Cost & Management Accounting
Bachelors of Business (Specialized in Finance) – Study Notes & Tutorial Questions
Chapter 3: Labor Costing
INTRODUCTION

Labour is the second element of cost after materials. Labour cost represents the remuneration for employees’ effort in the production process. Controlling labour cost involves complex procedures since it involves human beings and controlling human behaviour is complex. This chapter will explain the process for determining and controlling labour cost.

Labour as a factor of production.

Factors of production are resources or inputs that are used to facilitate the production of goods and services. Labour is the effort of employees required to transform raw material into finished goods and services. Labour takes the form of employee knowledge, expertise and experience. Without these skills, production cannot take place. Labour encompasses all categories of the workforce of an organisation spanning from top management down through the hierarchy of responsibility to the grass root workforce.

From the perspective of cost accounting, labour cost determination and control is very important because it has huge cost implications for the organization. Labour cost consists of: recruitment cost, cost of training and staff development, wages and salaries, employee bonuses, overtime premium, group incentives etc. if these cost are not properly controlled, total cost may not be minimized.

Labour recruitment process cost

Labour recruitment refers to the process of engaging employees in the organization for their services. Depending on the policy of the organisation, the mode of recruitment is determined either internally or externally. The following steps are usually undertaken:

- A job analysis is done to determine the role, responsibilities, and person specification required.
- Internally- an advert is placed on company notice board and a search conducted.
- Externally, consideration is given to various search options like labour office, newspapers, outsourcing, job fairs, executive searches and so on.
- Applicants respond to companies” invitation and the company proceeds to shortlist potential applicants.
Selection Process

- Interviews are conducted—whether structured or unstructured. A structured interview should have an agreed format with questions ordered to evaluate applicants.
- The right candidate is selected using pre-determined criteria.

Labour Induction and Placement

This is a programme carried out to ensure that new employees are as soon as possible integrated into the culture of the organisation by becoming familiar with the values and norms of the organisation. Employees are then placed according to their experiences and competencies. Training may then be provided to ensure enhanced performance. Training may involve a consideration of the following:

- Training needs analysis
- Assess training budget.
- Prioritize what is most critical.
- Define skills, knowledge abilities and objectives desired after the training.
- Consider the training method.
- Evaluate the training

Labour recruitment cost as well as other labour cost therefore includes the following:

- Advertising cost
- Interviewing expenses
- Training expenses
- Cost of wastages of new employees
- Wages and salaries of employees
- Overtime premiums
- Employee bonuses
- Retirement payments etc.

Labour Timing and Assessment.

After employees have been engaged and they begin to work, there is the need to time them as they work so as to assess their performance and also to make it possible to cost work that they
do. Various organisations use different methods to time their employees. Examples of methods used include the following:

- The use of the Attendance Register
- The use of Clock Cards
- The use of Attendance Boards
- The use of Job Sheets and Job Books etc

The above records will then be used as evidence of:

- The number of hours worked by employees
- The time spent by each employee on any Job
- The number of hours during which each employee was idle etc.

These will then form the basis for computing the wages of employees.

**Labour Behaviour and Control**

Labour is about human beings and so it is relatively difficult to control human behaviour. However, it is important that steps are taken by the organisation to control human behaviour. Some of the mechanisms for labour control are:

- **Time keeping**- employees are required to record the time he/she reported for work and the time he/she departed from the work place. The employee is also required to record the time spent on each job or work that he/she does.
- **Monitoring and supervision**- employees are monitored and supervised by senior officers who observe the work attitude of the employee.
- **Evaluation**- the work of the employee is evaluated by his peers, clients and by management. This motivates staff to exhibit positive work attitude.
- **Reward schemes**- rewarding effective employees through bonuses and incentives drives employees to work hard.

**Job evaluation**

This is a technique which seeks to show the relative worth of each job so as to rank it against other jobs and ultimately establish the appropriate weight of remuneration to attach to the job. Job evaluation analyses the content of each job using yardsticks such as degree of responsibility, decisions involved, training and experience required, working conditions etc, awarding points for each yardstick.
**Merit rating**

Whilst job evaluation assesses the worth of the job, merit rating measures the jobholder’s performance so as to determine whether the employee should be promoted, demoted or given a special award. It also uses its own yardsticks on the performance and attributes of the employee like accuracy, initiative, level of responsiveness, willingness etc. Most industries employ rating techniques at the end of each year in order to determine the progress of each employee within the salary structure.

**Work study**

This is a system of increasing or maximizing the productivity of an operating unit by reorganizing the work of that unit. Work study is sub-divided into two major methods namely methods study and work measurement.

**Method study**

This is the recording and critical examination of existing methods of doing work and comparing same with proposed methods with a view to coming up with easier methods which would be more effective and cheaper on the long run.

**Work measurement**

As the name suggests, work measurement seeks to measure the time required for a qualified worker to complete a specific assignment at a specified level of performance.
Labour Cost Computation

There are two basic methods of remunerating labour; time based remuneration and output based remuneration.

Time Rate Methods of Remuneration

The amount earned by the employee is based on the number of hours spent at his place of work and not on the quantity of work produced. The Gross wage is calculated as Hours Worked × Rate per hour. However when overtime is worked, the payment to the employee will also include premium on the overtime hours.

