

## ENGINEERING AREA ACTIVITY

### FAILURE ANALYSIS – MECHANICAL ENGINEERING

#### Introduction

This document gives a brief outline of the Failure Analysis engineering area activity, which is associated with the Mechanical Engineering Area. **This activity runs in the Lent term.** Further details of the course will be issued before the beginning of the Lent term.

The aim of the project is to undertake a 'post mortem' on a real-life engineering failure. For example, one of the case studies considers the collapse on impact of a crash barrier on a bridge, for which the group may consider structural analysis, materials analysis, materials testing and impact mechanics. The engineering issues arising in these areas will be addressed by exploiting Part I Mechanical Engineering skills. Laboratory facilities will be used to undertake simple tests. Valuable information can also be expected to be found from a literature search. The activity is more open-ended than standard laboratory experiments and gives you more opportunity to plan and organise the work in collaboration with colleagues in the team. It illustrates some of the problems and decision-making difficulties which mechanical engineers have to deal with in practice. Interim discussions timetabled during the project and a final presentation and query session form a vital part of the process.

#### Timing and Booking

The activity takes a total of 16 hours in the first half of the Lent term. **Please sign your email address on the online signup list by 12 October** and I will let you know before term starts details of the timing, to allow you to fit in other experimental activities such as labs. There are limited places so that failure to sign up below may prevent you taking this course.

#### Credit

The activity is for 20 marks of 'standard credit' as explained in the 'General Instructions for Third Year Coursework'. The member of staff at the initial briefing and final presentation will award these marks for satisfactory completion of the activity, to those having shown due diligence in the lab and presentation sessions.

Finally please feel free to contact me by email (am253) with any queries.

Dr Athina Markaki