

# School of Engineering

---

Engineering Management –  
Trading, profit and lost accounts  
Balance sheets

Mark Sandford

# Costs

## Cost classification

---

### ☐ Fixed Assets

- Premises which the business owns
- Plant and machinery
- Furniture and equipment
- Motor vehicles

### ☐ Current Assets

- Stocks or raw materials
  - Stocks of finished goods
  - Stocks of work in progress
  - Debtors – people owing money for goods supplied
  - Bank balance
  - Cash balance
-

# Costs

## Capital and revenue expenditure

---

- ❑ Current Assets and be converted into other current assets
    - Eg cash used to buy stock, payment from debtors
  - ❑ Current assets can be used to create fixed assets (capital expenditure)
    - Eg purchase of plant equipment
  - ❑ Other expenditure is **revenue expenditure**
    - Stocks of raw materials to finished goods
    - Electricity and heating
    - Sub contract outwork
    - Vehicle running expenses
    - Building maintenance
    - Depreciation of capital assets
-

# Costs

## Cost classification

---

- ❑ Revenue expenditure items are cost items
  - ❑ Some costs are incurred as the product is manufactured
    - Raw material processing into product
  - ❑ Other costs are charged when incurred
    - Wages, insurance, power, depreciation etc
  - ❑ **Direct costs** can be readily attributed as incurred during the production of product
  - ❑ **Indirect costs** or **overheads** are incurred to enable the business to operate
-

# Costs

## Cost behaviour

---

### □ Fixed costs

- Do not vary in proportion to volume of production or sales. They remain constant
- Rent, rates, insurance, heating, wages etc



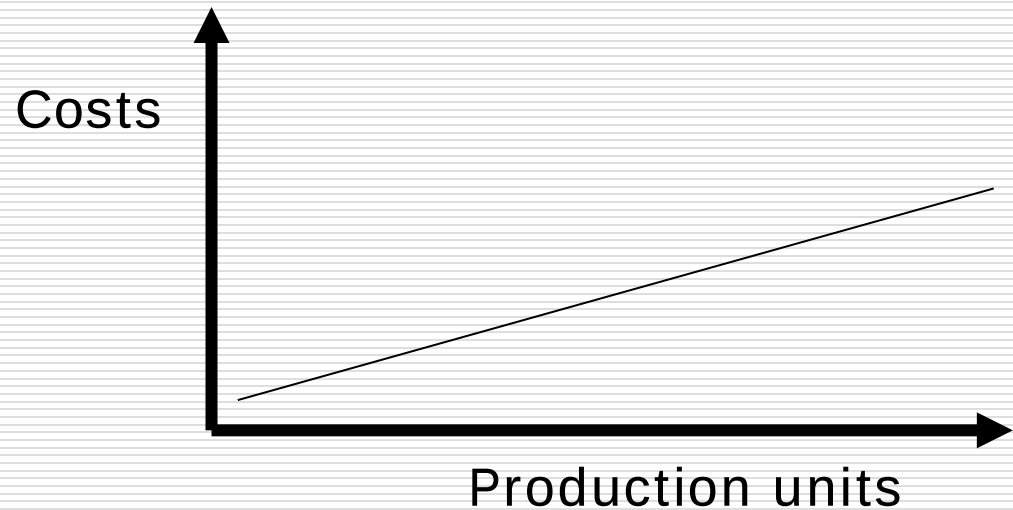
# Costs

## Cost behaviour

---

### □ Variable costs

- Vary in direct proportion to volume of production or sales
- Materials, direct (piecework) labour, distribution, salespersons commission etc



What are semi-variable costs ?

