

Proforma A2 PLC: Personalised Learning Checklist

Content/Topic: PROD 3	Red	Amber	Green
<p>Design and Market Influences</p> <p>The evolution, selection and application of materials for the manufacture of modern products. How the use and conservation of both energy and raw materials affect the selection and application of materials for the production and function of products today.</p> <p>Processes and Manufacture</p> <p>The application of materials and components to suit specific production processes, from one-off to mass-production</p> <p>Major developments in technology</p> <p>Developments in material technology and processing equipment which affect application, material properties and manufacturing processes. To include the history of style and product evolution.</p> <p>A study of manufactured products and systems</p> <p>Appraisal of functional, aesthetic, technical and economic considerations in the design and manufacture of products, considering aspects of their physical surroundings as shaped by designers, craftsmen and technologists</p> <p>Product life cycle</p> <p>To include design introduction, evolution, growth, maturity, decline and replacement</p> <p>The influence of design and technology in society</p> <p>Awareness and understanding of the work of designers and technologists</p> <p>Human needs and the effects of products and systems on society. Including aspects of the use and conservation of energy in relation to both the manufacture and performance of products</p> <p>Role of the designer</p> <p>The interface between client/designer/manufacturer/ user</p> <p>Moral, economic, social and environmental responsibilities</p> <p>The marketing function</p> <p>Satisfying customer requirements</p>			

Profitability through identifying/anticipating needs

Promotion, demographic trends, socio-economic groups

Design methods

Ways in which designing may be undertaken from the intuitive and informal to those requiring a more systematic approach

Recognition of real and artificial needs, client-centred and task analysis through mind mapping

Innovative and creative processes

Design processes

Processes which may be used in the field of design, illustration techniques, planning for production, methods of communication, data storage and collection, modelling, testing and evaluation

Safety

A recognition of the application of risk assessment to the design and manufacture of products and the relationship between the user and the product

Safety Legislation

Understand the implications of Health and Safety as an element of design activity and safety standards imposed by BSI and other regulatory bodies. Apply relevant legal requirements.

Communication methods

The means by which the detail and form of products, environments and systems are communicated so that they may be manufactured

Identify and use appropriate means to communicate ideas, design proposals and evaluations to a range of audiences including clients and potential users of the product.

Illustration, selection and use of appropriate 2D/3D techniques

Sketching, drawing, use of mixed media etc.

Enhancement

Rendering – use of line/tone/colour/form

Texture – to represent materials and surface finishes

Presentation – two-dimensional and three-dimensional products

Information drawing

Quantitative – graphs, pie charts, bar charts, pictograms

Organisational and topological – flow charts, sequential, schematic etc.

Modelling

Using 3D forms, mock ups, prototypes, scale models etc.

Use of ICT in Design

Selection and use of CAD, word processing, DTP

Development

Spreadsheets, databases and modelling software

Human needs

Specific to various groups of people – consumers; young, old, disabled, workers

To meet physical and psychological needs

Human factors

Ergonomics and anthropometrics – the relationship between people, products and the environment. Working triangle, colour

Quality assurance and quality control

During the stages of design, development and manufacturing "right first time" use of specifications, product testing, continuous improvement

The work of past and present designers

As related to consumer products in particular, but also to include design movements and the inherent influences of socio-economic changes

Copyright protection

To include patenting and its importance to the designer and manufacturer

Design Methods

Develop and use specifications which suit the requirements of potential clients in terms of price, quality and marketability

The Influence of Design and Technology in Society

Design and Technology awareness and understanding. The influence of designers and

technologists

Product development and improvement

Critical assessment of products in everyday use, whether hand or machine made, according to relevant criteria, practical and aesthetic

Examination of alternative designs and redesigning existing products

Communication methods – detail and form of products, environments and system so that they may be manufactured

Identify and use appropriate means to communicate ideas, design proposals and evaluations to a range of audiences, which includes clients and potential users of the product

Design in the Human Context

Human needs and the effects of products and systems on society

Sustainability and Environmental Concerns

Use of natural resources, materials utilisation, conservation, waste disposal/management, pollution, recycling

Green technology, environmental problems, planned obsolescence

Suitability for intended environment

ICT applications

Appreciation and understanding of the use of CAM for industrial production

Use of ICT in manufacturing data control (EDI)

CAA (computer aided administration)

CAD (computer aided design) product modelling

PPC (production planning and control) networking

CIM (computer integrated manufacture)

Flexible manufacturing systems

Manufacturing systems

Planning production procedures, methods. Craft to industrial, one-off to mass production

The implications of these methods for the product, the designer, the maker and user

Product development/improvement

Critical assessment of products in everyday use, whether hand or machine made, according to relevant criteria, practical and aesthetic. Examination of alternative designs and redesigning existing products

Manufacturing systems

Volume of production – one-off, batch, team and mass-production techniques

Safety

Candidates should be aware of the possible hazards found in a manufacturing environment.

Safe procedures and working practices

Systems and Control

An understanding of simple control systems and their application including mechanical systems; energy sources, forms, storage conversion, transmission and efficient use.

These may be related to either the function or manufacture of a product.

Systems diagrams – input, process, output

Importance of feedback and control

Application of control systems and sub-systems both within the manufacture and functioning of a range of products