

School of Automotive Engineering

Engineering Management – Introduction to accounting

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Types of wealth

- Financial wealth
 - Cash, land, buildings, chattels, debtors, investments
- Spiritual wealth
 - Understanding of 'self' and wider belief system
- Social wealth
 - Feelings of acceptance and contribution to family and social groups

We will be looking at financial wealth

Personal Finances

- ❑ As students you are well aware of personal finance
- ❑ You have to manage your wealth (or lack of it)
- ❑ You get money and spend - it for personal gain
- ❑ You do do some accounting
 - Informal and formal
 - Others like banks do it for you
(and charge for it)

Main sources of personal finance

Savings

Earnings

Loans

Personal Finances – Savings - investments

- ❑ You will assess :
 - ❑ The degree of **risk** involved in the investment
 - Personal financial situation
 - Personal approach to risk
 - ❑ The **amount** to be invested
 - ❑ The **access** to the investment
 - ❑ The **rate of return** on the investment
 - ❑ Types of investments
 - Accounts- banks and buliding societies
 - The government – national savings
 - Stocks and shares
 - Unit trusts
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Personal Finances – Earnings

- ❑ Earnings are the main source of personal finance
 - ❑ Some removed by taxation
 - ❑ Level of earnings determines lifestyle (or the available choice of lifestyle)
 - ❑ Spending
 - We buy a lifestyle
 - We make informed spending/saving choices
 - ❑ Levels of earnings influenced by :
 - Education and skills
 - Demands of the job market
 - Working harder and longer

Be aware of work life balance
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Personal Finances – Loans

- ❑ Short term finance
 - Bank overdraft
 - Credit card
 - Credit accounts
 - ❑ Long term finance
 - Personnel loans / student loans
 - Hire purchase
 - Mortgage
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Personal Finances – Making decisions

- ❑ Setting financial objectives
 - ❑ When to
 - Spend, spend all and live hand to mouth
 - Save, for future needs or wishes
 - Borrow, have now - pay later (plus interest)
 - ❑ Accounting gives us the tools and the structure to make the most informed decisions in order to achieve our financial objectives
 - ❑ Accounting gives us the tools and structure to allow us to monitor the progress towards our financial objectives
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Personal Finances – Making decisions

- Accounting gives us the tools and the structure to make the most informed decisions in order to achieve our financial objectives
 - Comparing investment deals
 - Comparing company performance
 - Calculating payback on investments
 - Comparing borrowing options
 - Legitimising borrowing
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Personal Finances – Making decisions

- ❑ Accounting gives us the tools and structure to allow us to monitor the progress towards our financial objectives
 - Balance sheets
 - Cash flow forecasting
 - Cash planning
 - Positive cash flow in
 - Negative cash flow out
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Will you become an accountant?

- ☐ Sadly many engineers do !
 - ☐ Engineers
 - Are numerate (or should be)
 - Have enquiring/questioning minds
 - Can be disciplined and analytical

 - You are an accountant
 - You will be a better accountant
 - You may not be a qualified accountant
 - You will have to deal with accountants
 - You must understand basic accounting
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Business finance

Two types of accounting

- Financial accounting – for understanding a companies **financial position**
 - Profit and loss accounts
 - Balance sheets
 - Depreciation
 - Cash control
 - Accounting concepts and conventions
 - Financial entities
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Business finance

Two types of accounting

- Management accounting – for providing management with financial information to help them make better **decisions**
 - Cost classification and behaviour
 - Cost allocation
 - Cost-volume-profit analysis
 - Project appraisal
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Types of Financial Organisation

Sole Trader

- ❑ No distinction between the owner and the business
 - ❑ Advantages
 - Simple to start – no legal formalities
 - You make all the decisions
 - You enjoy all the profits
 - You have total control
 - Your accounts only reflect business transactions
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Types of Financial Organisation

Sole Trader

□ Dis-advantages

- You may not have sufficient money to start the business and you may not be able to borrow it
- If you make a loss, you suffer
- You need to provide all the management skills
- You are personally responsible for the debts of the business and could become a bankrupt.
- You are liable to pay tax on profits

Still the most popular form of organisation for very small businesses in the UK

Types of Financial Organisation

Partnership

- ❑ Two or more people carrying on a business with view to a profit (all are owners)
 - ❑ Advantages
 - Can raise capital to start (from partners)
 - Pressures of the business are shared
 - Legal requirements are few, although there must be an agreement between partners
 - Any loss is shared
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Types of Financial Organisation