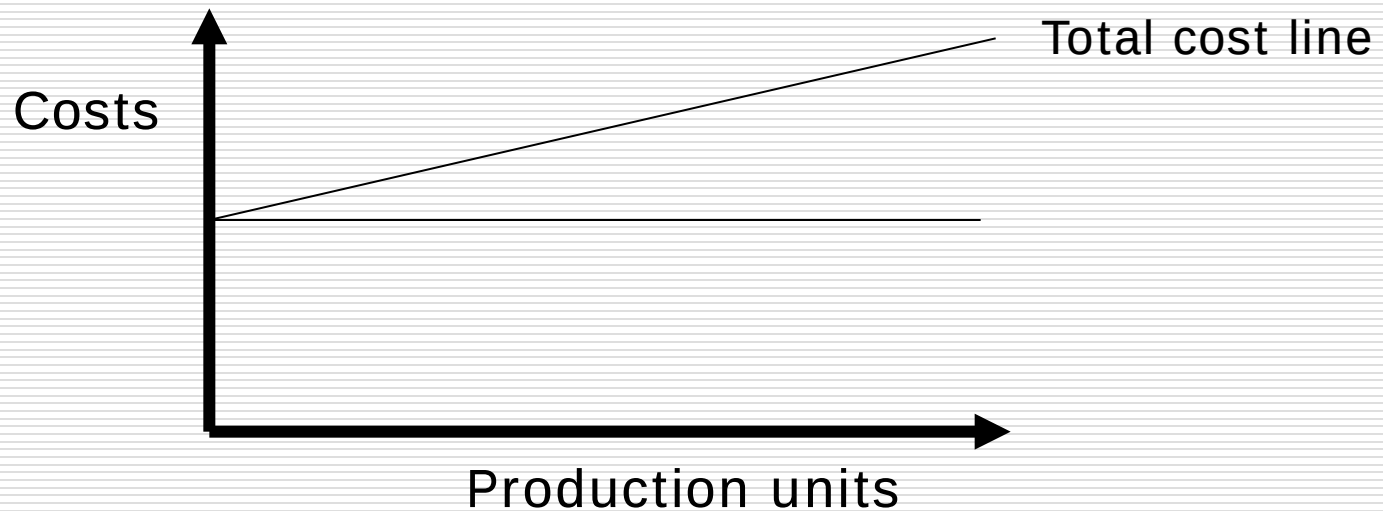
---

# Costs

## Total costs – fixed plus variable

---

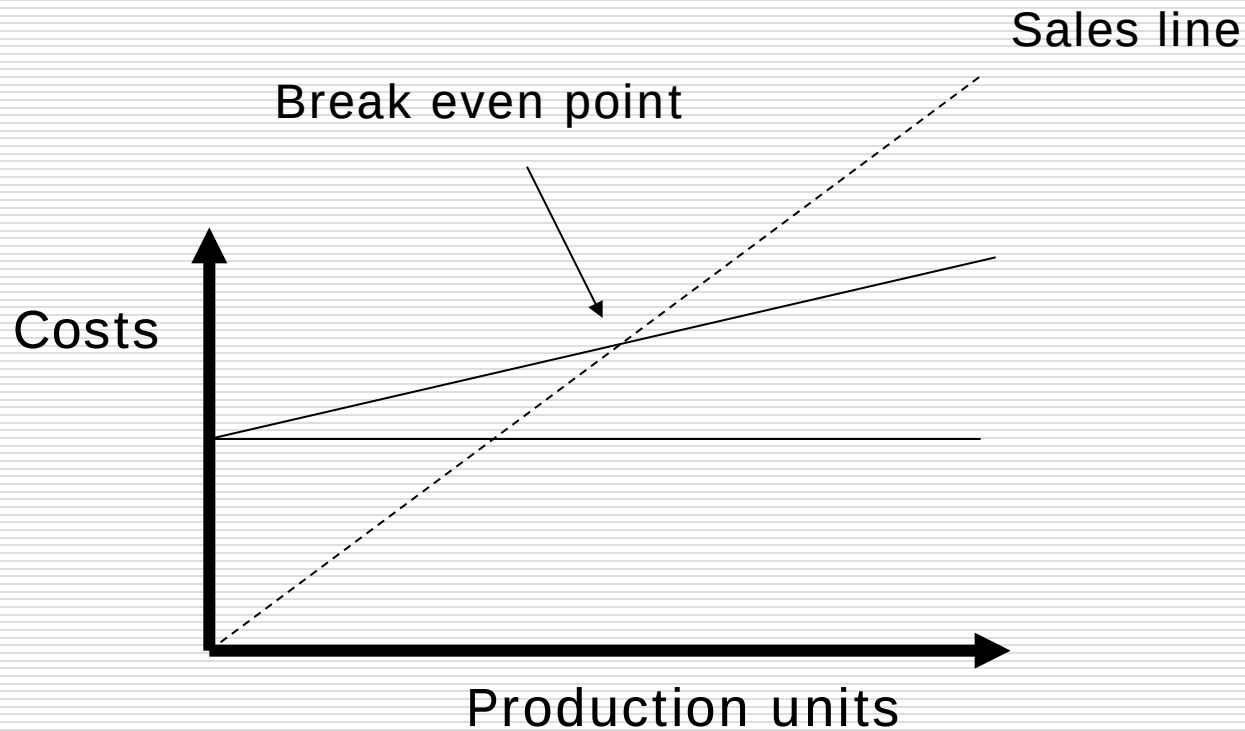
□ Total costs



# Break even point

---

□ Total costs

