

## CE 110 DRAWING

**Co-ordinator :** Dr. N. McIntyre (Room 310A), [n.mcintyre@imperial.ac.uk](mailto:n.mcintyre@imperial.ac.uk)

**Lecturers:** Dr. N. McIntyre, Ms. J. Dixon, Dr. R. Wing

### **Project**

**supervisors:** Mr. R. North,  
Mr. M. Elshamy,  
R. H. Wong,  
Mr. S. Popo-Ola

**Structure:** This module is split into three sections: Engineering Drawing with 16 contact hours, Computer Aided Design (CAD) with 6 contact hours and Freehand Drawing with 9 contact hours.

**Links:** see below

### **(A) ENGINEERING DRAWING** (Dr. N. McIntyre)

#### **Module Structure**

6 lectures and 4 supporting drawing projects during the Autumn term (16 hours in total). Each session starts with a lecture giving the information necessary for the current drawing project. After the lecture, part of the class works on the Engineering Drawing project for the rest of the afternoon, while the remainder of the class attends either the Freehand Drawing module or the CAD module.

#### **Aims**

To develop an understanding of engineering drawing conventions, particularly as practiced in the field of civil engineering. To ensure a reasonable level of proficiency in reading and preparing drawings, and to enhance students' spatial awareness.

#### **Links with other Course Modules**

The skills developed in the module will be applied in a large number of other course modules including Surveying (CE112), Creative Design (CE113 and CE205), Design Projects (CE209 and CE315), Concrete Structures and Design (CE306) and Steel Structures and Design (CE401).

#### **SYLLABUS**

- Drawing equipment and its use
- Conventions for civil engineering drawing
- Drawing a traverse survey
- Orthographic projection
- Sectional views
- Isometric and planometric drawing

#### **Coursework and submission dates**

4 drawing projects, each occupying a single session of 3 hours. The subjects vary from year to year, but recent examples have been a land survey, a tunnel portal, a cooling tower and a reinforced concrete building.

#### **Assessment**

Each of the drawing projects is assessed.

#### **Recommended Textbooks/Reading**

The lecturer's handouts.

#### **Learning Outcomes**

At the end of this module students are expected to be able to efficiently prepare orthographic projections based on sketches and given dimensions (assessed by the 4 drawing projects), and to be able to interpret isometric and oblique projections.

### **(B) COMPUTER AIDED DESIGN** (Dr. R. Wing)

#### **Module Structure**

2 sessions (6 hours in total) during the Autumn Term in supervised sessions in the computer laboratory.

#### **Aims**

To develop basic drafting skills using CAD, and to develop an appreciation of the relevance and capabilities of CAD software in civil engineering.

#### **Links with other Course Modules**

The skills developed in this module will be applied in several other course modules, particularly those involving design including Design Projects (CE209 and CE315), Concrete Structures and Design (CE306) and Steel Structures and Design (CE401).

#### **Coursework and Submission Dates**

2 drawing exercises, each occupying a single session of 3 hours. The subjects vary from year to year, but recent examples have been a bus shelter and a computer monitor.

#### **Assessment**

One of the two exercises is assessed.

#### **Recommended Textbooks/Reading**

The CAD on-line manual covers all of the material required

#### **Learning Outcomes**

By the end of this module students are expected to be able to produce simple engineering drawings using CAD, and be capable of self-learning to produce advanced engineering drawings.

### **(C) FREEHAND DRAWING** (Ms. J. Dixon)

#### **Module Structure**

3 sessions (9 hours in total) during the Autumn Term in supervised sessions outside the College.

#### **Aims**

To develop students' skills in freehand drawing.

**Links with other Course Modules**

The skills developed in this module will be applied in several other course modules, particularly those involving design including Creative Design (CE113 and CE205), Design Projects (CE209 and CE315), Concrete Structures and Design (CE306) and Steel Structures and Design (CE401).

**Coursework and Submission Dates**

3 exercises. In recent years the subjects have included a dinosaur in the Natural History Museum, a statue at the Victoria and Albert Museum and a bridge at the Science Museum.

**Assessment**

All three exercises are assessed and each carries the same number of marks.

**Recommended Textbooks/Reading**

No reading required.

**Learning outcomes**

By the end of this module students are expected to be able to use line, shading and perspective to communicate both broad spatial relationships and precise details (assessed by the sketching exercises).