Lecture 1

Sistem Perencanaan dan Pengendalian Proyek Konstruksi

FERDINAND FASSA

Deskripsi

Deskripsi

Mata Kuliah ini membahas berbagai aspek perencanaan dan pengendalian proyek konstruksi yang mencakup penganggaran, penjadwalan dan pengukuran kemajuan pekerjaan. Bahasan mencakup perencanaan proyek dengan menggunakan metoda perencanaan dan penjadwalan (Barchart, AOA, AON PERT) dan aplikasi komputer dalam manajemen proyek konstruksi.

TIU

Mahasiswa memiliki bekal kemampuan analisis dan perencanaan sistem pengendalian proyek konstruksi yang mencakup aspek biaya dan waktu secara terpadu.

- **Kode Kuliah : TSP- 403**
- **Jumlah SKS : 3 Kuliah**
- **Sifat Kuliah : Wajib**
-
- **Hari : Kamis, 08.00 s.d 10.30**

DAFTAR PUSTAKA

1. Ahuja, Dozzi and Abourizk, 1994, " Project Management: Techniques in Planning and Controling Project 2nd Ed, Jhon Wiley

2. Saleh Mubarak, 2010, Construction Project Scheduling and Control, Jhon Wiley

Silabus

BAB 1	Pengenalan Perencanaan dan Penjadwalan Proyek
BAB 2	Perencanaan Organisasi dan Penjadwalan Dengan BarChart
BAB 3	Basic Netwotk
BAB 4	*CPM Analysis for AOA*
BAB 5	Precedence Network Activity on Node
BAB 6	*CPM Analysis for AON*
BAB 7	*Schedule Updating and project control*
BAB 8	UTS
BAB 9	*Program Evaluation and Review Technique*
BAB 10	*Linear Scheduling Metods*
BAB 11	Penyesuaian Biaya-Waktu
BAB 12	Penjadwalan Sumber daya
BAB 13	*Construction Delay and Other Claims*
BAB 14	*Schedule Risk Management*
BAB 15	Presentasi Project Akhir
BAB 16	UAS

Komposisi Penilaian

Kehadiran	5%
Quis dan Tugas Kecil	10%
Tugas Besar	15%
UTS	35%
UAS	35%

Outline Lecture 1

1. REVIEW ON CM (PROJECT, PROJECT LIFE CYCLE)
2. PREFACE PLANNING AND SCHEDULING
3. WHY SCHEDULE PROJECTS?
4. RATIONALE AND STEPS FOR PLANNING METHODS
5. CONCLUSION

Review CM

A project (construction or otherwise)

Before we define project planning, we need to define a project.

The Project Management Institute (PMI 2008) defines **A PROJECT** as "a temporary endeavor undertaken to create a unique product, service, or result"

