FEDERAL UNIVERSITY OF CEARÁ
Provost Office of Research and Graduate Studies

COURSE PROGRAM

1. PROGRAM:	
Program	GRADUATE PROGRAM IN CHEMISTRY
2. COMPONENT TYPE:	
Activity ( )	**Course (X)** **Module ( )**
3. LEVEL:	
Master´s Degree (X)	Doctorate (X)
4. COMPONENT IDENTIFICATION:	
Name:	CHARACTERIZATION OF POLYMERS IN SOLUTION
Code:	CEP9111
Hours:	96
Credits:	6 (4T e 2P)
Optional course:	Yes (X) No ( )
Compulsory course:	Yes ( ) No (X)
Area:	There are no mandatory concentration areas for the discipline
5. PROFESSOR:	
Profa. Judith P. Andrade Feitosa Profa. Nágila M. Pontes Silva Ricardo	
6. ABSTRACT:	
Properties of polymers in solution. Thermodynamics of polymeric solutions. Solubility. Techniques for molar mass determination by analysis of end groups, colligative properties, light scattering, gel permeation chromatography and viscosity. Superficial tension. Specific properties of polyelectrolytes in solution and rheology.	
7. COURSE PROGRAM:	
1. Introduction 2. Configuration and conformation of polymer chains. 3. Characteristic dimensions. Thermodynamics of polymeric solutions, 4. FloryHuggins Theory, Phase Equilibrium, Fractionation, Flory-Krigbaum Theory, 5. Theta temperature and its location, 6. Critical solution temperatures, 7. Solubility parameters. 8. Techniques for Determination of Molar Mass by Viscosity, Gel Permeation Chromatography, Vapor Pressure, Osmosis, Light Scattering. 9. Rheology, 10. Surface tension 11. Polyelectrolytes	

8. EVALUATION PROCESS:

Theoretical evaluation, reports and seminars.
Frequency equal to or greater than 75%

9. BIBLIOGRAPHY:

1. de Paula, R.C.M.; Paula, H. C. B.; Feitosa, J. P. A. (Org.) . Polissacarídeo da Biodiversidade Brasileira. 1. ed. Fortaleza: Imprensa Universitária UFC, 2018. 335p .
2. Dumitriu, S (ed). Polysaccharides-Structural diversity and functional versatility, Maercel Dekker, 2005 .
3. Stephen, A.M.; Phillips, G.O. and Williams, P.A. Food Polysaccharides and their applications. CRC- 2006.
4. Heinze, T. Polysaccharides I: In Adavnace in Polymer Science. Vol 186, Springer, 2005.
5. Kennedy, J.F; White, C.A., Bioactive carbohydrates. Ellis Horwood Limited- 1983.