

## CERAMIC TECHNOLOGY

### 1.1. Identification

University:	Universidad Politécnica de Valencia											
School:	Escuela Técnica Superior de Ingeniería del Diseño											
Course:	Ceramic technology											
ECTS:	4											
Semester:	<i>Winter</i>					<i>Summer</i>					X	
Category	<i>Fundamental course</i>					<i>Specialisation course</i>					X	
Module	<i>MFI</i>		<i>MFII</i>		<i>MFIII</i>		<i>MSI</i>		<i>MSII</i>	X	<i>MSIII</i>	
Teachers:	Vicente Amigó, Javier Orozco											
Language:	<i>English</i>			<i>Italian</i>			<i>Swedish</i>			<i>Spanish</i>		X

### 1.2. Learning-outcomes

- Development of criteria about the application of ceramic materials
- Understanding ceramic forming processes
- Knowledge on the scientific fundamentals of ceramic properties
- Working knowledge on the relation between ceramic microstructure and processing
- Criteria for selecting and understanding characterization techniques for ceramics

### 1.3. Competencies

#### ▪ General

- To have critical understanding of technical and scientific tools.
- To design, characterize and study materials and their properties.
- To work and manage teams.
- To develop communication skills (both written and oral).
- Well developed interpersonal relationships

#### ▪ Specific

- To select raw materials for a certain process and application.
- To design a whole process from application constraints.
- To analyse and study failure mechanisms in ceramics.
- To have critical understanding process efficiency.

### 1.4. Contents

19. Introduction to Ceramic and Glasses. Design and ceramics selection.
20. Raw materials and their processing.
21. Forming, predensification and densification processes.
22. Drying, firing and sintering.
23. Final shaping, surface finish and joining..
24. Testing, quality control and failure analysis.

### 1.5. Teaching Methodology

- Lecture sessions.
- Case studies from real life.
- Practical sessions: "cooperative or individual work" for solving problems.
- Laboratory sessions.

### 1.6. Evaluation

- Written exams.
- Evaluation of oral/written case study solutions.
- Oral Evaluation of the problems solved by "individual or cooperative work".
- Oral Evaluation of personal laboratory note-book.

### 1.7. Bibliography

- ASM engineered materials handbook, "Volume 4: Ceramics and glasses". ASM International (1991).
- Sacmi Iberica SA, "Tecnología cerámica aplicada". ATC (2004).
- Avgustinik, A.I. "Cerámica". Ed. Reverté (2001).
- Guía de la baldosa cerámica. Consellería de Obras Públicas. Colegio Oficial de Arquitectos de la Comunidad Valenciana. Ascer (1998).
- Padoa, L., "La cocción de productos cerámicos". Ed. Omega (1990).
- Emiliani, T.; Emiliani, E.; "Tecnología dei processi ceramici". Faenza, Ceramurgia (1982).
- Reed, J.S., "Principles of ceramics processing". 2nd ed. New York: John Wiley & Sons (1995).
- Shanefield, D.J., "Organic Additives and Ceramic Processing". Kluwer Academic Publishers (1995).
- Kingery, W.B., "Ceramic Fabrication Processes". New York, John Wiley (1958).