Any **PROJECT** must have a **STARTING POINT AND AN ENDING POINT**

Review CM

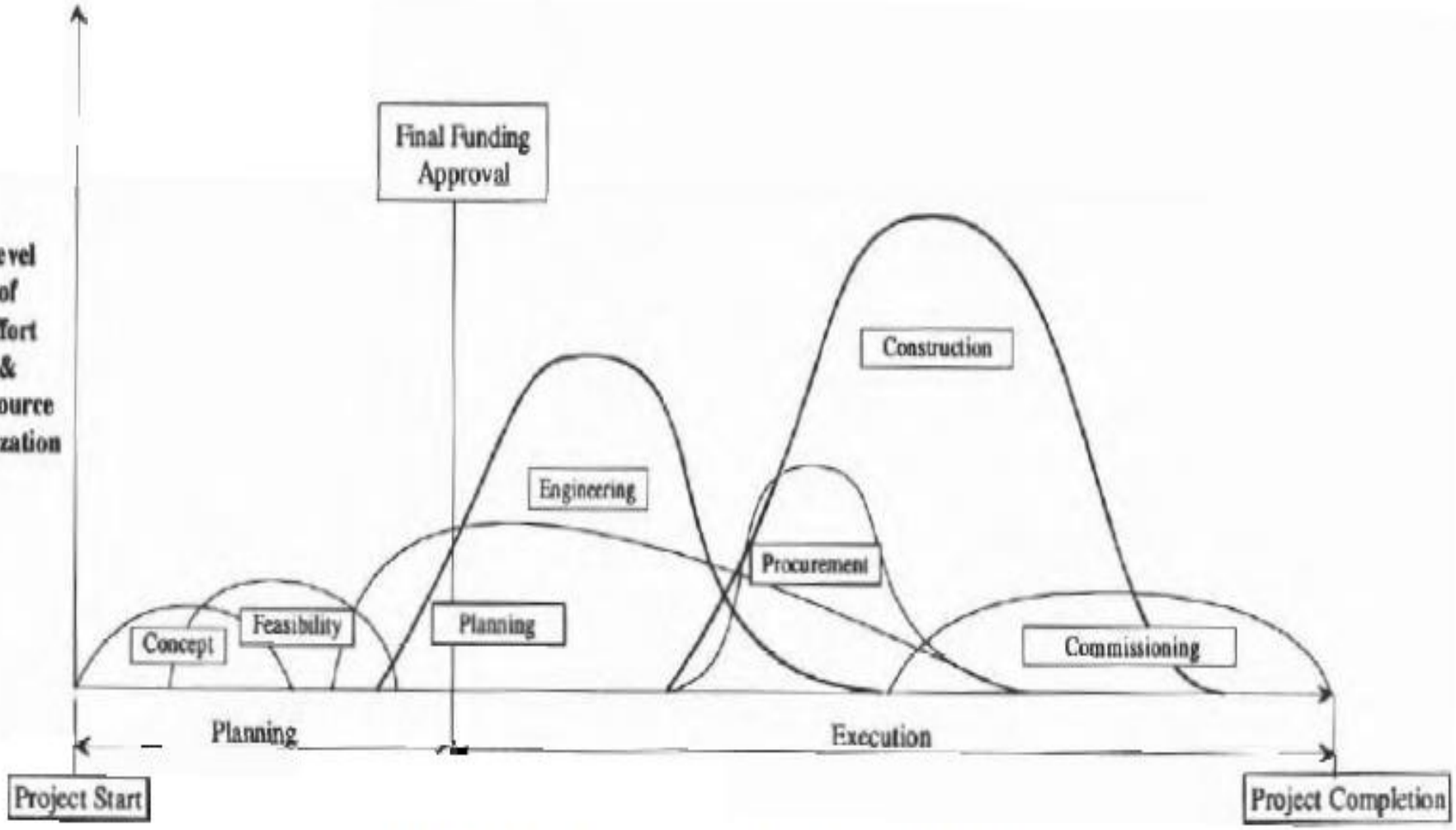

FIGURE 1.1 The Dynamics of the Project Life Cycle

Preface

PLANNING..??? AND

SCHEDULING..???

…Cont

- **PLANNING AND SCHEDULING** are two terms that are often thought of as synonymous. However, they are not.
- Scheduling is just one part of the planning effort.
- The term planning is used in many ways and different contexts

...Cont

- Planning is not only scheduling
- The main purpose of planning is that it reduces the uncertainty that exists before a project or portion of a project is launched

…Cont

PROJECT PLANNING defined as

"The Process Of Choosing The One Method And Order Of Work To Be Adopted For A Project From All The Various Ways And Sequences In Which It Could Be Done"

(Antill andWoodhead 1990, p. 8; Callahan, Quackenbush, and Rowings 1992, p. 2).

…Cont

SCHEDULING is the determination of the timing and sequence of operations in the project and their assembly to give the overall completion time.

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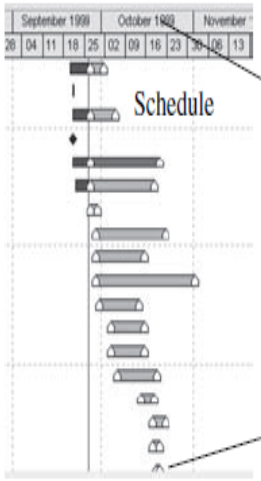

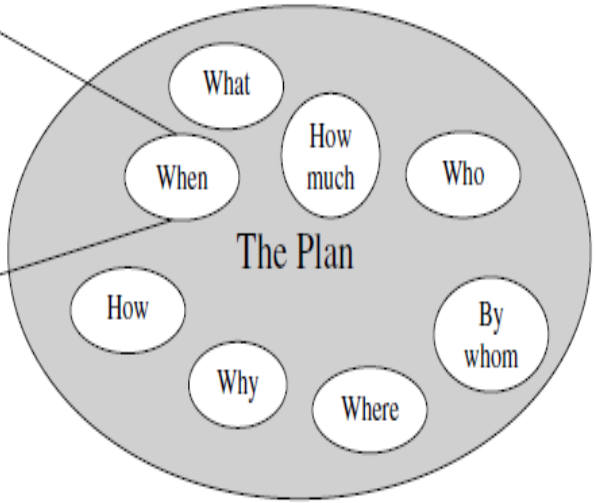

Planning

- ***What*** to make
- ***When*** to make it
- ***How much*** to make
- ***Where*** to make it
- Materials Required
- Resources Required