Partnership

□ Dis-advantages

- You may not have total control, other partners may overrule your decisions
- You have to share the profits
- If the business runs into trouble you will be personally liable

Common in the UK for professional service providers

Not all partners are equal. Each partner has his/her own capital account, divided into fixed capital and cannot be withdrawn

Types of Financial Organisation

Limited company

- ❑ The company is a 'legal person' and separate from the owners
 - ❑ Advantages
 - The liability of the owners is limited to the amount that they have invested
 - It can be easier to raise funds
 - The company can be professionally managed by directors
 - If the company is publically listed, owners can sell shares
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Types of Financial Organisation

Limited Company

□ Dis-advantages

- More expensive to start than sole trader or partnerships (but not that onerous)
 - Decisions can be overridden by shareholders
 - Considerable legal requirements must be fulfilled
 - The company's financial affairs become public
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Types of Financial Organisation

Partnership

□ Dis-advantages

- You may not have total control, other partners may overrule your decisions
- You have to share the profits
- If the business runs into trouble you will be personally liable

Common in the UK for professional service providers

Not all partners are equal. Each partner has his/her own capital account, divided into fixed capital and cannot be withdrawn

Accounting

Profit and loss

Balance sheets

What is Depreciation?

- An asset, say, a car or a machine, will never have the same value throughout its lifetime. As time passes, the asset loses value known as **DEPRECIATION**. There are many factors that cause depreciation of an asset:
 - Introduction of a newer, perhaps, more efficient asset (obsolescence)
 - Deterioration
 - Time (aging of the asset)
 - Level of maintenance
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Depreciation

Straight line method

- This is the most commonly used method of depreciation and is relatively straightforward to understand. The theory behind it assumes that an asset should be depreciated in EQUAL amounts each year until it reaches its residual value (or scrap value). The residual value is the value that the business expects it to be worth when the asset has no use anymore. This value can often be nil but realistically, it usually has some value even if it is, say £10 worth of scrap metal.
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Depreciation

Straight line method

- ❑ you must predict the expected life of the asset, i.e. the number of years that you believe the asset will be of use to the business.

- ❑ To calculate each years depreciation using the straight-line method, the formula is:

- ❑ **Depreciation =**
$$\frac{\text{Original Value} - \text{Residual Value}}{\text{Expected Life}}$$

Depreciation

Straight line method- example

- **For example, a car is purchased at £16,000 and the business expects to use the vehicle for four years. The residual value is estimated at £4000.**

- **Therefore,**

**Depreciation = £16,000 less £4,000
divided by 4 years = £3,000 per year**

Depreciation

Straight line method- example

This figure will then be deducted from the previous years asset value giving the new Net Book Value (see table below). In addition, this figure will be added to the total expenses each year on the profit and loss account.

□

Year	Depreciation	Net book value
0	0	£16,000
1	£3000	£13,000
2	£3000	£10,000
3	£3000	£7,000
4	£3000	£4000

Depreciation

Reducing balance method

- the reducing balance assumes that an asset loses more value during the earlier years of its life. Consequently, a depreciation rate (%) for reducing value is used, resulting in less value being lost each year.**
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Depreciation

Reducing balance method

- R = rate of depreciation required
- t = time period in years
- F = final value
- C = cost (original value)

$$\text{Rate} = 1 - \sqrt[t]{\frac{\text{final value}}{\text{original value}}}$$

Depreciation

Reducing balance method

- For example, a car is purchased at £16,000 and the business expects to use the vehicle for four years. The residual value is estimated at £4000.

$$\text{Rate} = 1 - \sqrt[4]{\frac{\text{£4,000}}{\text{£16,000}}}$$

Rate = 0.2929 or 29.29% or say 30%

Depreciation

Reducing balance method- example

This figure will then be deducted from the previous years asset value giving the new Net Book Value (see table below). In addition, this figure will be added to the total expenses each year on the profit and loss account.

□

Year	Depreciation	Net book value
0	0	£16,000
1	£4800 ($£16,000 \times 30\%$)	£11,200
2	£3360 ($£11,200 \times 30\%$)	£7,840
3	£2352 ($£7,840 \times 30\%$)	£5,488
4	£1646 ($£5,488 \times 30\%$)	£3,842

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