documents,
- ✓ Specifications

Types of specifications, technical division

- ✓ Bonds, liens etc

PART - E: Financial Management: Project Funding, Cash flow



Overview of the Financial Management and Accounting: for the Construction Industry:

- ✓ Project Finance,
- ✓ Sources of finance and Cash flow analysis and projection.

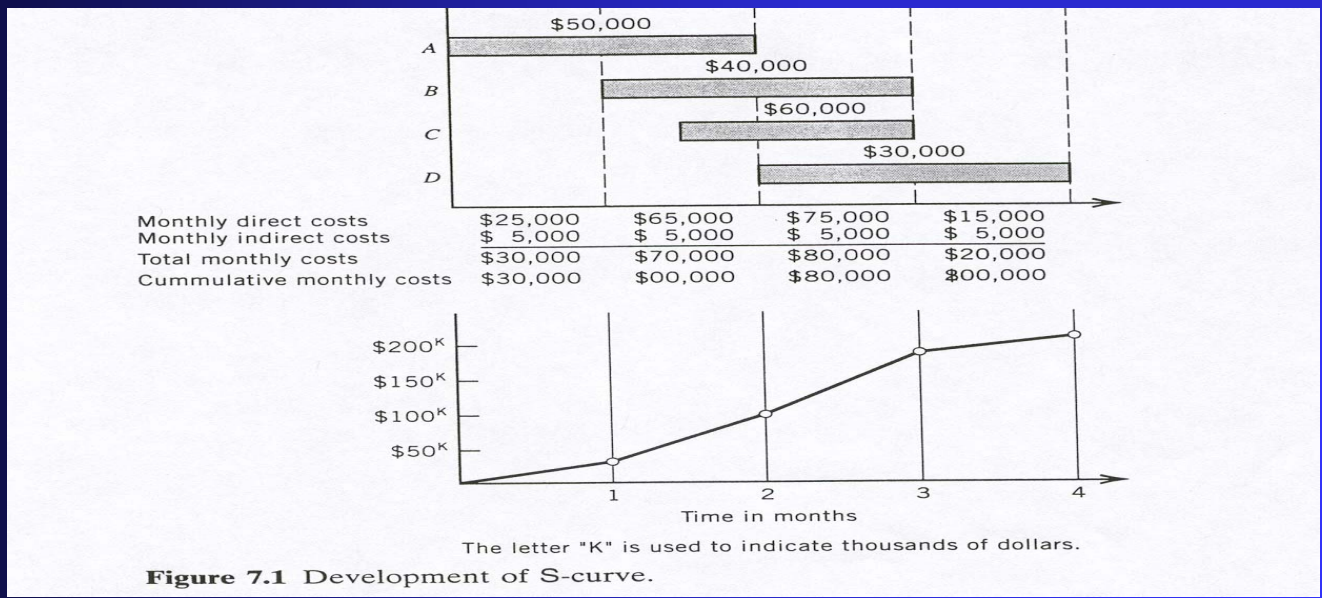
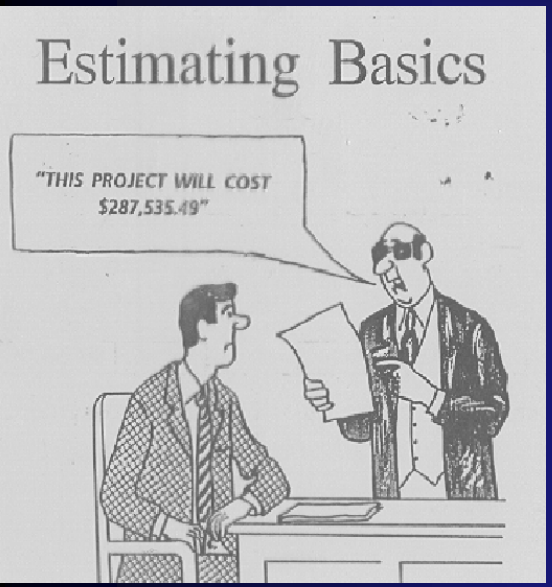
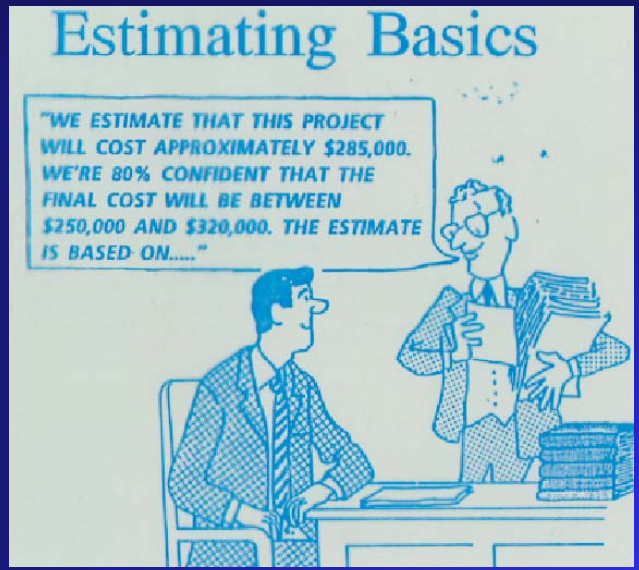


