Design and Manufacture – Course Outlines

The course has two areas of study:

Design
Candidates study the design process from brief to design proposal. This helps them to develop skills in initiating, developing, articulating and communicating design proposals.
Candidates explore and refine design proposals using the design/make/test process and by applying knowledge of materials, processes and design factors to reach a viable solution. This helps them to develop an understanding of the iterative nature of the design process.
Candidates also develop an understanding of the factors that influence the design, marketing and use of commercial products.

Manufacture
Candidates study the manufacture of commercial products. They develop knowledge of materials, manufacturing and production processes and strengthen their understanding of how these influence the design of products. This provides candidates with the knowledge and understanding required to develop a viable design proposal for a commercial product and to plan its production.

Integrating the two areas of study is fundamental to delivering the course successfully. It helps candidates to understand the relationship between designing products and manufacturing products and it helps them to see how this connection influences a product's lifecycle. By combining the study of design with the study of manufacturing, candidates also learn to appreciate the impact design and manufacturing technologies have on society, the environment and the world of work.

Skills, knowledge and understanding for the course
The following provides a broad overview of the subject skills, knowledge and understanding developed in the course:

♦ researching and evaluating existing product types
♦ selecting and using a range of research techniques and evaluating their usefulness
♦ selecting and applying a range of idea-generation techniques
♦ writing a detailed specification based on research
♦ applying a range of creative design skills when refining and resolving product design tasks that cover key design challenges
♦ selecting and using graphic techniques to visually represent design solutions, justifying the choice of techniques
♦ selecting, using, and evaluating a range of simple modelling and manufacturing techniques to represent design ideas in three dimensions
♦ planning the manufacture of a commercial product and analysing its effectiveness

♦ selecting and using a range of tools, equipment, software and materials for designing, making and testing models and prototypes
♦ evaluating personal design proposals and associated manufacturing practicalities, and applying suggestions for improvement
♦ developing broad knowledge and understanding of the impact of a range of design and manufacturing technologies on our environment and society
♦ critically evaluating a range of factors that influence the design and manufacture of products
♦ developing knowledge and understanding of a broad range of industrial and commercial manufacturing processes and the properties and uses of materials