Compulsory assignment 2
First revised description.

MEK 4100, spring 2014

March 20, 2014

Formalities

Deadline and submitting

Groups and problems.

1. Espen, Solveig and Trond. Forced oscillations: problem 54c,d.

2. Joachim, Sindre. Multiple scales: problem 58.

3. Caroline, Trygve and Joakim. Free oscillations: problem 57.

Each group must present their results in class at April the 9th or before. The format is Latex (the beamer package is recommended.). You must provide a pdf for presentation, the Latex source code all figures in original quality in eps or pdf.

Requirements

Step 1a

All groups must have an ODE solver (we agreed on Python) ready for the class at 26/3. It must be established how convergence must be assured. The implementation, however simple, must be tested by means of a simple problem with known solution. One good candidate is $y'' + y = 0$ with initial conditions $y(0) = 0.5$, $y'(0) = 1.3$. You may copy each other, ask Geir for advice. It does not matter as long as all groups have something that works. No formal report on the ODE solver will be required.

Step 1b

All students must be well prepared for the class at 26/3 when we will solve problems 25, 54ab, 56 which, together with an example from the leaflet on two-scale expansions, define the analytical perturbation solutions for the assignment. No formal reports will be required here either, but all groups must have full insight in the correct analytical solutions by the end of this day.

Step 2

Each group will solve one of problems 54cd, 57 and 58. The outcome will be presented in class. The times for the presentations will be agreed upon later.