

ADVANCED HIGHER – DESIGN and MANUFACTURE

Purposes and aims of the Course:

The Course provides a broad and practical experience in design and manufacturing and builds on the experience, knowledge and skills which learners will have acquired in the Higher Design and Manufacture Course, as well as utilising aspects of their broader education and experiences.

The aims of the Course are to enable learners to:

- ◆ develop understanding and skills in the processes of designing for the manufacture of products in commercial and industrial contexts
- ◆ develop and apply an understanding of the factors which influence thinking for product design and manufacturing activities
- ◆ develop a critical and visual awareness associated with requirements for user interface and product detailing
- ◆ develop independence in learning and enquiry skills in the context of problem solving in designing and manufacturing
- ◆ develop economic, social and environmental awareness of the implications of a product's design through its life cycle

The Course stresses the integration of designing and manufacturing as a connected activity and that design is an iterative process. The Course highlights the close relationship between designing, making, modelling, testing, and refining and presenting design ideas.

The Course will build on the knowledge, understanding and skills developed by the learner in the Higher Design and Manufacture Course and will provide a useful bridge towards further study of related disciplines in higher education. The Course allows learners to consider the various factors that impact on a product's design. It will consider the life cycle of a product from its inception through design, manufacture, use, re-use and the impacts and consequences of the product's disposal.

As creative industries strive to compete in a global design and manufacturing marketplace and build commercial partnerships across the world, it is important that they continue to build capacity and nurture forward thinking, innovative, talented, and informed designers and manufacturers. Advanced Higher Design and Manufacture provides experiences which support these qualities.

Course Structure and Assessment:

The Course consists of three mandatory Units and Course assessment. The Course assessment will consist of a project and a question paper.

Product Analysis (Advanced Higher)

This Unit will require learners to carry out an analysis of the performance and production of a product or suitable item. Learners should consider the design and record its functional requirements, operation and use. Learners will consider the relationships between form and function, and the impact of the design in terms of environment, aesthetics, user interface, and socio-economic factors. Alongside this, learners will explore the materials, manufacturing techniques and assembly procedures.

Product Development (Advanced Higher)

This Unit allows learners to critically explore and consider design and manufacturing aspects of a commercial product, identifying perceived improvements that might be made and hence create a design opportunity. Learners may consider a range of modifications including the various requirements of clients, users, manufacturers, environmental audits, market response, technical, technological and material science advances, competition, user interface, aesthetics, form, and product detailing. In developing and presenting a proposal for improvement, learners will engage in research and development activities. Learners will use a variety of visualisation techniques throughout the Unit in modelling and presenting their ideas.

Product Evolution (Advanced Higher)

The Unit allows learners to explore a product in terms of its development and evolution through a focused study. This is, for the most part, a reflective activity. Learners will select a product and identify the key and critical stages of its development, considering the influences which have affected the design decisions taken and changes over time. These may include influences such as sociological, scientific and technical knowledge, materials development, environmentalism, sustainability, economic constraints, or advances in manufacturing technologies. The Unit will require learners to demonstrate skills in research and enquiry, using evidence, and foresight in suggesting future developments.

Assessment

The learner will draw on and apply the skills, knowledge and understanding they have developed during the core units described above. These will be assessed through a combination of a **Project** and **Question Paper**.

The product design project adds value by requiring challenge and application, where the learner will implement and evaluate a solution to a challenging design and manufacture problem.