



FEDERAL UNIVERSITY OF CEARÁ
Provost Office of Research and Graduate Studies

COURSE PROGRAM

1. GRADUATE PROGRAM IDENTIFICATION:		
Graduate program in chemistry		
2. COMPONENT TYPE:		
Activity ()	Discipline (X)	Module()
3. LEVEL:		
Master (X) Doctorate (X)		
4. COMPONENT IDENTIFICATION:		
Name:	SOLID STATE CHEMISTRY	
Code:	CEP9455	
Workload:	96h	
Credits:	6	
Optional:	Sim (X)	Não ()
Obrigatory:	Sim ()	Não ()
Área de Concentração:	Físico-Química	
5. FACULTY:		
Alcineia Conceição Oliveira		
6. SYLLABUS:		
Crystalline and metallic states; Solidification, Crystal defects and diffusion in ionic crystal; Non-stoichiometry; Some types of crystal structure: spinel oxides; silicates; ceramic and composite materials; lammelar composites ; glass and new materials ; solid solutions; Interpretation of phase diagrams		
7. PROGRAM /ATIVITY/MODULE:		
<p>Unity I:</p> <ul style="list-style-type: none"> - Crystalline and metallic states; - Crystalline and amorphous states; -Rede espacial e células unitárias; <p>Unity II:</p> <ul style="list-style-type: none"> Solidification, Crystal defects and diffusion in ionic crystal; Non-stoichiometry; -Solidification in monocystal; -Metallic solid solutions; 		

- Crystal defects;
- Kinetic process in solids;
- Atomic diffusion in ionic crystal
- New achievements in materials
- Quasicrystals;
- Fractals.

Unity III: Some types of crystal structure:

- Spinel oxides, silicates, aluminosilicates, perovskites, granades, among others
- Ceramic and composite materials;
 - Lamellar composites
- Glass
- New materials

Unity IV: Solid solutions; and Preparative methods of materials

Characterization techniques

Interpretation of phase diagrams

8. EVALUATION FORM:

Exams, seminar and activities

9. BIBLIOGRAFY:

Básic

- Lesley S., Moore E., Solid State Chemistry: An Introduction, 4th Edition, CRC Press, 2012.
- West A. R., Solid State Chemistry and its Applications, 2nd Edition, Wiley, 2014.

Complementar

- West A. R., Basic Solid State Chemistry, 2nd Edition, Wiley, 1999.
- Rao C. N. R., Gopalakrishnan J., New Directions in Solid State Chemistry, Cambridge University Press, 2nd Edition, 2010.
- Franzen H.F., Physical Chemistry of Inorganic Crystalline Solids, Springer-Verlag, Berlin/Heidelberg etc, 1986.
- Klug, H.P.; Alexander, L.E. X-Ray Diffraction Procedures for Polycrystalline and amorphous materials John Wiley & Sons 2nd Edition, 1974.
- Glusker, J.P.; Trueblood, K.N. Crystal Structure Analysis A Primer Oxford University Press - 2nd Edition, 1985.
- Artigos científicos