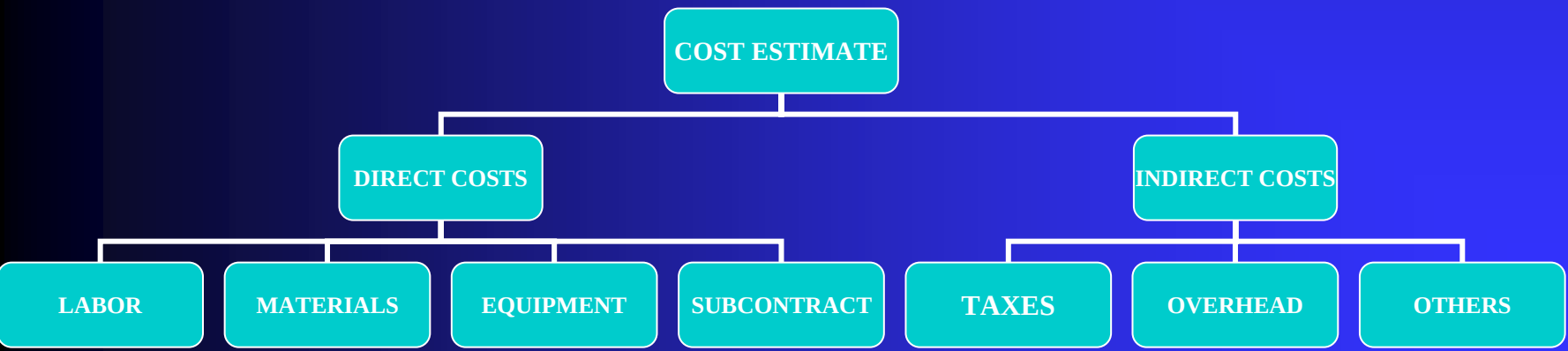
Figure 7.1 Development of S-curve.

