



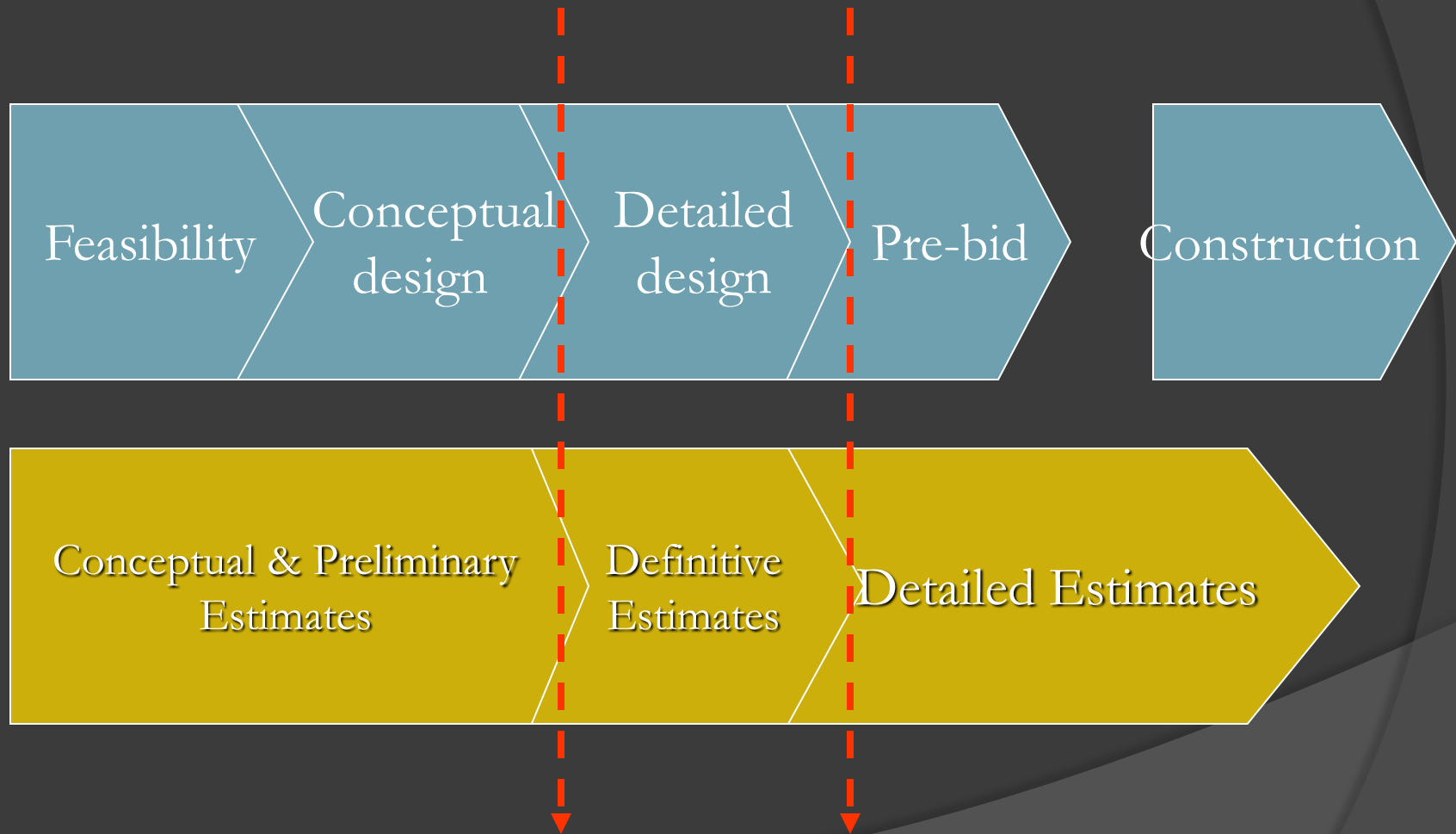
Salahaddin University
College of Engineering
Architectural Engineering Department
5th Stage 2022-2023
Estimation and Specifications

ESTIMATION AND SPECIFICATION

TYPES OF ESTIMATION

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Design & Estimating Process



Owner's Purpose of Estimate

1. Making investment decisions in the conceptual stage.
2. Negotiate and finalize the contract at the implementation phase.
3. To implement cost control measures.