Scheduling

- ***How best*** to make it
  - Execute against plan
- Sequencing
- Synchronization
- Priorities, constraints and conflicts
- Monitoring execution
- Managing change

...Cont

Ex:

To get an idea about the relationship between project planning and scheduling, assume that you are planning a family vacation "project" for next summer. Your plan may include considerations such as these:

Example

- Who will go on the trip?
- Which places do you want to visit? (You would like to visit many places, but your time and monetary resources are limited.)
- What is the time frame for the vacation (just the starting and ending dates)?
- What is the total budget for the "project" (including the contingency you did not tell other family members about)
- What types of activities do you want to participate in during the trip (sharp differences among the family members)?
- What means of transportation do you plan to use (your car, a rental car, air, train, bus, RV, bicycles, etc.)?
- What other issues, such as accommodations, food, and clothing, need to be addressed?

Answer

The project schedule is simply the itinerary, such as this:

- Leave home in Tampa, Florida, on June 8, 2010.
- Arrive in Panama City, Florida, on June 8, 2010.
- Leave Panama City on June 15, 2010.
- Arrive in Atlanta, Georgia, on June 15, 2010.
- Leave Atlanta on June 22, 2010.
- Arrive in Gatlinburg, Tennessee, on June 22, 2010
- Return home to Tampa on July 7, 2010.

Note: that not only the plan and the schedule are related, but also many of the elements of the plan are interrelated.

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- **MOST OF THE CHOICES IN THE PLAN AFFECT THE BUDGET** (length of stay, type of accommodations, means of transportation, type of activities, food, etc.).

- **THEY MAY AFFECT NOT ONLY THE COST BUT THE SCHEDULE AS WELL**.

- **A LACK OF CLARITY OF SCOPE BEFORE THE PROJECT STARTS MAY LEAD TO HEATED ARGUMENTS AND DISSATISFACTION.**

- **IN REAL PROJECTS, IT MAY LEAD TO HUGE BUDGET OVERRUNS, SCHEDULE DELAYS, AND DIFFERENT PARTIES' DISSATISFACTION**.

WHY SCHEDULE PROJECTS?

Contractors need project scheduling to:

- **Calculate the project completion date**, obligated to finish the project by a certain date specified in the contract.
- **Calculate the start or end of a specific activity**, such as ordering special and expensive equipment to be delivered just in time for installation.
- **Coordinate among trades and subcontractors, and expose and adjust conflicts**, For example, the drywall contractor cannot start until the framing has been done; once the drywall is installed, the painter can start painting; and so on.

…Cont

- **Predict and calculate the cash flow,** The timing of an activity has an impact on the cash flow.
- **Improve work efficiency,** can save time and money.
- **Evaluate the effect of changes**, well-planned projects may have few or minor change orders.
- **Prove delay claims,** schedulecan prove or disprove a delay claim

…Cont

Project Owner need project scheduling to:

- **Get an idea on project's expected finish date,** Before an owner demands that the general contractor (GC) complete the project by a certain date, he/she needs to make sure that this is a feasible and reasonable date.
- **Ensure contractor's proper planning for timely finish,** Owners may demand a project schedule from the prospective or bidding contractor.
- **Predict and calculate the cash flow,** The owner is obligated to make timely progress payments to the contractor and other parties along the life of the project

…Cont

Project Owner need project scheduling to:

- **Serve as an effective project monitoring tool,** Both owner and contractor must monitor progress of work and compare actual progress (schedule and cost)
- **Evaluate the effect of changes,** Owners may desire or require change orders
- **Verify delay claims,** Owners use Critical Path Method (CPM) schedules to analyze, verify, and/or dispute contr.actors' delay claims

RATIONALE AND STEPS FOR PLANNING METHODS

- Identify all project elements, such as structure, foundation, electrical, and mechanical.
- Identify all agencies participating in the project. Agencies includes contractors and owners representative of any contracting party involved in the project.
- Identify responsibilities for each project element within each participating agency such as engineering, procurement, and construction.
- Identify key points within the project elements such as start and completion of substructure, structure, masonry, electrical, piping, testing, and so on.

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- Identify separate projects or subprojects between key points.
- Identify interfaces between projects or subprojects such as concrete work and embedded parts.
- Identify each event, key point, and interface for which information is required such as completion of concrete pump base and delivery of pump.
- Identify highest responsibility levels requiring information about each event, key point, or interface. This will be dealt with in more detail in the section on the information plan.

DISCUSSION

Create Planning and scheduling:

1. **Drainage**
2. **Shelter**
3. **Others**

How?
Where?
By whom?
When (in general terms, the project's start and end)?
Base on (Scope, Time, Money)

CONCLUSION

Thank You