



**FEDERAL UNIVERSITY OF CEARÁ**  
**Provost Office of Research and Graduate Studies**

COURSE PROGRAM

<b>1. PROGRAM:</b>	
Program	GRADUATE PROGRAM IN CHEMISTRY
<b>2. COMPONENT TYPE:</b>	
Activity ( )	Course ( X )      Module ( )
<b>3. LEVEL:</b>	
Master's Degree ( X )	Doctorate ( X )
<b>4. COMPONENT IDENTIFICATION:</b>	
Name:	POLYMERIZATION MECHANISM AND KINETICS
Code:	CEP9133
Hours:	96
Credits:	6
Optional course:	Yes (X)                      No ( )
Compulsory course:	Yes ( )                      No (X)
Area:	There are no mandatory concentration areas for the discipline
<b>5. PROFESSOR:</b>	
Profª. Nágila Maria Pontes Silva Ricardo	
<b>6. ABSTRACT:</b>	
Study of the mechanisms and kinetics of chain and step polymerization reactions. Polymerization processes. Degradation reactions Linear, branched and crosslinked polymers. Elastomers, fibers and plastics.	
<b>7. COURSE PROGRAM:</b>	
1. Introduction. 2. Classification of polymerization processes in steps a) Characteristics of step polymerization b) Factors affecting step polymerization c) Mechanism and kinetics 3- Chain polymerization a) Chain polymerization via free radicals b) Ionic polymerization c) Mechanism and kinetics 4 - Ring opening polymerization a) General principles 5 - Copolymerization a) copolymer composition b) ionic and radical copolymerization. 6 - Polymerization processes	

- a) Bulk polymerization
  - b) Solution polymerization
  - c) Suspension polymerization
  - d) Emulsion polymerization
- 7- Polymer stereochemistry
- a) types of isomerism
  - b) properties of stereoregular polymers,
  - c) stereoregular polymerization reactions
- 8 - Degradation
- a) Depolymerization (or depolymerization)
  - b) Thermal
  - c) Attack on side groups

#### **8. EVALUATION PROCESS:**

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

#### **9. BIBLIOGRAPHY:**

-Principles of Polymerization, Fourth Edition George Odian ISBN 0-471-27400-3 Printed in the United States of America, 2004.

-Monitoring Polymerization Reactions, Wayne F. Reed, ISBN: 9780470917381, 2014

-Synthetic Methods In Step Growth Polymers, Edited by Martin E. Rogers and Timothy E. Long, John Wiley, ISBN13 9780471387695, 2003