21 MACKIS drawer

Description
This set of storage drawers come in unfinished plywood allowing them to be coloured to suit their surroundings.

Materials
Case - birch plywood
Drawer - birch plywood
Label holder - steel / nickel plated

Process of manufacture
Case - laminated / veneer
Drawer - laminated / veneer
Label holder - pierced, blanked and pressed

Method of assembly
Case - finger joint and glue
Drawer - finger joint and glue
Label holder to drawer - riveted

Questions ?
1 Explain why plywood is a suitable material for this product .

2 The label holder could be described as a standard component. Explain why using standard components in products is common practice.

3 Name and describe a suitable joint for fixing the drawer sides together. Use diagrams to illustrate your answer.

4 Explain where the designer would have considered physiology in the design of this product.

5 Describe two aspects of the design which could have been evaluated by *user trials*.

6 Explain how the designer would have used the information gathered during the user trials.

Assignment
To extend the range the drawer will be replaced by a hinged door. The door must be made of similar birch plywood.
Produce a design solution for a door which could be attached to the unit in place of the drawer .

22 MESUSUFAR light shade

Description
A ‘swirling’ light shade made from sheet material fitted over a cylindrical core.

Materials
Shade - polyethylene - low density

Process of manufacture
Shade - stamped and formed

Method of assembly
Shade - riveted

Questions ?
1 Explain how the sheet of polyethylene would have been manufactured.

2 Fashion can strongly influence the design of a product. With reference to the light shade explain how fashion has possibly influenced its overall ‘look’.

3 Describe the process of riveting, use sketches to illustrate your answer.

4 Describe how the light shade could have been manufactured from wood.

5 State three considerations a company would have to make if the material for the shade was switched from plastic to wood.

6 Function and durability are two important design factors. Describe two aspect of function and durability which the designer would have considered in the design of the light shade.

Assignment
The shade is made from a flat piece of PE , *cut to shape* and then *opened up.*
Produce a design solution for a table lamp where the shade is manufactured in the same way but has a different overall shape.

23 PERISKOP soap dish

Description
A *chunky* white soap dish in steel, fixed to the wall with four screws.

Materials
Tray - polyethylene
Holder - steel tube / lacquered
Fixing plates - steel / lacquered

Process of manufacture
Tray - injection moulded
Holder - formed
Fixing plates - pierced, blanked and formed

Method of assembly
Tray onto holder - placed
Fixing plates onto holder - welded

Questions ?
1 State three pieces of evidence found by visual inspection of the tray which would establish injection moulding as the manufacturing process.

2 The holes in the fixing plate have been pierced and not drilled. State one piece of visual evidence which establishes that the holes have been pierced and not drilled.

3 Explain why piercing is the preferred process for manufacture in this case.

4 State the name of a metal which could have been used to manufacture the tray.

5 Describe a suitable process for the manufacture of the tray using your chosen metal.

6 The soap dish is described as *chunky*. Describe three ways in which the designer could make the soap dish look less chunky.

Assignment
The tray has to be redesigned to allow water to drain from it. Produce three design solutions for the tray.

24 SPATULA food spatula

Description
This cooking spatula is made entirely of plastic. The single hole in the handle allows the spatula to hang on a rack.

Materials
Handle - polypropylene
Blade - polyamide plastic

Process of manufacture
Handle - injection moulding
Blade - injection moulding

Method of assembly
Moulded together

Questions ?
1 Explain why a polyamide plastic was chosen as the material for the blade of the spatula ?

2 Describe the process of injection moulding. Sketches should be used in your answer.

3 Describe the spatula in terms of its aesthetic appeal and state its possible market niche.

4 State three aspects of safety the designer would have considered in the design of the spatula.

5 The handle could have been manufactured from hardwood. State the name of a suitable hardwood and explain how this change in material could change the market niche of the product.

6 State two aspects in the design of the spatula where the designer would have considered anthropometrics.

Assignment
The spatula has been selected as a product for possible redesign.
State and justify three aspects of the design which could be evaluated.
Describe the strategies which could be used to evaluate these three aspects.

25 VAGO easy chair

Description
A one piece moulded easy chair which can be stacked for easy storage.

Materials
Chair - polypropylene

Process of manufacture
Chair - injection moulding

Method of assembly
None

Questions ?
1 Explain which properties of polypropylene make it a suitable choice for the manufacture of the chair.

2 Describe the process of injection moulding. Sketches should be used in your answer.

3 Explain the difficulties which may be encountered when injection moulding such a large product as the chair.

4 State four aesthetic factors which the designer would have considered in the design of the chair and describe how they have effected its overall look.

Assignment
It is decided to produce a stool/table to accompany the chair.
Produce a design solution for a stool/table manufactured using the same material and process as the chair.

26 VANERN cabinet

Description
This wall mounted cabinet has a portal window and hinged door.

Materials
Cabinet - MDF
Door - MDF
Window - acrylic
Window frame - aluminium

Process of manufacture
Cabinet - machined
Door - machined
Window - cut from sheet
Window frame - blanked and pressed

Method of assembly
Cabinet - bolted/steel dowels
Door to cabinet - hinged
Window and frame to door - push fit

Questions ?
1 State three properties of MDF which make it a suitable choice for the manufacture of the cabinet.

