3.042 Materials Project Laboratory
Spring 2008

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Cost Estimating

Critical for:

a) Determining whether to make an investment to provide a product for the consumer market

b) Deciding if a company should quote on a product for sale to another company

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Purpose of Estimating

1. Establish the bid price of a product for a quotation or contract.
2. Verify quotations submitted by suppliers.
3. Ascertain whether a proposed product can be manufactured and marketed profitably.
4. Provide data for make-versus-buy decisions.
5. Help determine the most economical method, process, or material for manufacturing a product.
6. Provide a temporary standard for production efficiency and guide operating costs at the beginning of a project.
7. Help in evaluating design proposals.

Preliminary Product Cost Estimates

- Often used to compare different concepts of product designs or manufacturing processes
- Typically, this type of estimate is wanted almost immediately and there is no time for a detailed analysis

Final Product Cost Estimates

- Include costing of every part and subassembly going into a product
- Include the results of detailed studies on the optimum manufacturing processes and make-versus-buy decisions
- When the product is released for production, information from the detailed product cost estimate is directly used in establishing standard costs and ordering necessary tools and equipment

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Data Structure

Cost Estimate

Labor	Material	Machine	Out Sourced	Overhead
Labour Categories	Ferrous Metals	Assembly	Adhesive Part	Fringe Benefits
General Manufacturing	Non-Ferrous Metals	Welding	Bolt	Mark-ups
Forging & Foundry	Chemicals	Plastic Fabrication	Connector	Indirect Labour Cost
Chemical Electrical	Petroleum Products	Boring Drilling & Reaming	Electronic Component	Manufacturing Burden
Rubber & Plastics	Plastics	Soldering & Brazing	Washer	
Glass	Tooling Materials	Exhaust Systems Fabrication	Hose Clamp	
Textile	Elastomer Rubber	Rubber Fabrication	Nut	
General Labour & Wiring	Plastics	Soft Trim Fabrication	Pin	
Aluminium Foundry	Paper Materials	Wiring Fabrication	Retaining Ring	
Robots	Leathers	Robots	Retainer & Clip	
Tool-room	Non-Metallic	Inspection Equipment	Rivet	
Source Country	Textiles	Test Equipment	Screw	
	Applied Finishes	Abrasive Finishing	Shielding Component	
	Electrical	Cleaning Equipment	Spring	
	Misc. Materials	Heat Treating	Stud	
		Painting	Terminal	

Category of Ferrous Materials

- Alloy steel bar
- Carbon steel bar High Temperature steel bar
- Stainless Steel Bar
- Cast Iron
- Cast Steel
- Powdered Metal Ferrous
- Sheet steel

Some Details on Ferrous Metals

- Country of origin, currency
- Trade discount
- Reclaimed Scrap
- New alloy
- Melt temperature
- Thermal conductivity, etc.

Machine Costs Data

Equipment Description	Manufacturer	Supplier	Depreciation
Date of Purchase	Current Date	Capital Cost	Interest
Installation Cost	Residual Cost	Restricted Length	Maintenance
Restricted Width	**Floor space Area**	Lifetime	Floor Space
Insurance on Machine	Electricity Usage	Gas Usage	Tool
Uptime	Interest on Capital	Manning Level	Cleaning
Indirect Material	Source Country	Special Handling	**Distance Between column x**
Litre Shot Size	Tonnage Capacity	Dry Cycle	**Distance Between column y**
Lock pressure	Max. Diameter	Max. Weight In	Screw Speed
Shot Weight			

Categories of Overheads

- Plant supervisor
- Plant administrator
- Plant engineer
- Quality control
- Production control
- Laboratory
- Health department
- Maintenance
- Work safety
- Plant security etc.