Aerospace Engineering

Course Title: Random Vibration & Spectral Analysis **Number of Credits: 3**

Course Topics:

- Basic definitions and classification of signals and systems
- Fundamentals of statistics & Probability
- Fourier transforms and series
- Input output relationship for linear systems & Frequency Response Function (FRF)
- Frequency properties of random signal
- Input output relationship for linear systems with random input
- Properties of narrow band output signals
- Application of the random vibration in fatigue analysis
- Application of the random vibration in vehicle ride quality

Reading Resources:

- D. E. Newland, "An Introduction to Random Vibrations", Spectral & Wavelet Analysis, 2005
- S.H. Crandall , W.D. MarkRandom, "Vibration in Mechanical Systems", 2014.
- J. Bendat, A.G. Piersol, "Random Data: Analysis and Measurement Procedures",Wiely, 2010
- Engineering Applications of Correlation and Spectral Analysis, 2nd Edition, Bendat, Piersol, August 2013.
-