Advantages of Time rate methods of remuneration are:

- It is simple to operate and easy to understand
- The quality of work produced tends to be higher since the worker is not in a rush to complete a job in order to maximize his earnings.

Disadvantages of Time rate methods of remuneration are:

- There is no financial incentive to produce more than a minimum amount. In fact, there is often an incentive to produce as little as possible so that the worker can increase his wage.
- To monitor and check idleness the employer will be obliged to incur supervision cost.
- The method is often unfair because lazy workers and hard workers are paid the same rates.

Piece rate methods of remuneration

Under this method, the amount earned by the employee is based on the number of units produced. Piece rates can be examined under three headings, namely:

1. Straight Piece Rate
2. Differential Piece Rate
3. Piece Rate with guaranteed time Rate
**Straight Piece Rate**

Under straight piece rates the payment to the employee is computed thus: No. of units produced \( \times \) Rate per unit. The worker receives a fixed rate for each unit produced which does not depend on the time taken to produce it. Earnings therefore depend on the volume of the worker’s output.

**Advantages**

1. Effort is rewarded and in consequence, the employee is given the incentive to produce more
2. Because employees are self-motivated, less supervision is required.
3. The employer benefits from a reduction in the overhead cost per unit of production.

**Disadvantages**

1. There is a danger that quality will be sacrificed and in order to avoid such a situation the employer would spend more on inspection and quality control
2. Piece workers, after earning certain remuneration during a week, might be satisfied and slacken their pace, arrive late or absent themselves. Plant is therefore left idle and capacity is under-utilised.
3. A considerable degree of time is involved in setting standard times and as these are subject to the agreement of trade union representatives, further time is often spent in detail negotiation before piece rates are established.
4. If an error is made and piece rates are set too high, it is difficult subsequently to reduce them. This could prove to be extremely costly.

**Piece Rate with Guaranteed Day Rate**

It is a system adopted to compensate employees on account of low production, leading to earnings under piece rate being below the normal day rate remuneration. If an employee’s earnings according to the piece work are less than the normal Day Rate, he is paid the day rate instead of the Piece Rate.


**Differential Piece Rate**

Under this scheme the piece work rate changes at different levels of efficiency or production. The object of this is to provide a strong incentive to reach the maximum rate of production.

**Premium Bonus Schemes**

Bonus schemes are intended to reward employees for their efficiency in saving cost for the organisation through the saving of time. These are therefore schemes for sharing extra profits with employees. Conceptually, bonus can only be awarded where there has been cost savings or improved performance that leads the organisation to exceed its profit target. To be able to compute bonuses, we must first appreciate the following concepts:

Time allowed: This refers to the expected time to be spent in doing some piece of work e.g. if time set for one unit is 5 hours, then 100 units shall be 500 hours.

Time allowed may therefore not be the same as the hours worked.

Time taken: This the number of hours actually used in performing a piece of work.

Time saved: It is the difference between time allowed and hours worked, when time allowed is greater than hours worked.

Premium bonus: This is paid when time has been saved; the magnitude of the bonus therefore depends upon the time saved.

**Types of Premium Bonus Schemes**

These include the following:

(i) Halsey Bonus Scheme

(ii) Halsey Weir Bonus Scheme

(iii) Rowan Bonus Scheme

**Halsey Scheme**

According to this scheme, the time saved should be apportioned equally between the employer and the employee.
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\[ Bonus = \frac{1}{2} \times \text{Time Saved} \times \text{Day Rate} \]

*Note: Time allowed – Time Taken = Time Saved*

**Halsey Weir Scheme**

Under this scheme the proportion is 2:1 in favour of the employer. Thus the employee gets only a third of time saved at the rate per hour.

\[ Bonus = \frac{1}{3} \times \text{Time Saved} \times \text{Day rate} \]

**Rowan Scheme**

Under this system, the bonus award to the employee is the proportion between time taken and Time allowed of the

\[ \text{Time saved} \]

\[ \frac{\text{Bonus}}{\text{Time taken} \times \text{Time Served} \times \text{Day Rate}} = \frac{\text{Time saved}}{\text{Time allowed}} \]

It therefore follows that if the employee saves more time, he gets a greater bonus. Many business organisations determine their bonuses through negotiation with employee groups. The factors that influence the size of the bonus include the following:

- Time saved by employees
- Cost saved by employees
- Improved productivity
- The amount of super profits made by the business organisation
- The achievements of other budgetary targets etc.

**Over Time Remuneration Schemes**

Over time is the time spent beyond the normal working hours or days. Overtime wage rates are expressed as time plus a fraction or in multiples of time, e.g.

a. Time and one half
b. Time and one third
c. Double time
d. Time and one fifth etc.

**Meaning of Time**

Time refers to the basic rate e.g. if the normal rate of pay is MVR 500 an hour, then the time is MVR 500. Meaning of Additional Rate – The additional rate is called the overtime premium and whatever it is the amount involved is arrived at by multiplying the description by the basic rate e.g. The overtime rate is time and one half, the basic rate is MVR 500. The premium shall be MVR 250 = $\frac{1}{2} \times$ MVR 500.

**Overtime Premium**

It is the portion of the overtime pay over and above the basic rate of pay. Basically, overtime premium is treated as indirect wages. The only time it is treated as direct wages is when the overtime is worked according to the customer’s request to complete his order within a specified period.

