

PRODUCT COSTING/JOB COSTING

COST CLASSIFICATION

MANUFACTURING COST: Is the cost of manufacturing a product, it consists of direct and indirect costs.

DIRECT COSTS: Are costs that are directly linked to a product/service e.g. raw materials, direct labour, direct expenses e.g. hire of special equipment. Total direct costs are also known as PRIME COST.

INDIRECT COSTS: Not directly linked to product/service, but must be included as part of the cost e.g. factory rent and rates, factory light and heat, production supervisors salary.

Costs can be broken into Fixed and Variable:

Fixed Costs: Remain the same where output level changes e.g. Rent i.e. fixed costs are independent of the level of production.

Variable Costs: The amount of the cost changes directly with the level of production e.g. raw materials i.e. variable costs vary with the level of production.

Mixed Cost: Part fixed and part variable e.g. ESB Bill

Cost centre: A place within a business over which one person has responsibility and authority for expenditure.

Controllable Costs: Costs that can be controlled by a manager in a Centre. The manager can make a decision about the amount of the cost and can be held responsible if a variance occurs e.g. raw materials.

Uncontrollable Costs: Costs over which a manager has no control and cannot be held responsible for variances in these costs e.g. rates to the local authority.

1. **Cost Allocation:** When a cost can be charged in total to a cost centre without being divided into smaller parts, it is said to be allocated.
All direct costs can be allocated to cost centres.
2. **Cost Absorption:** Means that the fixed overhead costs are absorbed into the cost of the Product . 3 Methods of doing this:

- (1) Amount per Unit
- (2) Amount per direct Labour hour
- (3) Rate per direct Machine Hour

Example: Boyle Ltd estimates its fixed Production overhead costs next year will be €18,000 and that it will produce 3,000 tables incurring 4,000 Direct Labour hours and 800 Machine hours

SLSS Accounting at Senior Cycle: A Practical Approach

(a) Per Unit: $\frac{\text{Total Overheads}}{\text{No of Units}} = \frac{€18,000}{3,000} = €6 \text{ per Unit}$

(b) Per Direct Labour/hr = $\frac{€18,000}{4,000} = €4.50 \text{ per Labour/hr}$

(c) Per Machine/hr = $\frac{€18,000}{800} = €22.50 \text{ per Machine/hr}$

Under/Over/Absorption

What happens if we produce more or less of the product and the Production? Overheads are more or less than planned.

Take the above example: What happens if the actual overhead incurred was €16,200 and the number of Units produced was (a) 2,800 Units (b) 3,000 Units (c) 3,400 Units (d) 1,900 Units

| | 2,800 Units | 3,000 Units | 3,400 Units | 1,900 Units |
|--------------------------------|--------------------|--------------------|--------------------|--------------------|
| Fixed Production O/h | 16,200 | 16,200 | 16,200 | 16,200 |
| Overhead Absorbed (Unit rates) | 16,800 | 18,000 | 20,400 | 11,400 |
| Under/Over Absorbed | 600 | 1,800 | 4,200, | (4,800) |

With (a) (b) & (c) above we have recovered more than our actual overheads which increases Our profit.

In (d) above actual overheads were €16,200 but we only recovered €11,400, that is €4,800 less than expected which reduces our profit.

Overhead Apportionment/Absorption

What happens if a firm has different departments (cost centres)?

Overheads must be apportioned (split) in a fair manner and then absorbed into the cost of the product. There are a number of generally accepted basis for overhead apportionment to cost centres.

| Expense | Basis of Apportionment |
|-------------------------|-------------------------------|
| Insurance | Floor Area |
| Rent/rates | Floor Area |
| Light/Heat | Volume |
| Administration Expenses | Number of Employees |
| Depreciation | Book Value of Assets |
| Machinery Maintenance | Machine Hours |

To summarise Direct Costs are allocated directly and Indirect Costs are apportioned first to a cost centre and then absorbed into the Product/Service.

