Aerospace Engineering

Course Title: Aeroacoustics **Number of Credits: 3**

Course Topics:

- **Introduction (Aerodynamic Characteristics of Missile, Brief History of Missile development, Classification of Flying Weapons and their Aerodynamics, etc.)**
- **Fuselage and its Configuration (Missile Fuselage Responsibilities, Fuselage Components of Missile, Fuselage Configuration of Missile, etc.)**
- **Principles of Missile Aerodynamics (definition of Axes, Practical Aerodynamic Coefficients of Missile and Effective Parameters, Stability Derivatives, etc.)**
- **Practical Theories of Missile Aerodynamics (Local Slope Method, Perturbation Methods, Supersonic Airfoil Theory)**

Reading Resources:

- Anselmet, Fabie, Mattei, Pierre-Olivier, "Acoustics, Aeroacoustics and Vibrations", Wiley, 2016.
- Xiaofeng Sun Xiaoyu Wang, "Fundamentals of Aeroacoustics with Applications to Aero propulsion systems", Elsevier publishing, 2020.
- Hubbard, Harvey H., "Aeroacoustics of Flight Vehicle: Theory and Practice, Vol. 1: Noise", NASA Langley Research Center, 1991.

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