**Group incentive schemes**

These are bonuses awarded to a team of employees rather than individual employees. The incentives are enjoyed by every member of the team based on an agreed formula of sharing.

**Advantages of Group Incentive Schemes**

- It enhances team spirit among employees and organizational cohesiveness
- Quality of output is not unduly compromised
- Compared to individual incentive schemes, it is relatively easy and less expensive to administer
- It avoids unhealthy competitive rivalry among employees

**Disadvantages of Group Incentive Schemes**

- Lazy team members are rewarded as hard working group members.
- This does not provide motivation for individual hard work.

**Individual incentive Scheme**

These are bonus schemes that reward individual employees for their efficiencies.

**Advantages of Individual Incentive Schemes**

- Individual employees are motivated to be more and more efficient and productive
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- It may generate competitive spirit among employees
- Employee morale is raised since individual effort is rewarded
- Ultimately, both the employee and the business organisation obtain enhanced benefits.

Disadvantages of Individual incentive schemes

- Employees may compromise on quality in an effort to increase their bonus earnings
- Excessive competition can bring about unhealthy rivalry
- The determination of standard performance levels for the purpose of determining efficiency levels can conflict in the organisation
- It is relatively more difficult and expensive to operate an individual incentive scheme compared to a group incentive schemes.

Direct and indirect cost of labour

As already discussed, labour cost is either direct or indirect. The direct labour cost is the labour cost incurred on employees who are engaged in directly transforming the raw materials into finished goods. It must be noted that, is only the basic wages paid to direct workers that constitute direct labour cost. Policy related cost incurred on direct workers is not direct labour but rather indirect labour. Examples of these policy related costs include:

- workmen compensation premium paid to insurance companies
- employer’s social security fund contribution
- bonuses paid to employees
- overtime premium paid to employees where the overtime is worked regularly as company policy etc.

Wages cost incurred on indirect workers is indirect wages.

Labour Cost Minimization Techniques

Involved in minimizing labour cost. Some of the techniques include the following:

- Effective labour monitoring and control
- Reduce labour turnover
- Eliminate or reduce labour related fraud
Labour Turnover

This is a term which signifies the extent to which employees leave an organisation. It can be measured by using the following formula:

\[
\text{Labour turnover rate} = \frac{\text{Number of employees leaving during Period}}{\text{Average number of employees}} \times 100
\]

To obtain the maximum benefit from the calculation, the rate of labour turnover should be compared with rate for previous periods and if available, the rate for other businesses in the area and in the industry as a whole. If the number of leavers is high relative to the total number of employees, a high ratio will emerge. An increase in the number of employees leaving or a reduction in the total workforce will cause an increase in the rate compared with previous periods. The effect of a high rate is reflected in loss of output, lowering of morale and higher cost. Loss of output occurs because of:

(a) The gap between the person leaving and his replacement;
(b) The length of time taken to train a new employee to the level of efficiency of the previous employee;
(c) The reduced effort given by an employee during the days or weeks immediately prior to the date of departure.
Cost of Labour Turn Over

In addition to the increase in the cost per unit from reduced production and low morale, the following costs are likely to be higher when the rate of labour turnover is on the increase:

(i) Advertising for personnel and interviewing expenses
(ii) Re-imbursement of removal and settling in expenses removal of furniture to new house and subsistence allowance between date of commencement and date of moving.
(iii) Training, including the new employee’s wages during the training period, the wages and salaries of instructors, materials used in the training process.
(iv) Scrap and defective work during initial stages
(v) Machine break-down
(vi) Pension scheme administration etc.

Causes of Labour Turnover

Although Labour turnover cannot be eliminated completely, the problem can be tackled by an understanding of the events and circumstances by which it is caused. Why do people leave? The following are some of the possible reasons:

(i) Dissatisfaction with the job, wages, hours of work or working conditions;
(ii) Discontent due to the relationship with the employee’s Supervisors and or Colleagues;
(iii) Lack of promotion opportunities;
(iv) Personal matters e.g. ill health, marriage, pregnancy, moving to a new area.
(v) Sometimes employees are discharged due to redundancy, incompetence, lateness, and absenteeism and for disciplinary reasons.

Reduction in the Labour Turnover Rate

In order to reduce the rate of labour turnover, the following should be considered:

(i) Regular Statistics should be provided analyzing labour turnover by cause and indicating whether the cause was avoidable or unavoidable and whether the person left voluntarily or was dismissed; we should however note that there are some
dangers in such an analysis because employees who leave do not always give the true reasons for leaving.

(ii) Seek ways in which the selection of applicants can be improved in order to prevent situations arising where employees are discontented or unsuitable.

(iii) Ensure that the labour requirements are properly planned in order to avoid redundancy

(iv) Consider the introduction of high wages plan or some other form of incentives.

(v) See that the working environment is congenial.

(vi) Consider whether the transfer of a dissatisfied employee to another department will remove the cause of the dissatisfaction.

(vii) Hold annual medical check-ups in order to prevent ill-health at a later date.

(viii) Consider whether the fringe benefits are competitive, e.g. pension scheme, subsidized meals, sports and social facilities.

(ix) Develop better human relationship between management and workers

As it is important for an organisation to keep its skilled and experienced employees, a target labour turnover rate could be set with the personnel manager being responsible if the rate is higher than target.

