Course Policies and Procedures - Spring 2012*

Course Timing: Tuesdays and Thursdays, 2:10 p.m. - 3:30 p.m.
Location: Howe 1304
Instructor: Dr. Michael Kessler,
2220X Hoover/3053B Gilman Hall
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Office Hours: Open door policy (except right before class) and by appointment

Course Description:
This course will cover basic concepts in polymer composites, including phase separation and miscibility, microstructures, and mechanical behavior. The first third of the course will focus on polymer blends with an emphasis on polymer-polymer miscibility. The second third of the course will focus on fiber reinforced and laminated composites. The final third of the course will cover techniques of polymer processing and materials selection. Coverage of polymer melt processing methods such as injection molding and extrusion and selection of suitable processing methods and their applications will be included. Prerequisites: Mat E 351.

Text Books:
Mat E 454/MSE 554 Coursepack which contains the following material:


References:

* Schedule and assignments are subject to change.
Preliminary Course Schedule:
1. Introduction to Polymer Composites
2. Basic Concepts in Multicomponent Polymer Materials
3. Modeling Multicomponent Behavior and Micromechanics
4. Phase Continuity and Phase Diagrams
5. Polymer Solubility and Thermodynamics of Mixing
6. Fracture Behavior

MIDTERM EXAM ……………. - Thurs., February 23, 2011

7. Constituent Materials in FRPs
8. Composite Laminates
9. Laminated Plate Theory for FRP
10. Polymer and Composites Processing
11. Graduate polymer processing presentations

FINAL EXAM ……………….… - Fri., May 4th, 9:45– 11:45 a.m. (Tentative)

Grading Policy (Mat E 454 - undergraduate):
- Homework: 10%  A– (90.1-93.0), A (93.1-100),
- Midterm Exam: 30%  B– (80.1-83.0), B (83.1-87.0), B+ (87.1-90.0)
- Final Exam: 40%  C– (70.1-73.0), C (73.1-77.0), C+ (77.1-80.0)
- Quizzes: 5%  D– (60.1-63.0), D (63.1-67.0), D+ (67.1-70.0)
- Attendance and Participation: 5%  F (Below 60.0%)
- MathCAD Lamination Project: 10%

Grading Policy (MSE 554 - graduate):
- Homework: 5%  A– (90.1-93.0), A (93.1-100),
- Midterm Exam: 25%  B– (80.1-83.0), B (83.1-87.0), B+ (87.1-90.0)
- Final Exam: 35%  C– (70.1-73.0), C (73.1-77.0), C+ (77.1-80.0)
- Quizzes: 5%  D– (60.1-63.0), D (63.1-67.0), D+ (67.1-70.0)
- Attendance and Participation: 5%  F (Below 60.0%)
- MathCAD Lamination Project: 10%
- Processing Paper/Presentation: 15%

Note:
- A total of 6-12 homework assignments will be given. Late submissions will be accepted only in very exceptional circumstances.
- Short 5-10 minute quizzes will be given periodically during the course. These quizzes may cover assigned readings and homework.
- Students who are taking this course for graduate credit (MSE 554) will be assigned a project paper on the topic of polymers or composites processing and subsequent presentation to be presented to the whole class that will account for 15% of their total grade.
**Academic Misconduct:**
All students are expected to practice and display a high level of personal and professional integrity. During examinations each student should conduct himself in a way that avoids even the appearance of cheating.

Any homework or computer assignment must be entirely the students' own work. Consultation with other students is acceptable; however copying homework from one another will be considered academic misconduct.

Any academic misconduct will be dealt with under the policies of the College of Engineering. The result could be a failing grade and/or dismissal.

**Note:**
- This course will NOT follow any one textbook since an adequate book which covers all the necessary material does not exist. The required book chapters by Sperling, Adams et al., and Daniel are the most useful. The reference texts also contain good treatments of a number of the topics to be covered, and I encourage you to read appropriate sections of them. HOWEVER, the best resource for learning will be CLASS LECTURES. Some lectures will cover material not in any of the required or reference texts. Many lectures will present material in a different manner (hopefully clearer) than covered in the texts. Thus, it is very important to REGULARLY ATTEND CLASS and TAKE GOOD NOTES. I will also give some handouts and copies of partially completed notes containing some of the information covered in the lecture. **Your prime responsibility will be for what is covered in class and in the homework. All exams will be based on this, so class attendance is essential.**
- Students are encouraged to ask questions and participate in lectures and discussions to make the learning process lively and enriching.
- Neatness and clarity of presentation will be given due consideration while grading homework and exams.
- Please leave all cell phones and electronic communication devices turned off and put away during class.
- If you have a disability and require accommodations, please contact the instructor early in the semester so that your learning needs may be appropriately met. You will need to provide documentation of your disability to the Disability Resources (DR) office, located on the main floor of the Student Services Building, Room 1076, 515-294-7220.
- The policy of the University regarding withdrawals and incomplete will be adhered to strictly. The instructor may be consulted for any clarifications regarding this course and related academic matters.