

EE 555 Stability Theory of Dynamic Systems Fall 2007

Instructor:

Assist. Prof. Dr. Afşar SARANLI,
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Office Hours: To be announced. web: <http://online.metu.edu.tr>

Assistants:

None

Main Text:

- H.K. Khalil, "Nonlinear Systems"; McMillan,
- M. Vidyasagar; "Nonlinear System Analysis"; Prentice-Hall

Auxiliary Texts:

- J.L. Willems; "Stability Theory of Dynamical Systems"; Nelson,
- P.A. Cook; "Nonlinear Dynamical Systems"; Prentice-Hall,
- E. Kocaoglan; "Lecture Notes" (to be made available)

Grading:

- Midterm 1 (25%)
- Midterm 2 (30%)
- Final (35%)
- Homeworks and Attendance (10%)

Course Outline:

- Introduction,
- Definitions,
- Second order Systems, Phase Plane, Limit Cycles,
- Induced Norm, Matrix Measures, Solution Estimates,
- Describing Functions,
- Lyapunov's Direct Method
- The Lure Problem, Popov and Circle Criteria,
- Introduction to Variable Structure Systems

COURSE POLICIES AND GUIDELINES

Professional Behavior:

This is a graduate course. We will treat you as professionals and will expect to see ethic and professional behavior in return. Students in violation of ethic behavior will be dealt with accordingly.

Class Web Site and Resources:

The class will have a web site in Net-Class: <http://online.metu.edu.tr> Registered students will have access to notices, homeworks and additional materials. Check the web-site to make sure you have access (raise the issue in course if you cannot access after a week or so) and check periodically so that you do not miss anything. You may use the discussion forums to communicate with your fellow students. Same professional behavior is expected in these forums as would be expected in-class.

Midterm Dates:

TBD.

Contacting the Instructor:

You can contact me through e-mail or come to my office (preferably during the office hours if announced). If using e-mail, strictly follow the following guideline or your e-mail may be missed: Have a subject line which starts with:

“EE555: Name Surname: <Subject of e-mail>”

Do not forget to put all your name and contact details at the end of your e-mail.

Good luck and have a successful term.
Dr. Afşar Saranlı, Fall 2007.