

ECE 802 – Fall 2005
ADVANCED SIGNAL & ARRAY PROCESSING

Instructor: Karim G. Oweiss, Ph.D. (*koweiss@msu.edu*)

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Class Schedule: T TH 12:40 PM – 2:00 PM, Room: 1314 EB

Office Hours: T TH 4.30 PM – 5:30 PM

Textbooks: No text books will be used for this class. Lecture notes and review articles will be distributed. The following textbooks are highly recommended:

- 1- **Spectral Analysis of Signals**, Stoica & Moses, Prentice Hall, 2005
- 2- **Array Signal Processing: Concepts and Techniques**, D.H. Johnson, D.E. Dugeon, Prentice Hall, 1993

Webpage: The primary web site is through the ANGEL® Course Management System, which can be reached at <http://angel.msu.edu> (Login with your Pilot ID and password). A link to the quick start guide is provided at http://www.msu.edu/service/lcttp/trainers/angeldocs/MSU_Student_Guide.pdf

Course Outline

Topic	No. of lectures
1. Introduction	1
2. Parametric and Non parametric Spectral estimation	4
3. Subspace Decomposition	3
4. Optimum Bases & Feature Extraction	3
5. Characterization of Space-Time Processes	4
6. Beamforming and Linear Arrays	4
7. High Resolution Spectral and DOA Estimation	4
8. Applications	4

Grading

- Homework assignments worth **30%**
- 1st midterm: **In class** 80-min. exam worth **20 %**
- 2nd midterm: **Take Home** exam worth **20 %**
- 3rd midterm: **Online Quiz** worth **10%** and a **Take home** worth **20%**.

Exams: All exams are Open Book, Open Notes

Exam #	Topics covered	Date
1	1-3	Thursday, October 13 th
2	4-6	Tuesday, Nov. 15 th , Due Thursday Nov. 17 th
3	7-8	Tuesday Dec. 6 th , Due Thursday Dec. 8 th

Homeworks

- You're allowed to consult with other students, but the final work you submit should be **your OWN**.
- Late Homeworks will be accepted under severe circumstances (e.g.: sick days)