Course: Introduction to Ceramic Materials **Code:** MEM.017

Credits: 03

Module: Specific formation

Research area: Selection, processing and characterization

Contents:

Classification and applications of ceramic materials. Raw materials for obtaining traditional and advanced ceramics. Processing, drying and sintering of traditional and advanced ceramics. Crystalline structure and phase diagram applied to ceramic materials. Physical, thermal, optical, mechanical properties and tenacification mechanisms. Processing and properties of refractory materials obtained with alumina (Al_2O_3), zirconia (ZrO_2), magnesia (MgO) and silicon carbide (SiC). Raw materials, processing, applications and properties of glassy and cementitious materials.

References:

1. RICHERSON, D. W. **Modern ceramic engineering: properties, processing, and use in design**. 3. ed. New York: CRC Press, 2005.

2. BARSOUM, M. **Fundamentals of ceramics**. New York: Taylor & Francis, 2002. 624 p.

3. REED, J. S. **Principles of ceramic processing**. 2nd ed. New York: John Wiley & Sons, 1995.

4. KINGERY, W. D.; BOWEN, H. K.; UHLMANN, D. R. **Introduction to Ceramics**. New York, John Wiley & Sons, 1976.

5. CHIANG, Y.M.; DUNBAR, P.B.; KINGERY, W.D. **Physical ceramics: principles of ceramic science engineering**. New York: John Wiley & Sons, 1996. 544 p.