Aerospace Engineering

Course Title: Flight parameters Estimation and Measurement **Number of Credits: 3**

Course Topics:

- Introduction
- Measurement of flight parameters
- Calibration of Flight Equipment and Troubleshooting
- Least Squares Method
- Kalman Filter Method
- Extended Kalman Filter Method
- Signal Processing
- Short Time Fourier Transform
- Wavelet Transform
- Hilbert – Huang Transform
- - Applications of Artificial Intelligence and Machine Learning and Signal Processing Methods in Parametric and Non- parametric in Estimation

Reading Resources:

- P. Zarchan, H. Musouff, "Fundamental s of Kalman Filtering a Practical Approach", Vol. 190 Progress in Astronautic and Aeronautics, Cambridge, Massachusetts,19, 2000.
- J.R. Raol, G. Girija, J. Singh "Modeling& Parameter Estimation of Dynamic systems" IET, 2004.
- Brown, Robert, and Patrick Hwang. " Introduction to Random Signals and Applied Kalman Filtering". 3rd ed. New York, NY: Wiley, 1996.
- Goodwin, Graham, and Kwai Sang Sin. "Adaptive Filtering, Prediction, and Control". Englewood Cliffs, NJ: Prentice-Hall, 1984.
- M.B. Tischler, R.K. Remple, "Aircraft and Rotorcraft System Identification". AIAA Educational Series, 2006.

D. Sundararajan, "Discrete Wavelet Transform: A Signal Processing Approach 1st Edition". Wiley; 1st edition 2016