**Internal Check and Payroll Fraud**

There is ample scope for perpetration of fraud at some stage during the paration and payment of wages. For this reason, it is essential that some form of controls exist to prevent fraud or to detect it in its early stages. The dangers to be avoided are:

- The payment of wages to employees who do not exist,
- The payment to an employee of an amount which is more than he is entitled to receive.

**Precautions to reduce payroll fraud**

1. Segregating the work so that the payroll procedures are not the responsibility of only one or two persons e.g. the clerk who prepared the wage sheet should not also make-up or distribute the wage packets.

2. Adopting adequate authorization procedures:

   - Piece work tickets should be signed by an inspector and the employee’s foreman;
   - only overtime properly authorized should be paid;
changes in wage rates and salaries should only be processed if the personnel manager completes and signs the appropriate forms.

3. *Proper Supervision:* The distribution of the pay envelopes must be supervised by a senior official and preferably by one who can identify the recipient.

4. *Instituting suitable procedures,* e.g. a procedure should be laid down for dealing with unclaimed wages.

5. Creating a Programme for internal checks. As part of the Programme, the personnel officer might periodically check the payroll to ensure that payments are not being made to fictitious employees. If the organisation is sufficiently large, the internal audit department could be very much involved in the creating and working of the internal check Programme.

**Types of payrolls for labour**

The payroll is the process of determining the net wage earnings of each employee in the organisation. The payroll could either be computerized or could be done manually. With the manual payroll, the earnings of each employee are computed by human effort without the use of the computer. The computerized payroll uses computer software and inputs the basic variables for each employee such as:

- hours worked
- overtime hours
- units produced
- wage rate per unit or hour
- statutory deductions
- voluntary deductions etc

**Labour Payroll preparation**

In preparing the payroll, the following procedure is followed:

- Determine the basic wages of each employee. This done by multiplying the hours worked or units produced by the agreed wage rate
- Add all other allowances to the basic wages to obtain the gross wages
- Calculate the various deductions to be made. These are of two types: statutory and voluntary deductions. The statutory deductions are required to be deducted by law and so
the amount of deduction is determined by the law. These deductions include the following:

- Social Security contributions
- Employee Personal Income Tax (P.A.Y.E.)
- National Health Insurance etc.

Examples of voluntary deductions include:

- Trade Union contributions
- Provident fund contribution
- Employee welfare contribution etc.

When the total deductions are taken from the gross wages, then we obtain the wages of each employee.

The Differences between Labour cost accounting and Payroll accounting

Labour cost accounting relates to the determination of the cost of labour chargeable to various jobs, customers, clients and overhead accounts. Under labour cost accounting, the objective is to ascertain the labour cost that can be charged to products and services. In this regard the following are considered as labour cost:

- Wages and salaries of employees
- Insurance for workmen compensation
- Employee bonuses
- Employee share schemes etc.

Payroll accounting relates to the process of computing the amount of earnings of employees as well as the various payments made for and on the behalf of employees. Examples of payment on behalf of employees include the following:

- Employer’s Social Security Contribution for employee
- Employee Social Security Contributions
- Personal Income Tax of employees
- Welfare deductions for employees etc.
Under payroll accounting, labour cost such as workmen compensation, employee insurance etc. are not considered. It is only amounts payable to or on behalf of employees that are considered.

Lucky is the woman whose first child is a daughter

- Prophet Muhammad
Practice Questions

Question 1

Hours worked = 50 hours
Rate per Hour = MVR 2000
Calculate Gross wage?

Question 2

No. of units produced = 1,000 units
Rate per Unit = MVR 16,000
Calculate Gross wage?

Question 3

Normal rate / hour = MVR 1,600
Standard time allowed = 10 units per hour
During an 8 hour day B completes 90 units and S 60 units. Calculate the earnings of each employee.

Question 4

Rate per hour = MVR 15,000
Cost per unit = MVR 16,000
Units produced = 8,000 units

Calculate the piece rate with Guaranteed Day rate of remuneration assuming that 8,800 hours were used to produce all the units.
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**Question 5**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time allowed</td>
<td>12 hrs</td>
</tr>
<tr>
<td>Day rate</td>
<td>₤18,000</td>
</tr>
<tr>
<td>Time taken by A</td>
<td>6 hrs</td>
</tr>
<tr>
<td>Time taken by B</td>
<td>9 hrs</td>
</tr>
</tbody>
</table>

**Required:** Calculate the Bonus to be awarded to both employees using the Rowan Bonus Scheme.

**Question 6**

Jobs are issued to operative X to make 189 units and to operative Y to make 204 units for which a time allowance of 20 standard minutes and 15 standard minutes per unit respectively is credited. For every hour saved, bonus is paid at 50% of the basic rate which is £200 per hour for both employees.

The basic working week is 42 hours. Hours in excess are paid at time and half. X completes his units in 45 hours and Y his in 39 hours (but works a full week). Because of defective material, 6 of X’s units and 4 of Y’s units are subsequently scrapped although all units produced are paid for.

