UNIT 4: TECHNOLOGY

IS USING ROBOTIC TECHNOLOGY IS ALWAYS BETTER THAN EMPLOYING PEOPLE TO DO THE WORK?

Arguments for the use of robots:
√ Robots can **carry out repetitive tasks** with great accuracy time after time – repetitive tasks undertaken by humans can lead to boredom, lack of motivation and human error.
√ They **do dirty, dangerous jobs without complaining**.
√ They **do not get tired, sick, join trade unions, take days off.**
√ Although initial costs high, **long term costs reduced.**
√ **Increased output** – greater speed. Likely to be fewer mistakes/errors – better quality.

However:
X **Initial purchase cost** can be very high and breakdowns can also be very expensive to resolve.
X **Maintenance can be costly** as downtime is required.
X Robots have proved to be too **inflexible** in final assembly where customer options have to be catered for.
X **Reprogramming of robots can be very expensive** indeed.
X They **cannot problem solve.**
X Maybe **costly to keep up** with technological achievements.
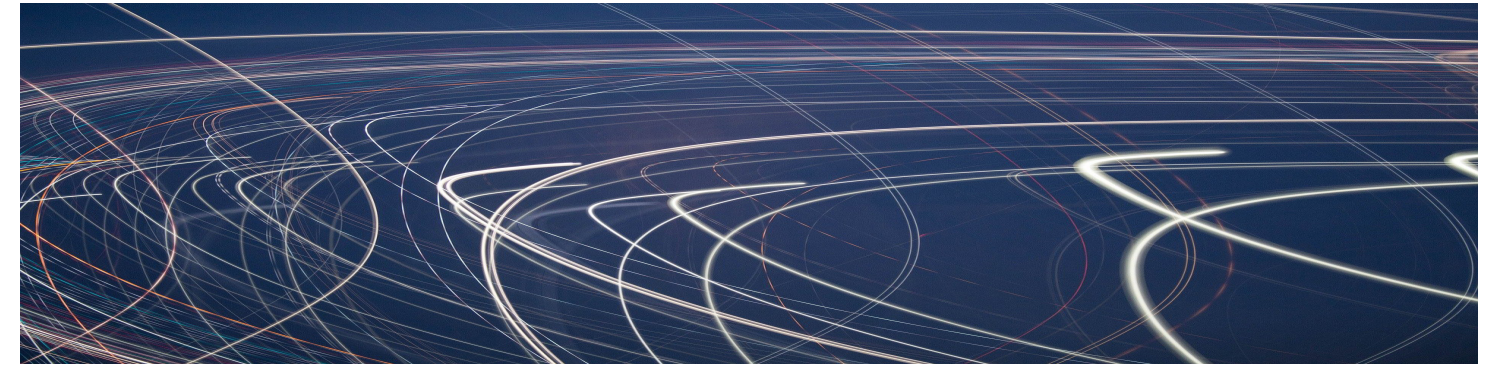
CAD: COMPUTER AIDED DESIGN

Definition: Computer aided design is an interactive computer system which is capable of generating, storing and using computer graphics. It assists design engineers in solving design problems.

Advantages of using CAD:
√ Accurate designs can be constructed on a computer which can be **viewed in 3D and rotated** in order to demonstrate the whole range of possible images.
√ They can be **easily and cheaply altered** for a client - reduce lead time.
√ Designs can be accurately measured and tested on screen in order to **detect faults prior to manufacturing.**
√ Increased accuracy and ability to alter designs can **reduce the cost of the design process.**
√ Designs can be more **easily stored and quickly retrieved.**
√ Considerable sums of **money can be saved** by eliminating the production and testing of expensive prototypes.
√ **Testing programmes** can also be included, e.g. wind tunnels.

Disadvantages of using CAD:
X Cost of setting up – buying the machinery + training of employees to use machinery.
X Possible redundancy payments to unskilled employees.
X Reputation of business if they have to make employees redundant.

CAM: COMPUTER AIDED MANUFACTURING

Definition: The use of computers in production. It occurs in all sorts of industries - for example, the use of robotic welders in vehicle production.

Advantages of using CAM:
√ CAM allows for standardised quality – accuracy.
√ Reliability – less waste in manufacture.
√ Lower labour production costs – less supervision.
√ Greater customer satisfaction – fewer returns.
√ Easy to adjust – speed – cheaper.

Disadvantages of using CAM:
X Cost of setting up – buying the machinery + training of employees to use machinery.
X Possible redundancy payments to unskilled employees.
X Reputation of business if they have to make employees redundant.