The University Of Sheffield.

Electronic & Electrical Engineering.

EEE163 SYSTEM DESIGN ANALYSIS

Credits: 10

Course Description including Aims

The unit aims to give students an appreciation of the decisions which need to be taken during the design of an electrical or electronic product. Through guided deconstruction of commercially available products the students will see how systems are formed and how components interact within a system. The necessary characteristics of materials and assembly will be discussed to enable an appreciation to be gained as to how things work and are how they are assembled to form working products.

Outline Syllabus

This unit aims to investigate the design and assembly of common electrical and electronic devices. Examples of commercially available devices will be examined in detail and deconstructed to allow critical assessment of the assembly and the design decisions that have been made in their construction. The unit will be a combination of formal lectures and laboratory analysis of the devices, being assessed by a short report and interaction during laboratory sessions. A formal group talk will also form part of the assessment.

Time Allocation

Formal contact: lectures - 6 hours; seminars – 2 hours; laboratory sessions supported by demonstrators – 18 hours. Self-directed study following each lab class – 12 hours. Report writing – 6 hours. Talk preparation – 8 hours.

Recommended Previous Knowledge

Entry qualifications.

Assessment

Examination of lab book after each lab session; one written report and one group presentation. There is no formal examination.

Recommended Books

Ashby MF, Shercliff H and Cebon D	Materials: engineering, science, process and design	Oxford 2009
Tummala R	Fundamentals of Microsystem Packaging (electronic resource)	McGraw Hill 2001

Objectives

By the end of the module a successful student will be able to:

1) Appreciate how products are designed and assembled.
2) Demonstrate rudimentary skills in critical assessment.
3) Determine suitable characteristics for the materials used in the construction of a product.
4) Present their ideas orally.