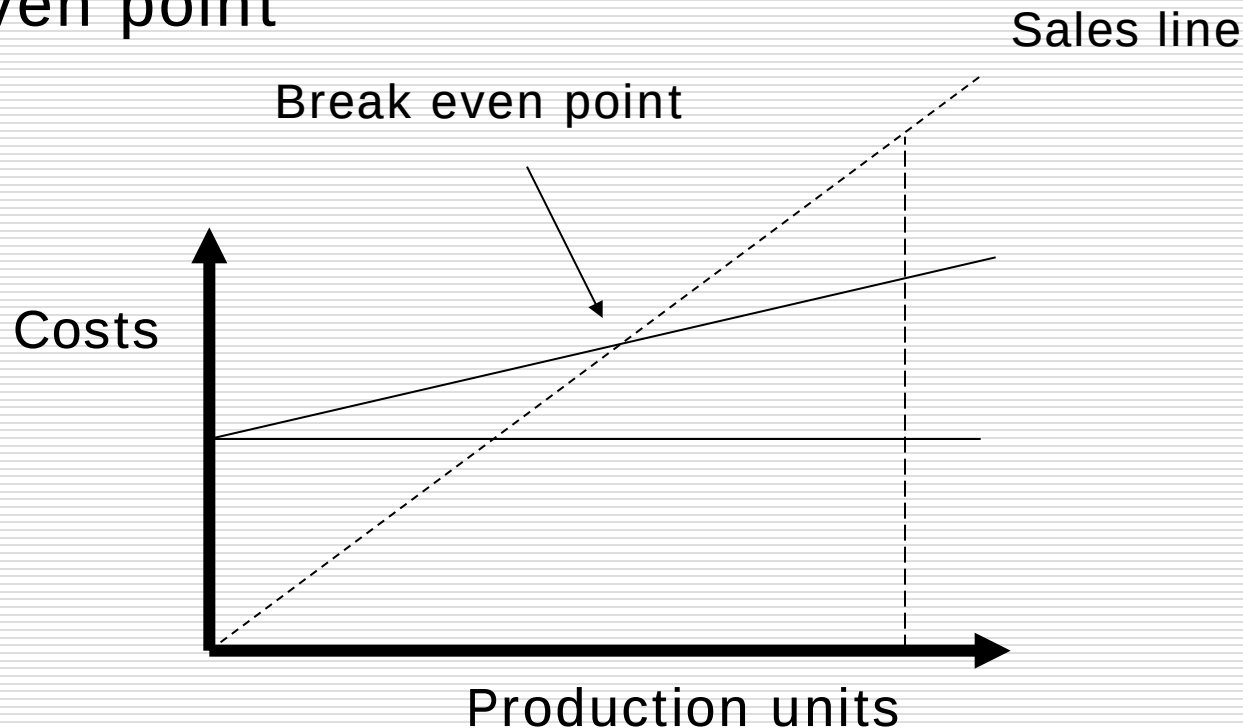


# Break even point

## Margin of safety

---

- Margin of safety is the difference between where a company is operating and the break even point