You are required to calculate for each of X and Y:

(a) the amount of bonus payable
(b) the total gross wage payable.
(c) the wages cost per good unit made.
Question 7

Kokonsekyi Ltd. presents the following information which relates to a week’s work of 3 of its employees:

<table>
<thead>
<tr>
<th>Employee</th>
<th>Mumu</th>
<th>Opi</th>
<th>Adam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work issued (units)</td>
<td>400</td>
<td>600</td>
<td>120</td>
</tr>
<tr>
<td>Time Allowed (hrs per unit)</td>
<td>0.2</td>
<td>0.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Output Rejected (units)</td>
<td>60</td>
<td>90</td>
<td>40</td>
</tr>
</tbody>
</table>

The basic working week is 40 hours; the first 6 hrs overtime are paid time plus ½ and the next 10 hrs at time plus ¾. Hours worked by Mumu, Opi and Adam were 52, 45 and 40 respectively. Adam spent 8 hours on indirect work. These hours being included in the 40 hours worked by him. The three employees’ basic hourly rates of pay were as follows: Mumu £30, Opi £40 and Adam £25.

Bonus is paid at ½ of the base rate for all time saved. The high rate of rejection was considered abnormal due to faulty materials and it was agreed to credit all output for bonus purposes.

Required:
From the above information you are required to present in tabulated form for each employee:

(a) number of bonus hrs worked – 3 marks
(b) basic wages including overtime – 4 marks
(c) amount of bonus earned – 4 marks
(d) gross wages – 3 marks
(e) direct wages cost per unit accepted when overtime is worked:
   (i) regularly throughout the year as company policy due to labour shortages and
   (ii) Specifically at the customer’s request to expedite delivery.
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Question 8

A Company’s basic wage rate is 0.45 per hour and its overtime rates are:

Evenings - 1½
Weekends – double time

During the previous year the following hours were worked:

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal time</td>
<td>440,000</td>
</tr>
<tr>
<td>Time plus 1/3</td>
<td>40,000</td>
</tr>
<tr>
<td>Double time</td>
<td>20,000</td>
</tr>
</tbody>
</table>

The following times have been worked on the stated jobs:

<table>
<thead>
<tr>
<th>Job</th>
<th>Normal Time</th>
<th>Evening Overtime</th>
<th>Weekend Overtime</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>6,000</td>
<td>600</td>
<td>200</td>
</tr>
<tr>
<td>Y</td>
<td>10,000</td>
<td>1200</td>
<td>100</td>
</tr>
<tr>
<td>Z</td>
<td>8,000</td>
<td>2100</td>
<td>600</td>
</tr>
</tbody>
</table>

You are required to calculate the labour cost chargeable to each job in each of the following circumstances:

(a) Where overtime is worked regularly throughout the year as company policy due to labour shortage.

(b) Where Overtime is worked specifically at the customer’s request to expedite delivery.
Question 9

Clay products limited manufactures and sells a variety of clay products. Management of the company is proposing to introduce an incentive scheme into its factory but is undecided on what kind of scheme to introduce.

Below is an extract of payroll information with respect to four of the company’s employees for July 2005

<table>
<thead>
<tr>
<th>Name of employee</th>
<th>Michael</th>
<th>Gerald</th>
<th>Cynthia</th>
<th>William</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual hours worked</td>
<td>152 hours</td>
<td>144 hours</td>
<td>160 hours</td>
<td>136 hours</td>
</tr>
<tr>
<td>Wage rate per hour</td>
<td>45,000</td>
<td>30,000</td>
<td>37,500</td>
<td>54,000</td>
</tr>
<tr>
<td>Output produced – units</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product A</td>
<td>168</td>
<td>480</td>
<td>-</td>
<td>480</td>
</tr>
<tr>
<td>Product B</td>
<td>288</td>
<td>304</td>
<td>-</td>
<td>1,080</td>
</tr>
<tr>
<td>Product C</td>
<td>368</td>
<td>-</td>
<td>200</td>
<td>-</td>
</tr>
</tbody>
</table>

The standard time per unit of each product is

<table>
<thead>
<tr>
<th>Product</th>
<th>Minutes Allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6</td>
</tr>
<tr>
<td>B</td>
<td>9</td>
</tr>
<tr>
<td>C</td>
<td>15</td>
</tr>
</tbody>
</table>

Each minute earned is valued at 750 for piecework calculations

Required:

a. Calculate the earnings of each employee using the following methods:
   i. guaranteed hourly rates (basic pay)
   ii. piecework, but earnings guaranteed at 75% of basic pay
   iii. premium bonus in which the employee receives \((2/3)\) two thirds of time saved in addition to hourly pay. (14 marks)

b. State three (3) advantages and three (3) disadvantages of individual incentive schemes (6 Marks)
**Question 10**

Budgeted and actual production data for the year that has just ended are as follows.

<table>
<thead>
<tr>
<th>Product</th>
<th>Budgeted production</th>
<th>Actual production</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Units</td>
<td>Standard machine hours</td>
</tr>
<tr>
<td>W</td>
<td>15,000</td>
<td>3,000</td>
</tr>
<tr>
<td>X</td>
<td>20,000</td>
<td>8,000</td>
</tr>
<tr>
<td>Y</td>
<td>14,000</td>
<td>7,000</td>
</tr>
<tr>
<td>Z</td>
<td>6,000</td>
<td>9,000</td>
</tr>
</tbody>
</table>

What was the capacity ratio in the year, as a percentage to one decimal place?

