

Introduction to Infrastructural Engineering

Estimation

by

Author Name: DR. MD NURUL ISLAM

Faculty: FTEK

email: mdnurul@ump.edu.my



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Estimation

Define estimation. State the needs for estimation.

Estimation is the scientific way of working out the approximate cost of an engineering project before execution of the work.



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Estimation (cont)

It helps to work out the approximate cost of the project in order to decide its feasibility with respect to the cost and to ensure the financial resources, if the proposal is approved.

2. Requirements of controlled materials, such as cement and steel can be estimated for making applications to the controlling authorities.



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Estimation (Cont.)

3. It is used for framing the tenders for the works and to check contractor's work during and after the its execution for the purpose of making payments to the contractor.

4. From quantities of different items of work calculated in detailed estimation, resources are allocated to different activities of the project and ultimately their durations and whole planning and scheduling



Example

Calculate the total rough cost estimation for a 4- storied residential building according to the Malaysian standard, where each floor area is 20030 sft, parking area is 75, 800 sft, Circulation Area in all 4 floors is 1936 sft, Covered Shopping Area at G. Floor is 920 sft and attached Servant Quarters is 2112 sft.



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Example

Sr. No	PORTION	AREA (sq. ft)	UNIT COST (Rm./sq.ft.)		
			Building Works	Sanitary Works	Electric Services
1	<u>Main Flat Area</u>	20030	1800	130	100
	(i) Ground Floor	20030	1500	130	100
	(ii) 1st Floor	20030	1650	130	100
	(iii) 2nd Floor	20030	1800	130	100
	(iv) 3rd Floor				



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Example

2	Park Area at G. Floor	75,800	800	-----	40
3	Circulation Area in all 4 floors	1936	1050	-----	70
4	Covered Shopping Area at G. Floor	920	950	-----	70
5	Attached Servant Quarters	2112	1150	55	70



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Conditions

Explain the eight conditions affecting the total cost estimation.

Each type of work requires a different method of construction. Construction may be of an ordinary house or office and it may also be of a Dam, Tunnel, Multistory

2 = Quality of labour and labour output varies in different localities.

3 = Weather conditions greatly affect the output and, hence, the overall cost.



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Conditions (Cont)

Ground conditions vary and change the method of construction. For example, excavation may be dry, wet, hard, soft, shallow or deep requiring different efforts.

5. The work may be in open ground such as fields or it may be in congested areas such as near or on the public roads, necessitating extensive watching, lightening, and controlling efforts, etc.



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Conditions (Cont)

The source of availability of a sufficient supply of materials of good quality is also a factor.

7. The availability of construction machinery also affects the method of construction.

8. Access to the site must be reasonable. If the access is poor, temporary roads may be constructed.



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