# Accounting

---

- ❑ The importance of pricing as a function of the marketing mix
- ❑ On 25<sup>th</sup> Jan TTK paid suppliers for 70 kit parts which they had bought in Dec
- ❑ In Jan TTK sold 50 kits through Demon Tweaks and 25 through the TTK website
- ❑ In Jan TTK got paid for 45 kits sold in Dec
- ❑ On 25<sup>th</sup> Feb TTK paid suppliers for kits bought/received in Jan
- ❑ During Feb TTK received payments for 55 of the 75 kits sold in Jan

**How much profit did TTK make in Jan12 ?**

---

# Profit and Loss accounts (P&L)

---

- ❑ Measures financial performance over a period
- ❑ Trading account
  - Money from sales less cost of the goods sold
- ❑ Profit and Loss includes expenses or cost of sales

|               |         |
|---------------|---------|
| Sales         | 10,000  |
| cost of goods | -£4,000 |
| Gross profit  | £6,000  |
| expenses      | -£5,000 |
| Net profit    | £1,000  |

# Profit and Loss accounts (P&L)

## Example – Tenby Turbo Kits

---

- We are only interested in what happened in Jan
- Trading summary

|                              |          |
|------------------------------|----------|
| Sales of turbo kits 75@£1000 | £75,000  |
| Cost of kit parts 75@£700    | -£52,500 |
| Gross profit                 | £22,500  |

---

# Profit and Loss accounts (P&L)

## Example – Tenby Turbo Kits

- ❑ Trading summary in more detail
- ❑ For month ending 31<sup>st</sup> Jan 2008

|                         |                |                |                 |
|-------------------------|----------------|----------------|-----------------|
| Sales of Turbo kits     | 75@£1000       |                | £75,000         |
| Less cost of sales      |                |                |                 |
| Opening stock           | 25@£700        | £17,500        |                 |
| Add purchases           | <u>60@£700</u> | <u>£42,000</u> |                 |
| Kits available for sale | 85@£700        | £59,500        |                 |
| Less closing stock      | <u>10@£700</u> | £7,000         |                 |
| Cost of sales           | <u>75@£700</u> |                | <u>-£52,500</u> |
| Gross profit            |                |                | <u>£22,500</u>  |

# Profit and Loss accounts (P&L)

## Example – Tenby Turbo Kits

---

### ☐ **Operating costs or expenses**

- Premises rent and rates
    - ☐ £12k per annum, in Jan paid 3 months for first  $\frac{1}{4}$ 
      - Only include cost for one month (£1000)
    - ☐ Rates £500
  - Gas and electricity for heating and power
    - ☐ Estimate from previous bills £200
  - Office costs – telephone, stationary, postage
    - ☐ £1,300
  - Cleaning
    - ☐ Wages and materials £1,100
  - Insurance, accountancy and legal fees
    - ☐ £1,100
-

# Profit and Loss accounts (P&L)

## Example – Tenby Turbo Kits

---

### ☐ **Operating costs or expenses**

- Delivery and van running costs
  - ☐ Tax, insurance, fuel, servicing £150
- Depreciation of van and equipment
  - ☐ See last week £210
- Bad debts and provision for doubtful debts
  - ☐ Two-ish kits over year £125
- Interest on loans, overdraft etc
  - ☐ £170
- Salaries of sales and technical staff
  - ☐ 2 people totalling £1250
- Provision for R and D
  - ☐ No R and D currently

