1. EPCE 6205 Final Exam Scope
2. Scope

2.1 Ch.4. Least Squares

1) Singular Value Decomposition

- For estimation think about how SVD is applied.

2) Transformation from dependent to independent Gaussian Process

- Independence is efficient to analyze the variance and so on

3) Orthogonal projection

- Least Square Estimator may be derived by orthogonal projection

4) non-linear Square estimator

- Gauss was used 300 years ago!! We should understand how to estimate variables in a non-linear system

Ch.5 Continuous SDE

1) Brownian Motion

- The SDE is based on the Brownian motion. What are the properties of Brownian Motion?

2) Ito Stochastic differential equation : Theorem 5.23

- SDE is complicated, but we may use this theorem to simplify to get the solution

Ch.6. Linear stochastic differential equations: mean variance, steady state Kalman gain

- What is the best estimator? In the steady state, what is the optimal gain?

Ch.7. The extended Kalman filter : Non-linear Filtering

-Non-linear system may be approximated by Taylor series. We should understand Taylor series.

- What is EFK?

- One of the brilliant idea to get mean and variance estimation for the non-linear system.

Unscented transform. We should understand what is unscented transform.

- Unscented Kalman Filter

1. Protocol

* Date: March .02(Thursday) / 02:00 PM / presumably the lecture room
* 3 hours / open book / open materials except smart phone.

---The End --