What was the efficiency ratio in the year, as a percentage to one decimal place?

**Question 11**

The labour cost graph below depicts:

[Graph]

**Question 12**

The following data relate to work in the finishing department of a certain factory.

- Normal working day: 7 hours
- Basic rate of pay per hour: $5
- Standard time allowed to produce 1 unit: 4 minutes
- Premium bonus payable at the basic rate: 60% of time saved

On a particular day one employee finishes 180 units. His gross pay for the day will be
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**Question 13**

An employee is paid on a piecework basis. The basis of the piecework scheme is as follows:

- 1 to 100 units – $0.20 per unit
- 101 to 200 units – $0.30 per unit
- 201 to 299 units – $0.40 per unit

with only the additional units qualifying for the higher rates. Rejected units do not qualify for payment.

During a particular day the employee produced 210 units of which 17 were rejected as faulty.

What did the employee earn for their day’s work?

**Question 14**

Employee A is a carpenter and normally works 36 hours per week. The standard rate of pay is $3.60 per hour. A premium of 50\% of the basic hourly rate is paid for all overtime hours worked. During the last week of October, Employee A worked for 42 hours. The overtime hours worked were for the following reasons:

<table>
<thead>
<tr>
<th>Reason</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine breakdown</td>
<td>4</td>
</tr>
<tr>
<td>To complete a special job at the request of a customer</td>
<td>2</td>
</tr>
</tbody>
</table>

How much of Employee A’s earnings for the last week of October would have been treated as direct wages?

**Question 15**

A company had 30 direct production employees at the beginning of last year and 20 direct production employees at the end of the year. During the year, a total of 15 direct production employees had left the company to work for a local competitor. The labour turnover rate for last year was:

**Question 16**

Jane works as a member of a three-person team in the assembly department of a factory. The team is rewarded by a group bonus scheme whereby the team leader receives 40\% of any bonus earned by the team, and the remaining bonus is shared evenly between Jane and the other team member. Details of output for one day are given below.

<table>
<thead>
<tr>
<th>Hours worked by team</th>
<th>8 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team production achieved</td>
<td>80 units</td>
</tr>
<tr>
<td>Standard time allowed to produce one unit</td>
<td>9 minutes</td>
</tr>
<tr>
<td>Group bonus payable at $6 per hour</td>
<td>70% of time saved</td>
</tr>
</tbody>
</table>

The bonus element of Jane’s pay for this particular day will be
Question 17

Rush & Fluster Co budgets to make 25,000 standard units of output (in four hours each) during a budget period of 100,000 hours.

Actual output during the period was 27,000 units which took 120,000 hours to make.

Required

Calculate the efficiency, capacity and production volume ratios.

Question 18

Penny Pincher is paid 50c for each towel she weaves, but she is guaranteed a minimum wage of $60 for a 40 hour week. In a series of four weeks, she makes 100, 120, 140 and 160 towels.

Required

Calculate her pay each week, and the conversion cost per towel if production OH is added at the rate of $2.50 per direct labour hour.

Life is so much brighter when we focus on what truly matters........
Chapter 3: Labor Costing

**Question 19**

The following data relate to work at a certain factory.

<table>
<thead>
<tr>
<th>Normal working day</th>
<th>8 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic rate of pay per hour</td>
<td>$6</td>
</tr>
<tr>
<td>Standard time allowed to produce 1 unit</td>
<td>2 minutes</td>
</tr>
<tr>
<td>Premium bonus</td>
<td>75% of time saved at basic rate</td>
</tr>
</tbody>
</table>

What will be the labour cost in a day when 340 units are made?

**Question 20**

Jaffa Co employs two types of labour: skilled workers, considered to be direct workers, and semi-skilled workers considered to be indirect workers. Skilled workers are paid $10 per hour and semi-skilled $5 per hour.

The skilled workers have worked 20 hours overtime this week, 12 hours on specific orders and 8 hours on general overtime. Overtime is paid at a rate of time and a quarter.

The semi-skilled workers have worked 30 hours overtime, 20 hours for a specific order at a customer’s request and the rest for general purposes. Overtime again is paid at time and a quarter.

What would be the total overtime pay considered to be a direct cost for this week?

**Question 21**

The following data relate to work in the finishing department of certain factory.

<table>
<thead>
<tr>
<th>Normal working day</th>
<th>8 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic rate of pay per hour</td>
<td>$6</td>
</tr>
<tr>
<td>Standard time allowed to produce 1 unit</td>
<td>5 minutes</td>
</tr>
<tr>
<td>Premium bonus payable at the basic rate</td>
<td>60% of time saved</td>
</tr>
</tbody>
</table>

On a particular day one employee finishes 190 units. Calculate his gross pay for the day.
Question 22

Employee A is a carpenter and normally works 36 hours per week. The standard rate of pay is $3.70 per hour. A premium of 50% of basic hourly rate is paid for all overtime hours worked. During the last week of October, Employee A worked 42 hours. The overtime hours worked were for the following reasons:

<table>
<thead>
<tr>
<th>Machine breakdown</th>
<th>4 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>To complete a special job at the request of a customer</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

How much of Employee A’s earning for the last week of October would have been treated as direct wages?

Question 23

A company has 35 direct production employees at the beginning of last year and 25 direct production employees at the end of the year. During the year, a total of 15 direct production employees had left the company to work for local competitors.

