

(Level and Major): Graduate

Course Title: supersonic aerodynamics

Number of Credits 3

Prerequisite

Lecturer : Dr Mahmoud Mani

(Course Description

The very basics of supersonic flow, equations, special cases

Course Goals and Objectives

Studying different kinds of supersonic flows, Supersonic nozzle design, Supersonic wing design

Course Topics

compressible flow classification ∇ conservation equations for irrotational flows ∇ conical flow, ∇ axisymmetric flow ∇ shock polar hodograph, shock reflection and interaction, intakes Δ characteristic method ∇ one dimensional unsteady homentropic flow ∇ supersonic airfoils and finite wings Δ shock-boundary layer interactions

The course aims to

Reading Resources

"Anderson; "Modern compressible flow

"Zouccro, Hoffman; "Gas Dynamics

"Shapiro; "Dynamics and Thermodynamics of compressible fluid flow

Evaluation

Final exam: 80%