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**SYLLABUS**

**DIVISION:** Workforce Services

**Revised: Spring 2015**

**CURRICULA IN WHICH COURSE IS TAUGHT:** Polymer Manufacturing Technology

**COURSE NUMBER AND TITLE:** IND 295 Polymeric Materials (3 Credits)

**CREDITS:** 3

**HOURS/WEEK LECTURE:** 3

**HOURS/WEEK LAB:** 0

**LECTURE/LAB COMBINATION:** 3 (0)

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**I. COURSE DESCRIPTION:**

This is designed to provide the student with an understanding of polymeric material. Topics include natural polymers, polymer synthesis, polymer morphology, inorganic polymers, ionomers and polymeric materials applications.

**II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES IN WHICH IT IS TAUGHT:**

Required in the Polymer Manufacturing program

**III. REQUIRED BACKGROUND:** Basic understanding of polymeric materials or department approval

**IV. COURSE CONTENT / COURSE OUTLINE:**

Introduction  
Nature of Polymeric Materials  
Basic Definitions  
Classifications of Polymers and Polymer Synthesis  
Mechanisms of Polymerization: Growth and Kinetics  
Co-polymers  
Bio and Inorganic Polymers  
Ionomers and Composite Materials  
Molecular Imprinting  
Molecular Weight Determination  
Thermal Analysis  
Spectroscopic Methods  
Viscoelasticity and Rheology

**V. LEARNER OUTCOMES:****VI. EVALUATION:**

The student will: Gain an understanding of polymer synthesis and be able to choose polymers appropriate applications  Determine how reaction kinetics influence polymer properties  Understand the ties between morphology and projects  Review methods of polymer characterization	Combination of attendance, participation, quizzes, homework, projects and test.
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**The course supports the following objectives:**DCC Educational Objectives

1. Communication
2. Critical Thinking
3. Computational and Computer Skills
4. Understanding Culture and Society