PART - F: Construction Estimation

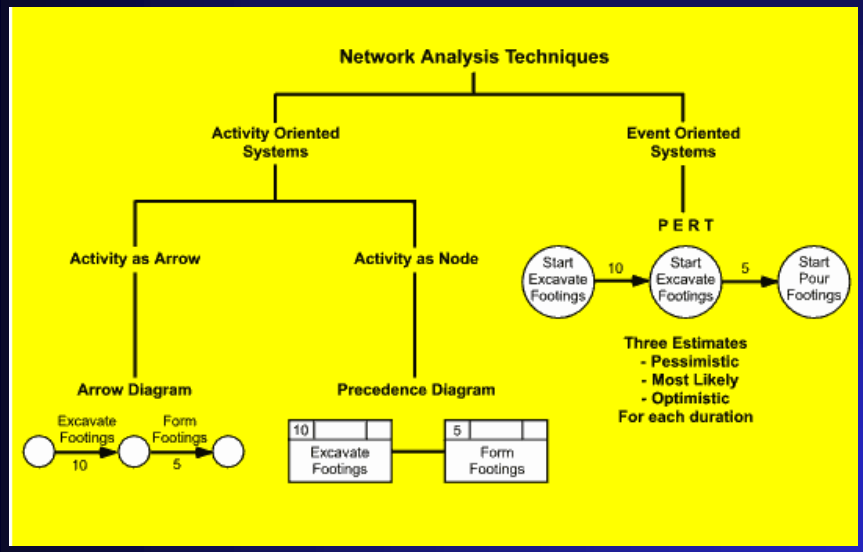


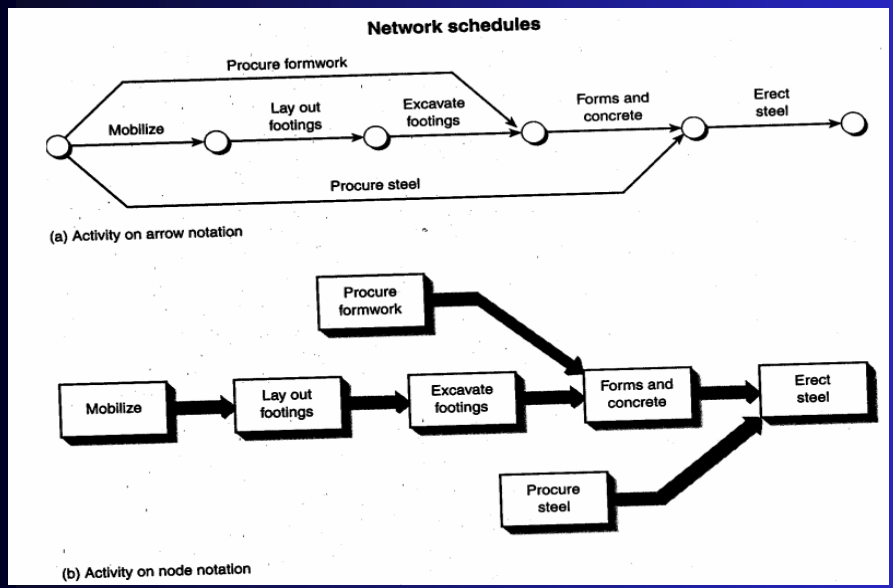


Types of Estimates,
Pre-Construction estimates and Detailed Estimates,
Estimating approach,
Quantity Take-off.
Examples of Site work, excavation, concrete work etc.
Demonstration of Computerized Construction Estimation Softwar



PART - G: Construction Planning & Scheduling





An Overview of the Planning and scheduling tools , techniques, plus an introduction to the background,

Principles and techniques of Critical Path Method (CPM) Scheduling methods - bar charts, PERT and CPM;

Network construction; activity durations; forward pass, backward pass, float and critical path calculations ,

Use of Computers software.

