Nothing complicated here, just a simple checklist for all the things you need to know for your exam... Simples!

Processes & Manufacture

Product Manufacture
- How materials are cut, shaped & formed
- Difference between quality control & quality assurance
- Produce detailed working schedules to include:
  - Flow charts
  - Production plans
- Identify Critical points QA &
- Be able to evaluate quality of products to devise suitable modi-

Industrial & Commercial Practice: Methods of Production

- Scale of Production
  - One-off
  - Batch
  - Mass
  - Continuous
  - J.I.T (just in time)
- CAD/CAM
  - Hand tools
  - Machine tools

Manufacturing Systems
- Understand commercial manufacturing is a system or group of sub-systems requiring:
  - Special buildings or work places
  - Organisation of people
  - Organisation of tools & equipment
  - Risk assessment & compliance with health & safety
  - Organisation of materials
  - Information systems to help people communicate with
  - Changing shape & form to increase their usefulness
  - Using tools & equipment to transform materials into
  - Design & production of products in a systematic way
  - Quality assurance procedures & quality checks to be made
  - Ways of safely taking care of the unwanted
  - Efficient working methods
  - Outputs of manufacture: disposing & recycling
  - Ways of looking after the environment

Use of ICT (Information & Communication Technology)

- Understand how ICT facilitates manufacturing functions:
  - JIT
  - Video conferencing
  - Software sharing
  - Stock control
  - Data transfer
  - Remote manufacturing
  - Understanding the application of CNC (Computer Numeric Con-

- Understand how CAD (Computer Aided-Manufacture) is used in
- Understand how CAD/CAM allows for higher levels of accuracy.

Materials & Components

Textiles

- Natural v synthetic fibres
  - Cotton
  - Polyester
  - Wool
  - Polyamide (Nylon)
  - Silk
  - Tactel
  - linen
  - acrylic
  - Elastane (Lycra)

- Properties & Characteristics
  - Difference between woven, knitted & bonded fab-
    - Sourcing
  - Conversion to a workable material
  - Uses of fabrics

- Stock forms for yarns & fabrics
  - Fabric roll
  - Weight
  - ply

Manipulating & combining materials

- How materials can be combined & processed to be
- How properties can be utilised in industrial contexts
- How a range of materials can are prepared for manu-
- Finishes: aesthetic & functional
- Pre-manufactured components & their uses

New materials

- Knowledge & understanding of new & smart materials:
  - Precious Metal Clays (PMC) used in jewellery manu-
  - Corn starch polymers used in packaging
  - Thermochromic pigments used in thermal warming
  - patches
  - Shape memory alloys
  - Quantum Tunnelling Composite (QTC) used to incor-

- Have an awareness of the importance of the development of nanomaterials and integrated electronics in

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# Design & Market Influences

## Evolution of Product Design
- Development of ideas, materials & manufacturing processes
- Social changes
- Political changes
- Design movements
  - Art deco
  - Bauhaus
  - De Stijl
  - Art Nouveaux
  - Memphis
  - Arts & Crafts movement
  - Post Modernism
- Continuous improvements (C.I)
- Technological push
- Marketing pull

## Design Influences
- Design movements
- Cultural influences
- Manufacturing Industries
- Technical push
- Marketing pull

## Design in Practice: Product Development
- Design Brief
- Specification
- Inclusive design
- Research
- Dimensions & tolerances
- Cad Modelling
- Copyright
- Patents
- Registered designs
- Design starting points:
  - Natural form, pattern & structure
  - Cultural & religious influences
  - Detailed product analysis
- Designing
- Manufacturing systems
- Working triangles (kitchen)
- Production lines
- Assembly lines

## Design in the Human Context
- Human Factors
  - Understand the wide range of human factors which can influence design, to produce inclusive products
  - Access
  - Anthropometrics
  - 5th—95th percentile
  - Social, economic & ethnic groups
  - Disabled
  - Religious groups
  - Manufacturing systems
  - Working triangles (kitchen)
  - Production lines

## Safety
- Safety with regard to themselves, manufacturer & user
- Moral & Legal responsibility
- Safety testing

## Quality
- Suitable quality for the user
- Subjective criteria
- Resource availability
- Social factors
- Cost
- Commercial methods used to improve quality assurance
- BS EN ISO 9000
- Identify critical quality control points during development to improve products

## Packaging
- Materials
- Processes
- Sustainability
- Environmental concerns
- Functions of packaging:
  - Protect
  - Inform
  - Contain
  - Transport
  - Preserve
  - Display (promote)

## Product Labelling:
- Hazards
- Storage & handling
- Maintenance
- Disposal

## Ethical, Environmental & Sustainability Issues
- Consider ethical, environmental & sustainability issues relating to:
  - Fair trade
  - Product miles
  - Carbon footprint
  - Product disposal
  - Re-use
  - Recycling
  - Repair
  - Reduce
  - Rethink
  - Refuse
  - Knowledge & understanding of factors relating to recycling/reusing materials or products:
    - Material identification
    - Material separation
    - Collection
    - Processing
    - Energy costs
    - Subsequent usage
    - Waste
  - Knowledge & understanding of governing environmentally friendly products, ‘Green Designs’ & identify them
  - Knowledge & understanding of consumer groups & pressure groups and the way products are evaluated
    - Which? Reports
    - Standards & Agencies, implications of standards in designing
    - ISO
    - BSI
    - Product legislation

## Continuous Improvements
- (C.I)