

Teaching Dynamical Systems with Maxima

Jaime E. Villate

University of Porto, College of Engineering

Rua Dr. Roberto Frias, Porto 4200-465, Portugal,

villate@fe.up.pt

April 13, 2007

Abstract

We report on our experience in teaching a dynamical systems course to first-year engineering students. The course has been taught with a hands-on approach, using a Computer Algebra System: Maxima. We have developed some additional programs to help students explore the dynamics of the systems, in a more intuitive way and without losing too much time with computer programming. The result has been very encouraging; students are better motivated using this approach, as compared to the more traditional methods that we used in the past.