

# **MATSE 259 EXAM 3 REVIEW SESSION**

- 1. Exam Structure: Multiple choice (same as previous exams) , 1 -  $\frac{1}{4}$  hours , 25 questions**
- 2. Please write your student I.D. on the answer sheet (NOT SSN)**
- 3. Please mark your answers clearly**
- 4. Do not leave a question unanswered - there is no negative marking**
- 5. Hand in both question and answer sheets at the end of the exam - the questions will be posted on the website after the last conflict**

# TOPICS

- **CASE HARDENING**
- **JOMINY TEST (HARDENABILITY)**
- **CAST IRONS**
- **CORROSION**
- **POLYMERS**

# CASE HARDENING

- **Steel alloy is exposed to a carbonaceous (usually CO) or nitrogenous (usually NH<sub>3</sub>) atmosphere at elevated temperature so that the “case” becomes carbon or nitrogen rich.**
  - **In nitriding, Fe<sub>2</sub>N forms which is very hard.**
- In carburizing, the alloy is then quenched and tempered to get a hard casing.**
- **In induction hardening, a high frequency AC is used to heat the alloy surface past its austenitizing temperature and the alloy is then quenched and tempered.**