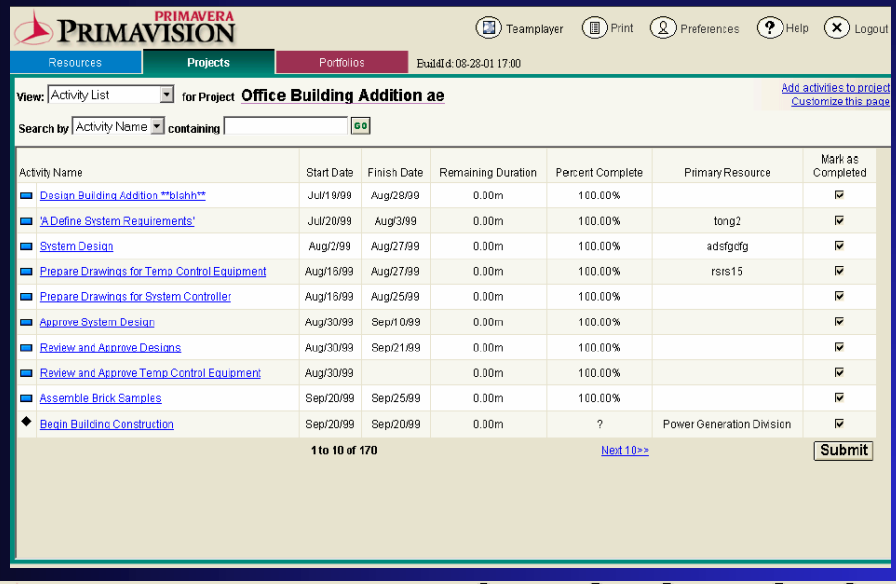
PART - H: Construction Equipment

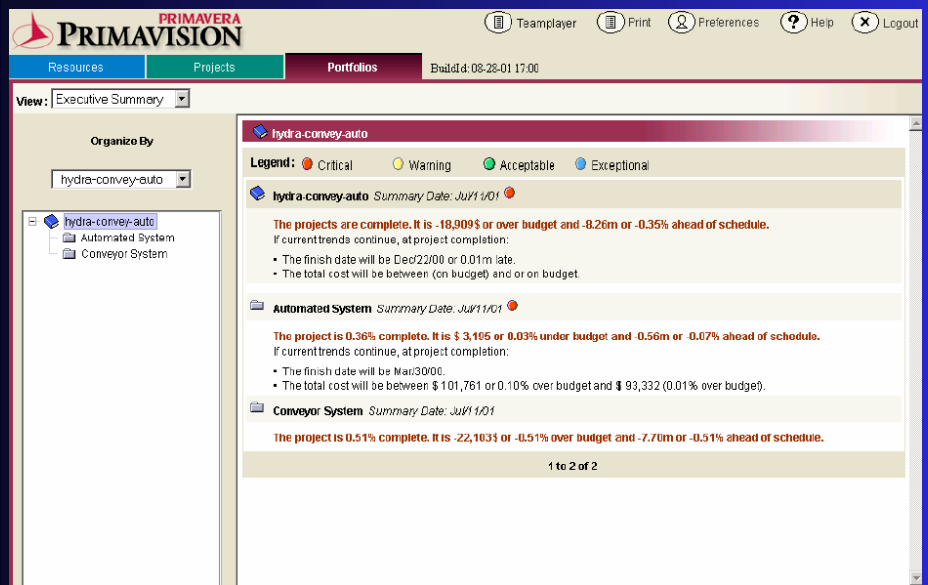
- ✓ Types of Equipments
- ✓ Selection of Equipment,
- ✓ Equipment cost, ownership costs, operating costs,

PART - I: Special Topics : Construction Management

- ✓ Value Engineering
- ✓ Construction productivity,
- ✓ Construction safety,
- ✓ Risk Management,
- ✓ Total Quality Management and Partnering

PART - J: Information Technology and Construction Industry





- ✓ Overview of the Emerging Computer applications in construction industry:
- ✓ Computer applications in Planning & scheduling,
- ✓ Computer applications in construction Estimation
- ✓ Computer applications in contract administration and specification etc.

Attendance and Participation:

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Regular class attendance is compulsory and **missing classes/quizzes** will lower the component of the grade. Students are expected to attend all lectures, quizzes, participate in the class discussion and submit all assignments on time.

Exams, Assignments & Quizzes:

Quizzes will be conducted approximately once in a week and assignments will be conducted at regular intervals. Each student is responsible to submit assignments and attend quizzes and exams.

GRADING

- Grading policy for this course will be based on the quizzes, assignments and exams as shown in the following table.