Calculate the labour turnover rate for the last year.

Question 24

(a) Piers plc has recently undertaken a major restructuring and development programme. Some departments have been closed and new, larger departments have replaced them. At 1 December 2009 the company had 600 employees and at 30 November 2010 it had 800 employees. 50 employees resigned on 31 May 2010 and were replaced on 1 June 2010. 200 extra employees were also recruited at that time.

Required:

(i) Calculate the labour turnover rate of Piers plc for the year ended 30 November 2010. (3 marks)

(ii) State four reasons for labour turnover. (8 marks)

(iii) Discuss three employer costs that may be associated with a high labour turnover rate. (6 marks)
Question 25

Montrose Marketing employs production staff who are paid a set hourly rate for hours worked as well as bonuses in respect of targets achieved. All employees work a basic 35 hours per week and overtime is payable for all hours in excess of this.

Details of pay and bonuses are as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic hourly wage</td>
<td>£6.00</td>
</tr>
<tr>
<td>Overtime rate</td>
<td>Time plus half</td>
</tr>
<tr>
<td>Commission</td>
<td>2% of production value</td>
</tr>
</tbody>
</table>

In addition, there is a special bonus of £25 for every fault free batch produced.

The company currently uses an informal system of recording hours worked and production achieved and you have been asked to make improvements to the system.

For the week commencing 2 November 2009, the details for John Buchanan, a member of the team, are as follows:

<table>
<thead>
<tr>
<th>Hours attended:</th>
<th>Monday to Friday - 8am to 12noon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monday to Wednesday - 1pm to 5pm</td>
</tr>
<tr>
<td></td>
<td>Thursday and Friday - 1pm to 6pm</td>
</tr>
<tr>
<td>Production value:</td>
<td>£4,850</td>
</tr>
<tr>
<td>Fault free batches:</td>
<td>4</td>
</tr>
</tbody>
</table>

Required:

(a) Design a weekly timesheet suitable to record all of the above details for an individual worker. Your timesheet should show clearly the hours worked and the composition of pay for the week.

(b) Use the timesheet to calculate John’s pay for the week commencing 2 November 2009.

(c) Explain how you will check that John’s pay is correct. Your answer should include an explanation of the records that you will need to examine in order to find accurate information.

(d) Draw up the ledger accounts for bank, work in progress, and production overhead control to record the following:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct wages paid</td>
<td>£12,500</td>
</tr>
<tr>
<td>Indirect wages paid</td>
<td>£2,800</td>
</tr>
<tr>
<td>Ignore statutory deductions.</td>
<td></td>
</tr>
</tbody>
</table>
Question 26

Twelve production employees at the McGregor Biscuit Company (MBC) are paid a basic wage of £8.00 per hour plus overtime, as follows:

- Monday to Friday up to 37 hours: £8.00 per hour (basic rate)
- Monday to Friday over 37 hours: Time plus a quarter
- Saturdays: Time plus a half
- Sundays and Bank Holidays: Double time

In addition to this they each receive a fixed bonus of £10 each time weekly production exceeds 400,000 units. MBC company policy is to treat all bonuses and overtime premium as indirect labour costs.

During the year ended 31 March 2008:

- 21,200 hours were worked at basic rate.
- 820 hours weekday overtime were worked.
- Every Saturday morning four people worked from 8am until 12 noon (assume a 52 week year).
- 6 employees came in one Sunday and worked from 10am until 4pm, cleaning up after a flood.
- The weekly bonus target was exceeded on seven occasions.

Required:

(a) Calculate each of the following payroll costs for MBC for the year ended 31 March 2008:

(i) Total basic pay (1 mark)
(ii) Total overtime (10 marks)
(iii) Total production bonuses paid (4 marks)
(iv) Total posted to the accounts as direct labour (2 marks)
(v) Total posted to the accounts as indirect labour (2 marks)

(b) Describe the types of documents that could be used to record labour hours and costs. (6 marks)
A company operates a factory which employed 40 direct workers throughout the four-week period just ended. Direct employees were paid at a basic rate of $4.00 per hour for a 38-hour week. Total hours of the direct workers in the four-week period were 6,528. Overtime, which is paid at a premium of 35%, is worked in order to meet general production requirements. Employee deductions total 30% of gross wages. 188 hours of direct workers’ time were registered as idle.

Calculate the following for the four-week period just ended.

- Gross wages (earnings) $
- Deductions $
- Net wages $
- Direct labour cost $
- Indirect labour cost $

*Life is not about waiting for the storm to pass, but learning to dance in the rain.*
The following information is taken from the payroll records of a company.

<table>
<thead>
<tr>
<th></th>
<th>Direct workers</th>
<th>Indirect workers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic pay for basic hours</td>
<td>43,000</td>
<td>17,000</td>
<td>60,000</td>
</tr>
<tr>
<td>Overtime – basic pay</td>
<td>10,000</td>
<td>4,500</td>
<td>14,500</td>
</tr>
<tr>
<td>Overtime – premium</td>
<td>5,000</td>
<td>2,250</td>
<td>7,250</td>
</tr>
<tr>
<td>Training</td>
<td>2,500</td>
<td>1,250</td>
<td>3,750</td>
</tr>
<tr>
<td>Sick pay</td>
<td>750</td>
<td>250</td>
<td>1,000</td>
</tr>
<tr>
<td>Idle time</td>
<td>1,200</td>
<td>-</td>
<td>1,200</td>
</tr>
</tbody>
</table>

**Required:**

Using the information given, complete the labour account shown below:

<table>
<thead>
<tr>
<th>Labour account</th>
<th>$</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Question 29

Ten employees work as a group. When production of the group exceeds the standard – 200 pieces per hour – each employee in the group is paid a bonus for the excess production in addition to wages at hourly rates.

