

# Introduction to Refractory Compositions outline

## Lecture 1 (3 hours)

- Introduction to Refractories
- Silica Refractories
  - Raw Materials – Silica
  - Phase Relationships
  - Processing
  - Microstructure/Properties
  - Postmortem Analysis
- Alumino-Silicate Refractories
  - Raw Materials – Alumina-Silica
  - Phase Relationships
  - Processing
  - Microstructure/Properties
  - Postmortem Analysis



## Lecture 2 (3 hours)

- Basic Refractories
  - Raw Materials – Magnesite, Dolomite, Chrome-Magnesite, Fosterite, Spinel
  - Phase Relationships
  - Processing
  - Microstructure/Properties
  - Postmortem Analysis
- Insulating Refractories
  - Insulating Firebrick
    - Processing
    - Microstructure/Properties
  - Insulating Fiber
    - Processing
    - Microstructure/Properties
  - Postmortem Analysis

## Lecture 3 (3 hours)

- Monolithic Refractories
  - Raw Materials – Hydraulic Cement, No Cement, Chemical Binders
  - Phase Relationships
  - Processing
  - Microstructure/Properties
  - Postmortem Analysis
- Non-Oxide Refractories
  - Raw Materials – Carbon, Silicon Carbide, Silicon Nitride
  - Phase Relationships
  - Processing
  - Microstructure/Properties
  - Postmortem Analysis

## Lecture 4 (3 hours)

- Composite Refractories
  - Raw Materials – Magnesia-Carbon, Alumina-Silicon Carbide-Carbon, Alumina-Carbon
  - Processing
  - Microstructure/Properties
  - Postmortem Analysis
- Special Refractories
  - Raw Materials – Zirconia, Zircon, Fusion Cast - Alumina-Zirconia-Silica, Alumina, Alumina-Chrome, Magnesia-Chrome
  - Phase Relationships
  - Processing
  - Microstructure/Properties
  - Postmortem Analysis