

Assignment 1:
EXCEL Modeling for Solving PDE

Assigned on 1/15/2016, Due on 1/22/2016

The homework is very similar to the lab. The only difference is that the right-hand side boundary is changed from the Dirichlet to Neuman condition. The way of handling this type of boundary condition has been explained in class, and what you need to do is to program it using EXCEL. A template file is given to you as the starting point.

You need to submit a homework report to document your solution and discuss your solution. The report should include the following contents:

- (1) The finite difference equations derived by discretizing the partial differential equation in space and time. You can refer to the lecture note to formulate the equations.
- (2) Explain how you implement the finite different equations in the EXCEL file. Details are needed. For example, how are the boundary conditions implemented? How is the initial condition used in the finite difference equations? How is the scheme implemented?
- (3) Present your results and discuss the results from the physical point of view. The ideal discuss is that you can explain your results using plain words without any equations.

The report can be either hand written or typed in a Word processor.