Textbooks:


Contents:

Chapter 1: **Review of Compressible flow**

1- Integral equations for quasi one dimensional flows, isentropic relations  
2- One dimensional flows, normal shock relations  
3- Area velocity relation, flow inside nozzles and diffusers  
4- Oblique shock relations, shock polar diagram  
5- Wave interactions  
6- Thin supersonic airfoil theory  
7- Small perturbation theory for lift and drag coefficients

Chapter 2: **Axisymmetric supersonic flow**

1- Basic concept and equations  
2- Perturbation method  
3- Flow past a cone  
4- Method of characteristics  
5- Slender body theory  
6- Cross flow solution  
7- Van Dyke method for axially symmetric bodies at angle of attack  
8- Interference effects  
9- Empirical methods  
10- Applications of aerodynamics

Chapter 3: **Three dimensional thin wings in steady supersonic flow**

1- Introduction  
2- Non-lifting wings  
3- Lifting wings of simple platforms  
4- Sweptback wings
5- Method of supersonic source and doublet distributions
6- Method of conical fields

Score Policy:

HW (6-8 sets): 25%
Midterm: 35%
Final: 40%