E1 244: Detection and Estimation Theory Project

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- **Project Goal**: To transcribe the lecture notes from one lecture and present at least one example problem that illustrates the main concepts covered in the lecture.

- **Lecture Transcription**:

    - We will be using the class notes taken by Subhadip Mukherjee for transcribing the lectures. Using the notes of one student will help in maintaining the uniformity of the lecture notes transcribed. These notes are available at the campus xerox center.

    - Please put your name in the author field in the latex document.

    - Focus on accurately transcribing the lecture, and correcting any errors or typos that might be. If you have corrected a typo, please highlight it.

    - Make sure that your lecture notes are as neat and aesthetically pleasing as possible: these notes will be made available for future students of E1-244.

    - You are responsible for transcribing the lecture notes starting from the page with date indicated below, *till the lecture with the next date in Table 1.* This is to ensure that there are no gaps in the transcription of lectures.

    - The latex template is available at

- **Example Problem Selection**:

    - The problem you select must be on the main topic covered in the lecture.

    - If you choose your problem from a text book or other source, be sure to include the reference acknowledging the original source.

    - Write the problem and solution in your own words.

    - Your grade on the problem part will depend on

        * Problem selection: it should be non-trivial and appropriate for the topic. It could also be in the form of a detailed derivation of an extension of the lecture.
        * Presentation of the solution: it should be clear, succinct and capture the main ideas.
        * You can present more than one example if you are interested.

- **Grading**:

    - The project will add 5% to your final score (5 points). Your project score will be based on

        * (3 points): transcription of lecture.
        * (2 points): example problem.

Student Assignment to Lectures

The assignment of lectures to students is in Table 1. The "starting phrase in the lecture" is the first few words in the lecture, which will help you identify that you have found the right lecture to transcribe.

Table 1: Lecture Assignments

Date	Starting phrase in the lecture	Name
07 Jan	Probability space	Abhishek Sinha
HW 1, 5, 10		Akula V Sri Raghavendra
HW 2, 8, 9		Anju M S
10 Jan	Baye's optimum estimation	Anup Aprem
HW 3, 6		Archana Bura
12 Jan	Defn. of a statistic	Ashok Krishnan K S
24 Jan	Exponential families	Bhawani Shankar Bhati
31 Jan	The information inequality	Christo K Thomas
02 Feb	Maximum likelihood estimation	Deekshith P K
07 Feb	Asymptotic properties of ML	Garud Ashish H
09 Feb	Schur complement & CRB	Govinda Kamath
14 Feb	Random parameters	Jafar A Sohail
18 Feb	CRLB for complex parameters	Lt. Col. Anil Sirswal
21 Feb	Constrained parameter CRB	Md. Intiyas Pasha
23 Feb	ML/Score method/EM	Manesh A
25 Feb	Kalman filtering	Mohd. Shabbir Ali
28 Feb	Kalman filtering (contd.)	Nijil K
04 Mar	Kalman filtering (contd.)	Nirmal Jith O U
07 Mar	Linear estimation	Nrupatunga
09 Mar	Wiener Kolmogorov filtering	P M Chandrakanth
16 Mar	Causal W-K filter	P V D S Sundeep
18 Mar	Detection theory intro	Raghvendranath Reddy M
21 Mar	Bayesian hypothesis testing	Reuben George Stephen
23 Mar	Hypotheses (generalization), minimax	S. Bharath
25 Mar	Minimax example	Sanjay Ladwa
28 Mar	NP rule	Sarvendranath
30 Mar	ROC	Sreekumar G
04 Apr		Subhadip Mukherjee
06 Apr		Subhojit Guha Roy
09 Apr		Sundipta Kundu
11 Apr		Swapnil S Ninawe
13 Apr		Tanuj Jain
HW 4, 7		V Kishore Kumar
18 Apr		Vishnu Namboodiri K K