

SNS College of Technology



(An Autonomous Institution)
19ASE304/ Heat Transfer
Unit - 5

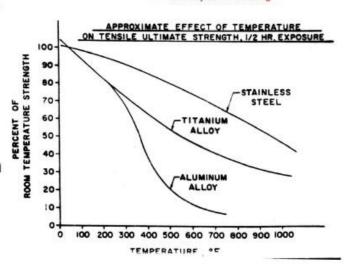


Aerodynamic Heating

- Increased temps = decreased metal strengths
- •As we near Hypersonic speeds the temps are so high that normal materials will melt
- •Research today is in this area with ceramics and composite materials

Compressibility Effects

- Importance of the Speed of Sound
- Realms of Flight
- Supersonic Flow Patterns
- High Speed Airfoils
- Critical Mach Number
- Aerodynamic Heating



Approximate method for conical flow field conditions **NACA TN 2579** Standard atmosphere relations **Polynomials** for enthalpy and viscosity as function of T Caloric imperfect Reynolds analogy oblique shock wave relations St_{cone} = 1.15 St_{flat plate} **NACA 1135**

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