

Engineering Mathematics Laboratory 1999-2000

General Information for Second Year Undergraduates Michaelmas Term 1999

-M L G Oldfield 30 September, 1999

1. Introduction

The laboratory is intended to build on topics that are covered on Paper A1 and to give you experience in the practical application of mathematical techniques in engineering. The intention of the course is to give you some insight into how various types of computational procedures work in practice. The laboratory consists of six two hour exercises. The first of these you will do in Michaelmas Term; the remaining five take place during Hilary Term. Each completed laboratory exercise corresponds to two practical hours.

A certain amount of preparatory work is necessary before you attempt each exercise. It is **most important** that this preparation is completed before you attend the laboratory.

For Exercise 1, sufficient computers should be available for you to each have a workstation, and you can work singly. If there is a shortage, demonstrators may ask you to work in pairs, sharing a workstation. The new “donated by Intel” can be used, as well as the older Sun workstations.

2. Laboratory Notes

The notes for Exercise 1 are attached. Notes for the Hilary Term exercises will be available next term.

3. MATLAB

All of the exercises are carried out on the Sun and Intewl workstations in the 6th Floor Thom Building Software Laboratory making use of the program MATLAB. Revise your use of Matlab in the first year. When in difficulties, remember the `help topic` command. For example, `help plot` will help you to plot graphs of you results.


Make sure you document any code you write, starting comment lines with a % .

Organise your code into script files (“m-files”) with “.m” extensions and use functions wherever possible (try `help function ?`). Use a different directory (or folder) for each exercise.

4. Laboratory Arrangements

The laboratory sessions run from 11:00am to 1:00pm. Demonstrators will be available during the laboratory sessions and they will be pleased to help you with any problems that you might have in using the Sun workstations or MATLAB. If you need to complete the exercises in your own time then you are free to use the software laboratory when it is open.

5. The Report

The report in your log book should be concise, and to the point, not detailed or lengthy. You are required, however, to address all of the questions in the exercise sheet marked . Many of the exercises require you to sketch graphs in your logbooks. You are not expected to obtain hardcopy plots. ***Hardcopy plots are not acceptable in place of hand-drawn sketches in the report that is submitted for marking.***

6. Marking of Exercise 1: Fourier Series and Transforms

You are expected to get this exercise marked in Michaelmas term. If possible, bring your reports in at a later session of the Laboratory in Michaelmas term:

Mon., Wed. and Fri. Weeks 6 between 11 am - 1 p.m.
Tues., Wed. and Thurs. Weeks 7 between 11 am - 1 p.m.

Extra marking sessions for Exercise 1 will take place in the Software Laboratory at the following times:

Wed. and Thurs. Week 8 between 11 am - noon

The absolute deadline for marking of Exercise 1 will be 1 p.m. on Friday of Week 2 in HILARY TERM. If you leave it to next term you will be asked why you are late. Expect to be asked to demonstrate your programmes on a workstation before the exercise is signed off.

Important: Make sure the demonstrators sign off the preparation, attendance and report for each exercise in the following places:

1. The Laboratory Register
2. The signing up sheet attached to this note (Make sure you paste it into your log book!).
3. In your log-book. Work must be written into your log book. Loose sheets are not acceptable!