



Course Syllabus

Department/Faculty School of Engineering
Graduate Program Materials Engineering and Nanotechnology
Degree <input checked="" type="checkbox"/> Academic Master's <input checked="" type="checkbox"/> Doctorate (PhD) <input type="checkbox"/> Professional Master's
Course Name Polymer Blends and composites
Professor(s)
Office hours 48
Course Overview This course aims to understand the concepts of the polymeric materials area applied to blends and polymeric composites. Among other things, the theory, methods of characterization, processing and prediction of properties for both materials will be explored. This discipline has as main objective to provide the necessary information for the students to understand the physical and chemical phenomena that involve the synthesis, processing and characterization of blends and polymeric composites.
Topics outline 1.1 Introduction of polymeric blends 1.2 1.2 Thermodynamic of polymeric blends 1.3 Crystallization, structure and melting of polymeric blends 1.4 Interface and compatibilization by compatibilizing agent 1.5 Reactive compatibilization of polymeric blends 1.6 Interpenetrating Polymeric Networks 1.7 Rheology of polymeric blends 1.8 Morphology of polymeric blends 1.9 Composition of polymeric blends 1.10 Formation of polymeric blends 1.11 Properties and performance of polymeric blends 1.12 Fundamental Concepts on Composites 1.13 Mechanical Behavior of Polymeric Composites 1.14 Reinforcements in Polymeric Composites 1.15 Interfaces in Polymeric Composites 1.16 Coupling Treatment 1.17 Polymeric Composite Fabrication Processes 1.18 Characterization of Polymeric Composites 1.19 Polymeric Composites based on two-dimensional loads 1.20 Equations for property predictions.

Updated on 15/10/2018



Letter Grade Assignment

Grade A (Excellent) - Grade points between 9 and 10

Grade B (Good) - Grade points between 8 and 8.9

Grade C (Satisfactory) - Grade points between 7 and 7.9

Grade D (Unsatisfactory) - Grade points between 0 and 6.9

Texts, Materials, and supplies

DELHAES, P. Fibers and composites. London: CRC Press, 2003.

GERDEEN, J. C.; LORD, H. W.; RORRER, R. A. L. Engineering design with polymers and

composites. London: CRC Press, 2005.

MILTON, G. W. The theory of composites. New York: Cambridge, 2002.

RUDD, C.D. Composites for Automotive Applications. Rapra Review Reports. v. 11, n.6, Report

126, 2001.

UTRACKI, L. A. Polymer blends handbook. Netherlands: Kluwer Academic, 2003.

UTRACKI, L.A. Polymer Blends. Rapra Review Reports. v. 11, n.3, Report 123, 2000.

VASILE, C. and KULSHRESHTHA, A.K. Handbook of Polymer Blends and composites. UK:

Rapra Technology, 2003.

WESTON, N. E.; WALLEMBERGER, F. T. Natural fibers, plastic and composites.

Netherlands:

Kluwer Academic, 2003.