



DEPARTMENT OF MECHANICAL ENGINEERING Purdue School of Engineering and Technology

FALL 2002 SEMINAR SERIES

Structural Stability of Control Systems and Computational Processes

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The conventional notion of stability in control systems and engineering analysis is somewhat restrictive, defining instability only with respect to exponential growth in response within the time domain. Similar notions govern the understanding of “oscillatory instability” in various other areas of mechanics. In this informal talk, we re-examine the notion of stability in engineering systems and computational processes, going back to the thesis of Henri Poincare, and subsequent work by Kolmogorov, Arnol'd, Thom and Zeeman, among others, to arrive at an applicable form of “structural stability.” This talk is presented at the level of “high school algebra,” in the manner extolled by Abhyankar. Illustrative examples from a recent book by the speaker are given using polynomials and matrices, which are the fundamental mathematical objects used in engineering computations.

Date: Thursday, September 12, 2002

Time: 11:00am - 12:00pm

Room: SL 165

Reception at 10:45 am (cookies and coffee served)

Everyone is invited