PRACTICE QUESTIONS: PRODUCT/JOB COSTING

Question 1

Soldite Ltd. manufactures its product in three departments, machining, assembly and finishing. The following are the budgeted figures fro the year ended 31/12/2007.

| Cost Item | Total € |
|--------------------------------|----------------|
| Indirect Labour | 90,000 |
| Power and Steam | 42,000 |
| Equipment Maintenance Expenses | 8,400 |
| Light and Heat | 6,800 |
| Insurance on Plant | 2,800 |
| Plant Depreciation | 40,000 |
| Rent and rates | 5,000 |
| Employee benefits | 7,500 |
| Factory Canteen | 60,000 |
| Material Handling | 42,000 |
| General Administration | 3,000 |

The following information relates to the three departments:

| | Total € | Machining € | Assembly € | Finishing € |
|-----------------------------------|--------------------|------------------------|-----------------------|------------------------|
| Direct Materials | 700,000 | 400,000 | 200,000 | 100,000 |
| Direct Labour (€7.50 per hour) | 450,000 | 100,000 | 150,000 | 200,000 |
| Machine Hours | 60,000 | 40,000 | 15,000 | 5,000 |
| Floor Area (sq. metres) | 10,000 | 5,000 | 3,000 | 2,000 |
| Power (Kilowatt Hours) | 250,000 | 170,000 | 60,000 | 20,000 |
| No. Employees | 25 | 6 | 9 | 10 |
| Valuation of plant | 400,000 | 210,000 | 130,000 | 60,000 |

Job Number 373 needs to be priced. Job details are:

| Department | Direct Material | Direct Labour | Machine Hrs | Labour Hrs |
|-------------------|------------------------|----------------------|--------------------|-------------------|
| Machining | €40,000 | €300 | 200 | 40 |
| Assembly | €1,000 | €2,250 | 60 | 300 |
| Finishing | ----- | €750 | 20 | 100 |

The company budgets a margin of 20% of sales.

You are required to:

- (a) show an overhead analysis sheet to apportion overheads
- (b) calculate a suitable overhead absorption rate for each department
- (c) find the selling price of Job Number 373

Question 2

Eronics Ltd manufactures custom-built furniture for the computer industry. Its factory is divided into 3 production departments and 2 service departments. The following are the budgeted factory overheads for the year ended 31/12/2007.

| Cost Item | Total € |
|--------------------------------|----------------|
| Factory Heat | 4,800 |
| Factory Light | 6,400 |
| Factory rent | 3,300 |
| Factory Building Insurance | 5,100 |
| Machine Insurance | 2,900 |
| Factory Canteen | 15,050 |
| Supervisors salary | 28,000 |
| Materials Handling | 64,200 |
| Depreciation Factory Buildings | 6,000 |
| Depreciation Machinery | 10,000 |

The following information is also available:

| | Production Dept. 1 | Production Dept.2 | Production Dept. 3 | Service Dept. 1 | Service Dept. 2 |
|--|-------------------------------|------------------------------|-------------------------------|----------------------------|----------------------------|
| Machine Hours | 20,000 | 40,000 | 20,000 | ----- | ----- |
| Valuation of Building Floor Area (Sq. metres) | €40,000 8,000 | €60,000 6,000 | €20,000 2,000 | €14,000 2,000 | €16,000 2,000 |
| No. Employees | 30 | 20 | 10 | 5 | 5 |
| Volume (Cubic metres) | 24,000 | 30,000 | 26,000 | 10,000 | 10,000 |
| Valuation of Machinery | €60,000 | €30,000 | €30,000 | ----- | ----- |
| Direct Materials | €100,000 | €50,000 | €50,000 | ----- | ----- |

Service department overheads are to be charged to the production departments on the basis of machine hours.

Product number 173N has a prime cost of €129.54 per unit. Its production involves 10 hours in production department 1, 6 hours in production department 2 and 4 hours in production department 3.

You are required to:

- (a) Show an overheads analysis sheet to apportion overheads
- (b) Calculate a machine-hour absorption rate for each production department
- (c) Calculate production cost per unit of product number 173N.

Question 3

There are three different Departments in Talbot Ltd - Manufacturing, Polishing and Packing. For the year ended 2006 the following are the budgeted costs.

| | Total | Manufacturing | Polishing | Packing |
|---------------------|--------------|----------------------|------------------|----------------|
| | € | € | € | € |
| Indirect materials | 160,000 | 100,000 | 40,000 | 20,000 |
| Indirect labour | 220,000 | 120,000 | 60,000 | 40,000 |
| Rent/Rates | 45,000 | | | |
| Light/heat | 26,000 | | | |
| Machine maintenance | 18,000 | | | |
| Plant depreciation | 80,000 | | | |
| Factory canteen | 36,000 | | | |

The following information relates to the three Departments.

| | Total | Manufacturing | Polishing | Packing |
|------------------------------------|--------------|----------------------|------------------|----------------|
| Floor space in square metres | 9,000 | 4,000 | 3,000 | 2,000 |
| Volume in cubic metres | 30,000 | 16,000 | 10,000 | 4,000 |
| Plant valuation in € at book value | 500,000 | 270,000 | 130,000 | 100,000 |
| Machine hours | 60,000 | 30,000 | 15,000 | 15,000 |
| Number of employees | 90 | 40 | 30 | 20 |
| Labour hours | 120,000 | 60,000 | 40,000 | 20,000 |

