



Course Syllabus Template

Department/Faculty EE and FCI
Graduate Program Electrical Engineering and Computation
Degree <input checked="" type="checkbox"/> Academic Master's <input checked="" type="checkbox"/> Doctorate (PhD) <input type="checkbox"/> Professional Master's
Course Name Dynamical Systems
Professor(s) Luiz Henrique Alves Monteiro
Course Load 48 hours
Course Overview Qualitative analysis of linear and non-linear, continuous-time and discrete-time autonomous dynamical systems. Study of bifurcations. Characterization of chaos.
Syllabus 1. Preliminary concepts: state space, Lyapunov stability 2. Linear and non-linear continuous-time systems: stationary and periodic solutions 3. Linear and non-linear discrete-time systems: stationary and periodic solutions 4. Structural stability and bifurcations 5. Chaos
Grading Final grade = P + W + E: P is the test grade (between 0 and 4), W the work grade (between 0 and 2), and E the exercise grade (between 0 and 4). Grade A (Excellent) - Grade points between 9 and 10 Grade B (Good) - Grade points between 8 and 8.9 Grade C (Satisfactory) - Grade points between 7 and 7.9 Grade D (Unsatisfactory) - Grade points between 0 and 6.9
Texts, Materials, and Supplies 1. Monteiro L.H.A. (2011). <i>Sistemas Dinâmicos</i> (Livraria da Física). 2. Strogatz S.H. (1994). <i>Nonlinear Dynamics and Chaos</i> (Addison-Wesley). 3. Guckenheimer J. & Holmes P. (1983). <i>Nonlinear Oscillations, Dynamical Systems, and Bifurcations of Vector Fields</i> (Springer).