The bonus is computed thus: the percentage of production in excess of the standard quantity is found, and one half of the percentage is regarded as the employees’ share. Each employee in the group is paid as a bonus this percentage of a wage rate of $5.20 per hour. There is no relationship between the individual worker’s hourly rate and the bonus rate.

The following is one week’s record:

<table>
<thead>
<tr>
<th>Hours worked</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>90</td>
</tr>
<tr>
<td>Tuesday</td>
<td>88</td>
</tr>
<tr>
<td>Wednesday</td>
<td>90</td>
</tr>
<tr>
<td>Thursday</td>
<td>84</td>
</tr>
<tr>
<td>Friday</td>
<td>88</td>
</tr>
<tr>
<td>Saturday</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>480</strong></td>
</tr>
</tbody>
</table>

**During this week, Jones worked 42 hours and was paid $3 per hour basic.**

Complete the following.

(1) The bonus rate for the week was $  

(2) The total bonus for the group for the week was $  

(3) The total pay for Jones for the week was $
Question 30

A company had 4,000 staff at the beginning of 20X8. During the year, there was a major restructuring of the company and 1,500 staff were made redundant and 400 staff left the company to work for one of the company’s main competitors. 400 new staff joined the company in the year to replace those who went to work for the competitor.

Required:

Calculate the labour turnover rate for 20X8.

Question 31

A company budgets to make 40,000 units of Product DOY in 4,000 hours (each unit is budgeted to take 0.1 hours each) in a year.

Actual output during the year was 38,000 units which took 4,180 hours to make.

Required:

Calculate the labour efficiency, capacity and production volume ratios.

No matter how much it hurts now.
One day you will look back and realize
it changed your life for the better.
SayingImages.com
Chapter 3: Labor Costing

Question 32

An employee is paid $5 per piecework hour produced. In a 35 hour week he produces the following output.

Piecework time allowed
per unit
2.5 hours
8.0 hours

3 units of product A
5 units of product B

Required

Calculate the employee's pay for the week.

Question 33

A direct labour employee’s wage in week 5 consists of the following.

(a) Basic pay for normal hours worked, 36 hours at $4 per hour = $144
(b) Pay at the basic rate for overtime, 6 hours at $4 per hour = $24
(c) Overtime shift premium, with overtime paid at time-and-a-quarter
   \[\frac{3}{4} \times 6 \text{ hours} \times $4 \text{ per hour} = $6\]
(d) A bonus payment under a group bonus (or ‘incentive’) scheme – bonus for the month = $30

Total gross wages in week 5 for 42 hours of work = $204

Required

Establish which costs are direct costs and which are indirect costs.
Chapter 3: Labor Costing

Question 34

The existing incentive system of a certain factory is:

- Normal working week: 5 days of 9 hours plus 3 late shifts of 3 hours each
- Rate of payment:
  - Day work = ₹10.00 per hour
  - Late shift = ₹15.00 per hour
- Additional bonus payable:
  - ₹25.00 per day shift
  - ₹15.00 per late shift

Average output per operative for 54 hours week i.e., including 3 late shifts 120 articles

In order to increase output and eliminate overtime it was decided to switch on to a system of payment by results. The following information is obtained:

- Time rate (as usual): ₹10.00 per hour
- Basic time allowed for 15 articles: 5 hours
- Piece-work rate: Add: 20% to piece
- Premium: Add: 50% to time

You are required to show:

(i) hours worked;
(ii) weekly earnings;
(iii) number of articles produced; and
(iv) labour cost per article for one operative under the following systems:

(a) Existing time rate.
(b) Straight piece-work.
(c) Rowan system.
(d) Halsey-Weir.

Assume that 135 articles are produced in a 45-hour week under (b), (c) and (d) and that the worker earns half the time saved under the Halsey-Weir System. The additional bonus under the existing system will be discontinued in the proposed incentive scheme.

Question 35

In a factory guaranteed wages at the rate of ₹18.00 per hour are paid in a 48-hour week. By time and motion study it is estimated that to manufacture one unit of a particular product 20 minutes are taken. The time allowed is increased by 25%. During one week Abraham produced 180 units of the product. Calculate his wages under each of the following methods: (a) Time rate, (b) Piece-rate with a guaranteed weekly wage, (c) Halsey premium bonus and (d) Rowan premium bonus.
Question 36

A worker under the Halsey Plan of remuneration has a day rate of ₹1,200 per week of 48 hours, plus a cost of living bonus of ₹10 per hour worked. He is given an 8-hour task to perform, which he accomplishes in 6 hours. He is allowed 30% of the time saved as premium bonus. What would be his total hourly rate of earnings, and what difference would it make if he were paid under the Rowan Plan?

If you want something you’ve never had - you have to do something you’ve never done....