Job No. 811 has been completed. The details are:

| | Direct Materials | Direct Labour | Machine Hours | Labour Hours |
|---------------|-------------------------|----------------------|----------------------|---------------------|
| | € | € | | |
| Manufacturing | 6,200 | 920 | 50 | 20 |
| Polishing | 2,400 | 2,600 | 20 | 80 |
| Packing | | 1,400 | 8 | 27 |

The company budgets for a profit margin of 25%

You are required to:

- Calculate the overhead to be absorbed by each Department stating clearly the basis of apportionment used.
- Calculate a suitable overhead absorption rate for each Department.
- Compute the selling price of Job No 811
- Name three overhead absorption rates and state why they are based on budgeted rather than actual figures.

Question 4

Rooney Ltd is a manufacturing company with three Departments, A, B, and C. The following are the monthly budgeted overheads

| Department | Variable € | Fixed € |
|------------|---------------|------------|
| A | 8,400 | 5,200 |
| B | 10,800 | 3,600 |
| C | 3,200 | 800 |

Budgeted hours for the month are:

| Department | Hours |
|------------|-------|
| A | 800 |
| B | 1,200 |
| C | 400 |

The wage rate in Department A = €9 per hour
 Department B = €6 per hour
 Department C = €8 per hour

General administration overheads are expected to be €8,000 for the month.

The following relates to Job No 626, received from Tobin Ltd:

Material Costs 80 rolls @ €35 per roll.

| Department | Hrs |
|------------|-----|
| A | 50 |
| B | 120 |
| C | 26 |

You are required to:

- Calculate the variable and fixed overhead absorption rates for each department in direct labour hours.
- Calculate the administration overhead absorption rate in direct labour hours.
- Calculate the selling price of the job if the profit is set at 20% of selling price.
- Give two reasons for product costing and explain each. (1998, 2000, 2003 Question 8)
- Outline the difference between Marginal and Absorption costing. Indicate which method should be used for financial accounting purposes and why. (Question 8 – 2006)

Question 5

Speedy Printers is a small print company, which performs small printing jobs for a variety of customers. The company has received an order from the business department at Tipperary Institute for 4000 examination booklets and 2,300 graph paper booklets.

Direct material

| | |
|----------------------|----------------------|
| Examination Booklets | €40 per 100 Booklets |
| Graph Paper Booklets | €20 per 100 Booklets |

Machine Printing Time

| | |
|----------------------|-----------------------------|
| Examination Booklets | 30 minutes per 100 Booklets |
| Graph Paper Booklets | 15 minutes per 100 Booklets |

| | |
|----------------------|----------------------|
| Direct Labour | €12 per machine hour |
| Production Overheads | €16 per machine hour |

Set up costs

| | |
|----------------------|-------|
| Examination Booklets | €1000 |
| Graph Paper Booklets | €500 |

Requirement:

- (a) Compute the total costs of the printing job and the unit cost per booklet.
- (b) Compute the unit cost for Examination booklets if the order is for 6000 booklets.

Question 6

Uncommon Ceramics is considering adding two new products to its range of hand-thrown stoneware for the Christmas market –a Large Platter and a Punch Bowl.

The owner has requested your assistance with costing and pricing these two new products.

The following information is available:

| | Cost | Large Platter | Punch Bowl |
|--|----------------|----------------------|-------------------|
| Materials | | | |
| Clay | €5.00 per kilo | 2 kilos | 1.5 kilos |
| Glaze | €4.50 per kilo | 1 kilo | 0.5 kilos |
| Labour | | | |
| Processing | €8.50 per hour | 2 Hours | 3 Hours |
| Finishing | €9.00 per hour | 4 Hours | 2 Hours |
| The following budgeted information is also available for the period: | | | |
| | | Processing | Finishing |
| Production Overhead | | €15,000 | €18,000 |
| Labour Hours | | 4,500 | 6,250 |

There is a selling and distribution cost associated with both products of 15% of factory cost.

You are required to:

- (a) Prepare a **cost estimate** for both the Large Platter and the Punch Bowl.

- (b) Calculate **selling price for both products** if a 25% profit on selling price is required.

