9/8/2019

Assignment-2:

Consider the linear Test equation for stability of a numerical Method,

$$y' = \lambda y; \quad y(0) = 1, \text{ here } \lambda \text{ belongs to set of complex numbers.}$$

Perform the computations for finding Stability Regions for following methods on paper:

1. Euler Method
2. Improved Euler method (or Heun method)
3. Backward Euler method
4. Runge-Kutta method of order 2.

Moreover, generate separate surface plots/contour plots using MATLAB (or Python). Make comments on stability regions.

Note that:

1. Proper documentation should be used in the codes
2. You have to submit a program and a document (scan copy of hand written derivations) containing results/discussion on Moodle. Name of the file should be: "**Ass2_EntryNu**"
3. There will be evaluation of this assignment during some practical session, you will be informed before.
4. Total Marks for this assignment = 4.
5. No cheating allowed.