2 The cabinet is to be manufactured from galvanised steel sheet. Explain a process which could be used to produce the cabinet. Sketches should be used in your answer.

3 State three ergonomic factors the designer would have considered in the design of the cabinet.

Assignment
The cabinet is to be redesigned with double doors and no window. Handles have to be incorporated(cut) into the door design.Produce a design solution for the cabinet with double doors.

27 PS VALLO watering can

Description
A sculptured watering-can made from a single sheet of material and available in a range of colours.

Materials
Watering can - polypropylene

Process of manufacture
Watering can - injection moulding

Method of assembly
None

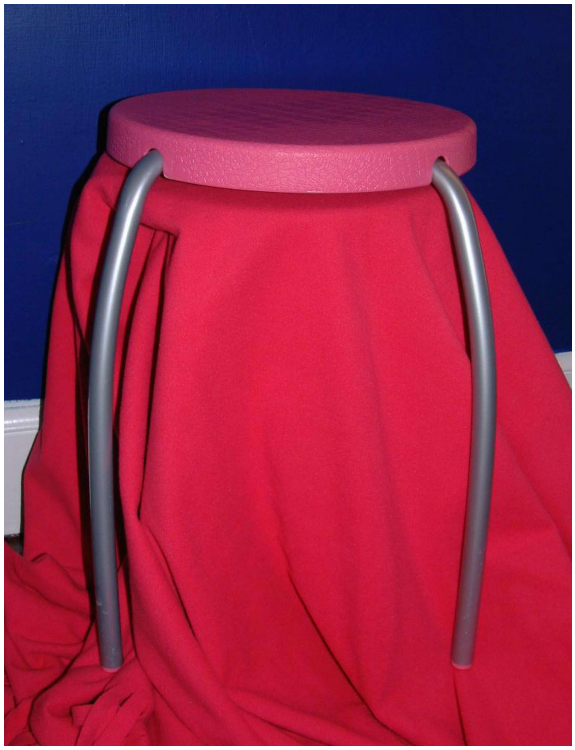
Questions ?
1 Aesthetics and fashion are closely linked. For this product describe the aesthetic styling which prove this to be the case.

2 This design of watering can allows for stacking. Explain how this will influence the cost of transportation and storage for the company.

3 User trials were conducted with the watering can before it went into production. State two aspects of the watering can where user trials would have proved useful.

4 Explain how the designer would have used the information obtained from the user trials.

Assignment
It is decided that due to the popularity of the watering-can, the range is to be extended to include a plant pot and tray. The plant pot and tray should be manufactured from the same material/process.
Produce a design solution for the plant pot and tray.



28 FORBY stool

Description
A light weight stool with very modern styling available at low cost.

Materials
Seat - polypropylene
Legs - steel / lacquered

Process of manufacture
Seat - injection moulding
Legs - extruded tube and formed

Method of assembly
Seat to legs - 4 screws / 1 centre bolt

Questions ?
1 Describe one functional and one aesthetic reason for curving the legs.

2 Explain the effect on the cost/aesthetics of the stool, if the stool had been manufactured entirely from stainless steel.

3 Describe the stool using four aesthetic terms.

4 State the market niche for this product and justify your answer.

5 State a suitable metal and process which could be used for the manufacture of the seat.

Assignment
The appeal of the stool is to be improved by the addition of a low back support. The same materials have to be used.
Produce a design solution for the stool with an added low back support.

29 FJARRAN sconce

Description
A sconce made from black lacquered steel for thick cathedral candles.

Materials
Back plates - steel / lacquered
Dish - steel / lacquered
Uprights - steel rod / lacquered

Process of manufacture
Back plates - formed
Dish - blanked and formed
Uprights - cut

Method of assembly
All parts welded

Questions ?
1 Describe the process used to manufacture the dish of the sconce.

2 Describe one functional and one aesthetic reason for the back plates on the sconce.

3 Describe three features of the sconce which allow it to be manufactured in this way.

4 Explain, with reference to psychology and aesthetics why black has been chosen for the finish of this product.

Assignment
The sconce has to be redesigned to be freestanding.
Produce a design solution which will allow the sconce to be redesigned as a freestanding candle holder.

30 FORMELL holder

Description
A simple dish for holding a candle with centre spike to ensure the candle does not fall over.

Materials
Dish - aluminium
Spike - brass

Process of manufacture
Dish - die cast
Spike - turned

Method of assembly
Spike into dish - screwed

Questions ?
1 State two pieces of evidence found by visual inspection of the dish which would establish die casting as the manufacturing process.

2 Describe the process of die casting. Sketches should be used in your answer.

3 State two properties of aluminium which make it suitable for this product.

3 Explain, with reference to aesthetics why brass may have been chosen for the manufacture of the spike.

Assignment
The holder is to be redesigned with an alternative method for securing a candle.
Produce a design solution for a holder which will hold a candle without the use of a spike.