Contractor's Purpose of Estimate

1. Determine project cost and profit.
2. To Implement cost control measure.
3. To develop data base for that can be used for future project.

Engineer's Purpose of Estimate

1. Provide the owner with probable estimate.
2. Evaluate alternatives.

Comparison of Contractor's and Engineer's Estimator

➤ Contractor's Estimator

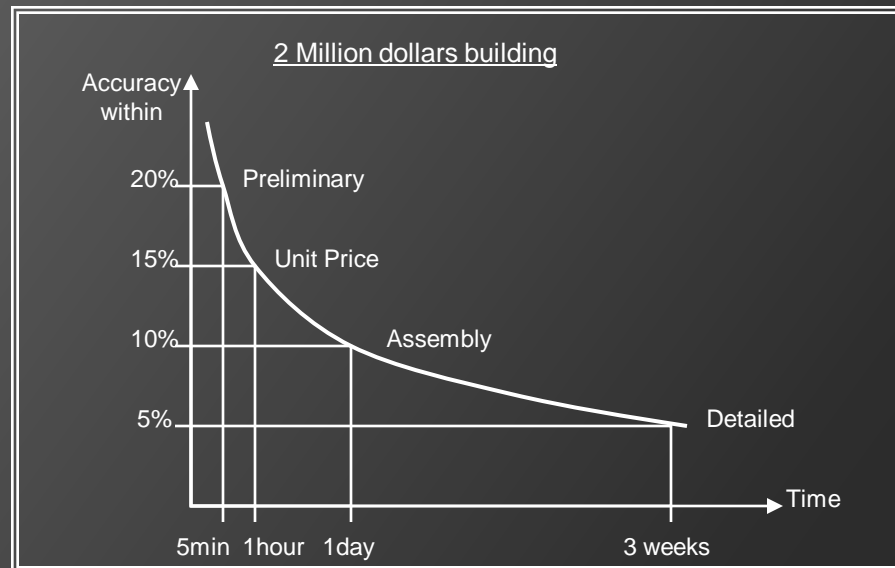
- Determines actual cost of project for bidding purposes.
- Has detailed company cost data for labor and equipment.
- Knows which construction methods are to be used.
- Has knowledge of actual materials suppliers to be used and quantity discount prices.

➤ Engineer's Estimator

- Determines expected cost.
- Does not know who will receive award, therefore does not know contractor's exact resource costs. Does not know actual labor rates.
- Must assume probable construction methods to be used.
- Does not know who project supplier will be. Must use local list prices.

TYPES OF ESTIMATES

1. Preliminary
2. Unit price
3. Assembly or Conceptual Cost
4. Detailed estimate



Each phase of a project life cycle requires a different type of estimate--each estimate requires different types of information.

1. PRELIMINARY ESTIMATE “ORDER OF MAGNITUDE”

- A cost prediction based solely on size and/or capacity of a proposed project.
- Before any engineering or design is completed.
- Rely on broad data from already executed similar project
 - ❖ relate cost in dollar to the main capacity/size parameter
 - number of beds in hospital
 - square meter of office space
 - number of students in school

Preliminary Estimate

❖ Advantageous

- Allows a quick determination of the feasibility of a project
- A quick screening on alternatives, etc. (e.g., should it be a concrete building or a steel building !).

❖ Purpose:

1. Ranking alternatives
2. Evaluate economics and financial feasibility
3. As a check on more detailed estimates

1. Example of Preliminary Estimates

- Parking Garage
\$150.0/m² or \$3750/parking space
- High School
\$80 to 110/m² or \$4,000/ student seat
- Medical Centers
\$90 to 130/m²

2. UNIT PRICE ESTIMATE

- Unit prices are obtained from data on projects already performed.
- Cost of labor, material, and equipment for all units of work are added together and divided by the number of units involved.

EXAMPLE OF UNIT PRICE ESTIMATING

Work Item	Estimated Quantity	Unit Price	Total
Site Preparation	50,000 m ²	\$ 7	\$ 350,000
Earth Excavation	100,000 m ³	\$ 12	\$ 1,200,000
Paving	50,000 m ² .	\$ 8	\$ 400,000
Total bid price			\$ 1,950,000

4. DETAILED (DEFINITIVE)ESTIMATE

- Prepared after drawings and specification are completed.
- Requires a complete quantity takeoff based on drawing and the complete set of contract documents
- Need information on labor rate "productivity", material cost, cost of renting or purchasing equipment

QUESTIONS?