

BENT207 Exploring Product Development & Working Drawings

ECTS Value: 5 ECTS
Self-Study Hours: 64

Contact Hours: 25
Assessment Hours: 36

Overall Objectives and Outcomes

This unit is aimed at providing students with an overview of the various methods and procedures that are used in the engineering industry to develop and produce a product. It also covers alternative production methods using the level of technology available at schools, which most of the time is specifically designed to develop underpinning skills. The unit will focus on manual procedures of how to develop workshop drawings and templates and the underpinning separate and integrated skills required.

By the end of this module, the learner will be able to:

Competences

- a. engage with literature to investigate contemporary product development strategies;
- b. develop a critical understanding of manufacturing machines and performance characteristics;
- c. develop a systematic approach to investigate and evaluate workshop layouts;
- d. study typical artefacts and develop their 'nets' to fabricate whole or a part of them.

Knowledge

- a. explain the importance of standards in relation to product development;
- b. describe and demonstrate the process of visualization and how to plan and construct multi view and section drawings.

Skills

- a. associate scaled 2D geometry to full size geometry techniques used when marking items on sheet metal;
- b. associate edge preparation for jointing requirements to related fabrication stage;
- c. associate overall size of product to required tolerance and extra material compensation required to fabricate the product;
- d. demonstrate and explain the standard method and practice of dimensioning drawings;
- e. establish from geometrical drawings true lengths, intersection lines, true shapes and develop nets of transition pieces of centred and oblique artefacts.

Assessment Methods

This module will be assessed through: Project (70%), Research assignment (30%).

Suggested Readings

Core Reading List:

1. Jackson, E. (1977). Advanced Level Technical Drawing. UK: Longman.
2. Neundorf, B. and Stevens, C. (1978). Sheet Metal Practice. (2nd Edition). UK: McGraw-Hill.
3. Simmons, C.H. and Maguire, D. (2012). Manual of Engineering Drawing: Technical product specification and documentation to British and International Standards (4th Edition). UK: Butterworth-Heinemann.
4. Skills Institute Press Editors (2011). Metal Working. US: Skills Institute Publishing.
5. Yarwood, A. (1983). Geometrical and Technical Drawing: Book 1. UK: Nelson Thornes Ltd.
6. Yarwood, A. (1983). Geometrical and Technical Drawing: Book 2. UK: Nelson Thornes Ltd.

Supplementary Reading List:

1. Chan, E. (2010). 1000 product designs: form, function and technology. US: Rockport Publishers.
2. Evans, B. and Potts W. (2004). A Level Product Design. UK: Nelson Thornes.
3. Evans, B. and Potts W. (2014). AQA design and technology: product design (3-D design). Oxford: Oxford University Press.
4. Russell, B. and Shepard T. (2006). Design and Make it: product design Key Stage 4. UK: Nelson Thornes.