**Total expenses for Jan 08 = £7,105**

---

# Profit and Loss accounts (P&L)

## Example – Tenby Turbo Kits

---

Profit and Loss for TTK for month ending 31<sup>st</sup> Jan2008

|                         |                       |                |                 |
|-------------------------|-----------------------|----------------|-----------------|
| Sales of Turbo kits     | 75@£1000              |                | £75,000         |
| Less cost of sales      |                       |                |                 |
| Opening stock           | 25@£700               | £17,500        |                 |
| Add purchases           | <u>60@£700</u>        | <u>£42,000</u> |                 |
| Kits available for sale | 85@£700               | £59,500        |                 |
| Less closing stock      | <u>10@£700</u>        | £7,000         |                 |
| Cost of sales           | <u><u>75@£700</u></u> |                | <u>-£52,500</u> |
| Gross profit            |                       |                | £22,500         |
| Less expenses           |                       |                | <u>-£7,105</u>  |
| Net profit              |                       |                | <b>£15,395</b>  |

---

# Balance sheets

---

- ❑ A snap shot of a business in one moment of time
  - ❑ A business needs resources to operate
    - Premesis, materials, equipment, cash
  - ❑ These are known as **assets**
  - ❑ A business will owe money
    - To the bank for loans and overdraft
    - To the owner for any investment
    - To suppliers for good not yet paid for but ordered
  - ❑ These are known as **liabilities**
  - ❑ At any one time the assets of a company will equal the liabilities of the company
- Assets = Capital + liabilities**
-

# Balance sheets

---

- ❑ A company cannot increase it's assets without increasing it's capital or liabilities.
- ❑ The dual nature of transactions

Exploits of Mr Sponge the window cleaner

| transaction                  | Assets  | Capital  | Liabilities |
|------------------------------|---------|----------|-------------|
| a) Buys a van on credit      | + van   |          | +creditors  |
| b) Repays a loan with cash   | -cash   |          | -loan       |
| c) Buys stock with cheque    | + stock |          |             |
| d) Takes money for a holiday | -cash   | -capital |             |

---

# Balance Sheets

---

- Example of horizontal format two column

|                       | £            | £              |                            | £              |
|-----------------------|--------------|----------------|----------------------------|----------------|
| <b>Fixed assets</b>   |              |                | <b>Capital</b>             | 146,000        |
| Buildings             | 65,000       |                |                            |                |
| Vehicles              | 35,000       |                | loan                       | 24,000         |
| Equipment             | <u>8,000</u> |                |                            |                |
|                       |              | 108,000        |                            |                |
| <b>Current assets</b> |              |                | <b>Current liabilities</b> |                |
| Stock                 | 31,000       |                | creditors                  | 15,000         |
| Debtors               | 38,000       |                |                            |                |
| Bank account          | 8,000        |                |                            |                |
|                       |              | <u>77,000</u>  |                            |                |
|                       |              | <u>185,000</u> |                            | <u>185,000</u> |

---

# Balance Sheets

---

- ❑ Then a debtor transfers £3,000 for good received
- ❑ Company pays back £10,000 of loan

|                       | £      | £              |                            | £              |
|-----------------------|--------|----------------|----------------------------|----------------|
| <b>Fixed assets</b>   |        |                | <b>Capital</b>             | 146,000        |
| Buildings             | 65,000 |                |                            |                |
| Vehicles              | 35,000 |                | loan                       | 14,000         |
| Equipment             | 8,000  |                |                            |                |
|                       |        | 108,000        |                            |                |
| <b>Current assets</b> |        |                | <b>Current liabilities</b> |                |
| Stock                 | 31,000 |                | creditors                  | 15,000         |
| Debtors               | 35,000 |                |                            |                |
| Bank account          | 1,000  |                |                            |                |
|                       |        | 67,000         |                            |                |
|                       |        | <u>175,000</u> |                            | <u>175,000</u> |

---

# School of Engineering

---

Engineering Management –  
Trading, profit and lost accounts  
Balance sheets

Mark Sandford