



The  
University  
Of  
Sheffield.

Electronic &  
Electrical  
Engineering.

## EEE6010 ELECTROMAGNETIC COMPATIBILITY

**Credits: 10**

### Course Description including Aims

1. To provide an introduction to the fields of electromagnetic interference, control and compatibility, including nomenclature and methodology.
2. To review the relevant legislation, in particular the EU emc directive.
3. To provide an appreciation of the causes and potential remedies for emi through good design practice and case studies.
4. To introduce laboratory methods for diagnosing emc. problems and for testing for emc. compliance.

### Outline Syllabus

The need for emc. engineering. Basic model for emi. Radiated and conducted coupling. Filters and shields. Emc. legislation and compliance.

### Time Allocation

20 lectures in weeks 1 to 12.

### Recommended Previous Courses

Second year course EEE220 (Electric and Magnetic Fields) or equivalent.

### Assessment

1 hour multiple choice exam (40%) and coursework (60%)

### Recommended Books

Keiser, B.	<i>Principles of Electromagnetic Compatibility</i>	Artech House
Marshman, C.	<i>The Guide to the EMC. Directive</i>	E.P.A.Press
Williams, T.	<i>EMC for Product Designers</i>	Newnes

### Objectives

By the end of the unit a successful student will be able to

1. Understand the nature and scope of electromagnetic interference (emi) in modern electronic and electrical systems and the need for electromagnetic compatibility (emc).
2. Demonstrate familiarity with the relevant EC directives on emc.
3. Understand the broad principles of combating emi and the routes to achieving emc both at the equipment design stage and during its testing, commissioning and use.
4. Statistically analyse the results of emc tests
5. Design circuits to minimise electromagnetic emissions
6. Use filtering, screening and appropriate circuit design to minimise sensitivity to emi