

EE 501 Linear System Theory I

Fall 2006

Instructors:

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Office Hours: To be announced. web: <http://netclass.ii.metu.edu.tr>

Assistants:

None

Main References:

- M.A. Callier, C.A. Desoer, **Linear Systems Theory**, Springer-Verlag, 1991,
- C.A. Desoer, **Notes for a Second Course on Linear Systems**, Van Nostrand Reinhold, 1970,
- T. Kailath, **Linear Systems**, Prentice-Hall, 1980,
- G. Strang, **Linear Algebra and its Applications**, 3rd Ed. San Diego: Harcourt, Brace, Jovanovich Publishers, 1988.

Tentative Course Schedule:

| Week | SUBJECT |
|------|---|
| 1-2 | Introduction, Concepts of Field and Linear Space |
| 3 | Basis, Span, Linear Transformations |
| 4 | Matrix Representations, Range Space and Null Space |
| 5 | Normed Linear Spaces, Convergence |
| 6 | Inner Product Spaces, Orthogonality |
| 7 | <i>1st Midterm</i> , Direct Sums, Projection Theorem |
| 8 | Orthogonal Projections, Hermitian Matrices, Self Adjoint Maps |
| 9 | Systems of Linear Equations |
| 10 | Fourier Series |

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| 11 | Characteristic and Minimal Polynomials |
| 12 | <i>2nd Midterm</i> , Block Diagonal Forms |
| 13 | Jordan Canonical Form |
| 14 | Functions of A Square Matrix |
| 15 | Review and Discussions |

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://netclass.ii.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.

Grading:

The contribution of the course work to grading is given below.

- Quizzes and attendance: % 10
- Homeworks (Not to be collected): % 0
- 1st Midterm Exam % 25
- 2nd Midterm Exam % 25
- Final Exam % 40

Midterm Dates:

TBD.

Good luck and have a successful term.
M. Demirekler & A. Saranlı, Fall 2006.