Ch: 1 Ceramic Materiales
1-1 Definition and Principles

Ch: 2 Classification of Ceramic Materiales
2-1 Traditional Ceramic
   a- Kaolinites
   b- Montemornites

2-1-1 Crystal structures of traditional Ceramic
   a- Kaolinite crystal structures
   b- Montemornite crystal structures

2-2 Engineering Ceramic
   a- Oxide
   b- Carbide
   c- Chloride
   d- Nitride
   e- Magnetic ceramic
   f- Graphite

2-2-1 Selection and uses of Engineering Ceramic

2-2-2 Properties and behaviours

Ch: 3 Industrial Processing
   a- Raw materials
   b- Crushing
   c- Washing
   d- Sizing (seving)
   e- Size distribution and interfering
   f- Binding
   g- Forming
   h- Drying
   i- Firing

3-1 Forming Technology
   a- Slip Casting
   b- Injection
   c- Extrusion
   d- Cold pressing (uniaxial)
   e- Hot pressing
   f- HIP

Ch: 4 Draying Theories

Ch: 5 Sintering
   a- Theory of sintering
   b- Furnaces Types
Ceramic & composite materials

- Crystal Growth
- Solidification, Close packing and Densification

Ch6: Phase transformation
  - Inversion and Conversion
  - Mager phases and Internal phases properties and applications

Ch7: Physical test and Measurements
  - Metallic test
    - XRD, FRD
  - Thermal expansion (DTA)
  - Porosity measurement
  - Mechanical properties
    - Tensile, Compression
    - Bending, Hardness

Ch8: Composite Materials
  - Matrix Classifications
  - Reinforcement types applications

Ch9: Carbon materials Technology and applications