Question 7

Cowen Ltd is preparing its departmental budgets and product cost estimates for the year ending 31st December 2008. The company has three manufacturing departments- Machining, Assembly and Finishing - and one service department Maintenance. The following costs and related data have been estimated for year ended 31st December 2008.

| | Production Departments | | | Service Department | |
|---------------------------|------------------------|----------|-----------|--------------------|---------|
| Cost | Machining | Assembly | Finishing | Maintenance | Total |
| Direct Wages | 60,000 | 32,000 | 72,000 | 0 | 164,000 |
| Indirect Wages | 10,000 | 6,000 | 8,000 | 30,000 | 54,000 |
| Direct Materials | 80,000 | 10,000 | 4,000 | 0 | 92,000 |
| Indirect Materials | 15,000 | 4,000 | 8,000 | 20,000 | 47,000 |
| Depreciation | | | | | 7,000 |
| Rent and Rates | | | | | 25,000 |
| Light and Heat | | | | | 10,000 |
| Personnel | | | | | 15,000 |
| Other information: | | | | | |
| Direct labour Hours | 12,000 | 5,000 | 16,000 | 6,000 | 39,000 |
| Machine Hours | 38,000 | 8,000 | 4,000 | | 50,000 |
| Employees | 6 | 4 | 8 | 2 | 20 |
| Floor Area | 1000 | 400 | 300 | 300 | 2,000 |
| NBV of Fixed assets | 20,000 | 8,000 | 3,000 | 4,000 | 35,000 |

You are required to:

(a) **Prepare an overhead apportionment schedule** for the year ended 31st December 2008, clearly indicating the basis of apportionment for each overhead.

(b) **Re-apportion the Maintenance Department Overheads** as follows:

Machining 60%
 Assembly 25%
 Finishing 15%

(c) **Calculate appropriate overhead absorption rates** for the machining, assembly and finishing departments, using the dominant activity in each department as the absorption base.

Question 8

The Organic Muesli Company is considering implementing an absorption costing system. The following budgeted information is available:

| | | Basis for apportioning service departments |
|-------------------|-------------------|---|
| Department | Overhead € | Stores |
| Mixing | 333,000 | 45% |
| Packing | 695,000 | 55% |
| Stores | 142,000 | - |

Budgeted direct labour information is as follows:

| | | |
|----------------|-----------------|----------------------------|
| Mixing | €170,000 | 20,000 labour hours |
| Packing | €125,000 | 25,000 labour hours |

You are required to:

- (a) Calculate suitable **overhead absorption rates** for each production department.
- (b) A well know supermarket chain have approached The Organic Muesli Company seeking a quotation for 150 kilos of Muesli to be packaged under the supermarket's own luxury brand label. The order requires the following:

Ingredients 150 kilos @€2.50 per kilo
 Labour 20 hours in mixing
 30 hours in packing
 Hire of special packing equipment €200

Calculate the **quoted selling price** if The Organic Muesli Company require a **25% profit margin**.

Question 9

Finest Designs Ltd. has two production departments and two service departments. Production overheads for the year ending 31st December 2006 are expected to be as follows:

| Overhead | € |
|---------------------------|--------|
| Rent and rates | 15,200 |
| Lighting and Heating | 12,160 |
| Depreciation of Machinery | 14,000 |
| Insurance of Machinery | 3,500 |
| Supervisors salary | 15,200 |
| Insurance - Premises | 7,600 |

The following information is also available:

| | Production Depts. | | Service Depts. | | Total |
|--|-------------------|-----------|----------------|-------------|-------|
| | Machining | Finishing | Stores | Maintenance | |
| Floor Area | 400 | 300 | 100 | 150 | 950 |
| Number of production staff | 9 | 7 | - | - | 16 |
| Value of Machinery (€000) | 15 | 10 | 4 | 6 | 35 |
| Each member of the production team is expected to work 38 hours per week for 48 weeks during 2006. | | | | | |

You are required to:

(a) Prepare an overhead apportionment schedule for the year ended 31st December 2006, clearly indicating the basis of apportionment for each overhead.

(b) Re-apportion the service departments overheads as follows:

| | Machining | Finishing |
|-------------|-----------|-----------|
| Stores | 60% | 40% |
| Maintenance | 50% | 50% |

(c) Calculate overhead absorption rates for the Machining and Finishing Departments for the year ending 31st December 2006 based on respective labour hours per department.

HELPFUL HINTS

1. It may be helpful if students are familiar with the Manufacturing Account before studying Job/Product Costing.
2. While Management Accounting has no formal layout as required in Financial Accounting it would help students to have a neat sequential layout.
3. Students need to ensure that they denote answers i.e. €5 per mach/hr