Quizzes	15 %
Assignments	10 %
Midterm	25 %
Term Project	20%
Final Exam	30%

SCHEDULE

Week	Date	Lecture	Exams/Quiz/Assignments
1	Feb 11 (S)	Course Registration	
	Feb 13 (M)	Course Introduction	
	Feb 15 (W)	Overview of Construction Industry,Size, Key Players	Reading Assignment # 1
		Introduction to Construction Management, Process, Environment	NCB Reports on Saudi Construction
	Feb 16 (Th)	Normal Saturday Class	
2	Feb 18 (S)	Characteristics of Construction projects,Types of Construction projects	
	Feb 20 (M)	Major phases and life cycle of construction project	
	Feb 22 (W)	Activities & responsibilities of major project phases,Construction documents	Quiz # 1
3	Feb 25 (S)	Project delivery methods	
	Feb 27(M)	• Traditional	
	March 1 (W)	• Design-build ,BOT	
		• Construction management	Assignment # 1
		Construction Documents, Bid Package	Quiz # 2
4	March 4 (S)	Contract Procurement process,contract award,bid package	Reading Assignment # 2
	March 6 (M)	Contract Procurement process,contract award,bid package	
	March 8 (W)	Contractor selection,Conditions of contract:General & Special	
		Specification, divisions, formats,	
		Types of specifications, bonds etc	Quiz # 3

SCHEDULE contd

5	March 11(S)	Bid Pacakge	Assignment # 2
	March 13(M)	Construction contracts	
	March 15 (W)	Construction contracts (Contd.)	Quiz # 4
6	March 18 (S)	Midterm Exam	MAJOR -1
	March 20(M)	Management and organization structure,Legal Aspects	
	March 22 (W)	Planning and scheduling tools , techniques	
7	March 25 (S)	WBS	
	March 27 (M)	Background: Contruction Project Planning ,CPM,PERT	
	March 29 (W)	Forward pass, backward pass, float and critical path calculations	Quiz # 5
8	April 1(S)	Midterm Break	Assignment # 3
	April 3(M)	Critical path calculations.	Reading Assignment # 3
	April 5 (W)	IT application for Planning & Scheduling	Quiz # 6
9	April 8 (S)	Computerized Scheduling software:	Assignment # 4
	April 10(M)	Construction Estimation Processes,Types of estimates	
	April 12 (W)	Pre-Construction estimates and Detailed EstimatesEstimating approach	Quiz # 7
10	April 15 (S)	Types of Estimates (Contd)	
	April 17 (M)	Project Finance, Sources of finance and	
	April 19 (W)	Cash flow analysis and projection,	Quiz 8

contd

11	April 22 (S)	Computerized Construction Estimation Software	Assignment # 5
	April 24(M)	Computerized Construction Estimation	
	April 26(W)	Computerized Construction Estimation	
12	April 29 (S)	Construction Equipment: , Selection of Equipment	Reading Assignment # 4
	May 1(M)	Construction Equipment: , Selection of Equipment	
	May 3(W)	Equipment cost, ownership costs, operating costs	Assignment # 6
		Types of Equipments	Quiz 9
13	May 6 (S)	Depreaction Methods	Assignment # 7
	May 8 (M)	Construction Materials	
	May 10 (W)	Labor	Quiz 10
14	May 13(S)	Construction productivity	
	May 15 (M)	Value Engineering Video	
	May 17 (W)	Value Engineering	
15	May 20(S)	Total Quality Management	
	May 22(M)	Construction safety (Video)	Assignment # 8
	May 24(W)	Construction safety	
16	27 May (S)	Term Project Presentations/ Last day of classes	
	29 May - 8 June	Final Examination Week	Final Exam

Summary

- This is about **YOUR** course
- Basics of Construction Management
- Work with the team spirit
- Keep up with quizzes/assignments
- Attend classes

THANK YOU

- QUESTIONS