

# OCR ENGINEERING: REVISION GUIDE & HOMEWORK BOOK

R109

The impact of modern technologies on Engineering production:

- Automation
  - Increased output
  - Faster to Market
  - Reduced production times
- Quality
  - Consistency
  - Zero Defects
  - Right First time
  - Aluminium alloys
- Workforce
  - Smaller Workforce
  - Employee re-training
  - Changes in job profiles
  - Improved working conditions
- Costs
  - Initial Capital outlay
  - Savings in workforce costs
  - Reduced overall cost of production
- Digital communications
  - Internet research
  - Computer Aided Design (CAD)
  - Electronic communication of drawings
  - Video Conferencing
  - Just in Time
  - Inventory reduction
  - Automatic ordering systems
  - Stock management
  - Electronic transfer of data
- Global manufacturing
  - Global supply chain
  - Business benefits
  - Standardisation of processes and procedures



**Eat . Sleep . D&T . Repeat**

# Automation: OUTPUT

Definition of Automation:

---

---

---

---

---

---

---

---



Explain how automation can lead to increased output (larger numbers of products produced in less time)

---

---

---

---

---

---

---

---



Explain how automation can reduce production times

---

---

---

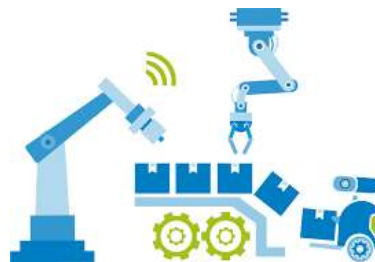
---

---

---

---

---



Explain how automation can lead to products being faster to market (from initial concept to product being sold in shops)

---

---

---

---

---

---

---

---



# Automation: QUALITY

Definition of Automation:

---

---

---

---

---

---

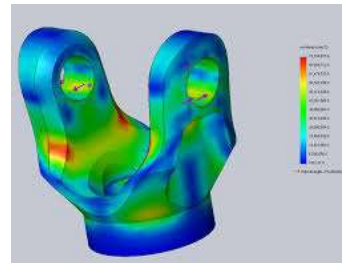
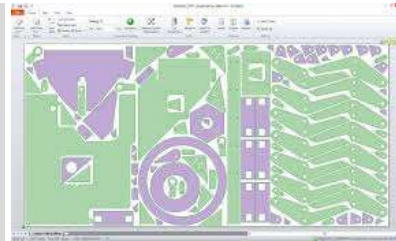
---

---

---

---

(Re write you definition here)



Explain how automation can improve consistency in product manufacture

---

---

---

---

---

---

---

---

---

---

Explain how automation can improve the quality of products being manufactured

---

---

---

---

---

---

---

---

---

---

Explain how automation can ensure “Right First Time” in product manufacture

---

---

---

---

---

---

---

---

---

---







# Digital communications: Uses in research & Development

Definition of digital communication:

---

---

---

---

---

---

---

---

---

---

(Re write you definition here)



Explain how Video conferencing can be used in the research and development of products

---

---

---

---

---

---

---

---

---

---

Explain how electronic communication of drawings can be used in the development and production of products

---

---

---

---

---

---

---

---

---

---



# Digital communications: Materials supply and control

Definition of Just In Time JIT:

---

---

---

---

---

---

---

---

---

---



Explain how Just In Time can reduce inventory

---

---

---

---

---

---

---

---

---

---

Give an example of how Just In Time is used in manufacturing

---

---

---

---

---

---

---

---

---

---

## McDonald's Assembly Line

A great example of JIT

Elapsed time	0:00	0:11	0:31	0:45		1:30
Task time (seconds)		11	20	14	0	45
Task	1. Order	2. Bun toasting	3. Assembly with condiments	4. Wrapping of patty with bun	5. Order picked up immediately to keep it fresh	6. Customer service (order and payment)

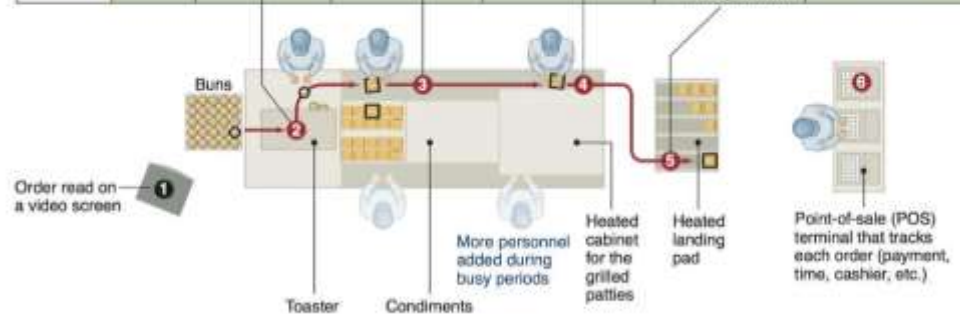


Figure 9.11



# Digital communications: Automatic ordering systems

Definition of automatic ordering systems:

---

---

---

---

---

---

---

---

---

---



Explain how automatic ordering systems can aid manufacturers with stock management

---

---

---

---

---

---

---

---

---

---

Give an example of how automatic ordering systems are used in manufacturing

---

---

---

---

---

---

---

---

---

---



Explain how automatic ordering systems can aid manufacturers with electronic transfer of data




---

---

---

---

---

---

---

---

---

---

# Global Manufacturing: Global supply chain

Definition of Global supply chain:

---

---

---

---

---

---

---

---

---

---

Explain how global supply chains can benefit businesses

---

---

---

---

---

---

---

---

---

---

Give an example of global supply chains are used in manufacturing

---

---

---

---

---

---

---

---

---

---

