ME306 Materials Science

Fall 2016

Course Syllabus

REFERENCE TEXT BOOK

Donald R. Askeland and Pradeep P.Fulay, "Essentials of Materials Science and Engineering", Second Edition, *Cengage Learing,* 2009

SUPPLEMENTARY REFERENCES ON RESERVE

1. James F. Shackelford, "Introduction to Materials Science for Engineering, *Pearson (Prentice Hall*), Sixth Edition, 2005
2. William D. Callister Jr., and David G. Rethwisch "Materials Science and Engineering, An Introduction", Eight Edition, *John Wiley and Sons, Inc*., 2010

CLASS SCHEDULE

Lecture: Classroom PHO 205; Tuesday and Tuesday 8:00 – 10:00
Discussion: Room PHO 205, Friday 1:00 – 2:00
Laboratory: EPIC 105/102 Design Studio One

INSTRUCTOR

Professor: V. K. Sarin (Tel.: 617-353-6451, e-mail: sarin@bu.edu)
Office: Room 208, 730 Commonwealth Ave.
Office Hours*: Wednesday 10:00 – 12.00 pm

**Other appointments must be scheduled in advanced.*

GTF: Ahmet Kirlioglu <ahmetcan@bu.edu>
Office: 15 St Mary's Street, Room 121

GRADING

There will be two examinations as noted in the schedule. Each will cover approximately 1/2 of the course and will account for 35% (each) of the total grade.

There will be approximately 10 homework assignments (10%) handed out in class. These will be due in class on the due date stated on the assignment. Late submissions will not be graded.

A comprehensive safety training session will be conducted on the first week of laboratory classes and all students are required to attend this session before being allowed to conduct experiments. Five scheduled laboratory experiments will be conducted Laboratory reports are due at the next scheduled laboratory session, except for the last one (see schedule). Late reports will not be graded. The total laboratory grades will account for 5% of the final grade.

A group project (2/3 people) will account for the remaining 15% of the final grade. A pre-proposal, outlining the design of your experimental work and the objective of your project, needs to be submitted before you can begin project related experiments. An intermediate project report (Introduction, including a detailed Literature Review, and Experimental Design) are due prior to the final report submission as detailed in the laboratory schedule. The group project will require a final oral presentation and submission of a typed final report.

Grading Summary:

First Exam	35 %
Second Exam	35 %
Homework	10 %
Laboratory Report	5 %
Project/ Labs	15 %

COURSE TOPICS

LECTURE SCHEDULE (SPRING 2015)

Class	Day	Month	Date	Comments
1	Tuesday	September	6	Introduction
2	Thursday		8	Homework 1
3	Tuesday		13	
4	Thursday		15	Homework 2
5	Tuesday		20	
6	Thursday		22	Homework 3
7	Tuesday		27	
8	Thursday		29	Homework 4
9	Tuesday	October	4	
10	Thursday		6	Homework 5
11	Tuesday	Monday Classes	11	
12	Thursday		13	Homework 6
13	Tuesday		18	**EXAM 1**
14	Thursday		20	
15	Tuesday		25	
16	Thursday		27	Homework 7
17	Tuesday	November	1	
18	Thursday		3	Homework 8
19	Tuesday		8	
20	Thursday		10	Homework 9
21	Tuesday		15	
22	Thursday		17	Homework 10
23	Tuesday		22	
	Thursday	Thanksgiving Break	24	Homework 11
24	Tuesday		29	
25	Thursday	December	1	Project Presentations
26	Tuesday		6	Project Presentations
27	Thursday		8	**EXAM 2**

LABORATORY SCHEDULE

1. Sept. 19 – Sept.23	**Lab Safety/Metallography Demo**
2. Sept. 26– Sept. 30	**Microstructural Characterization** Assignment: Lab Report (Due 10/7)
3. Oct. 3 – Oct. 7	**Structural Analysis by X-Ray** Assignment: Lab Report (Due 10/14)
4. Oct. 11 – Oct. 14	**Project Discussion** (Monday Holiday)
5. Oct. 17 – Oct. 21	**Diffusion / Solid Solution** Assignment: Lab Report (Due 10/28)
6. Oct. 24 – Oct. 28	**Project Set-up**
7. Oct. 31 – Nov. 4	**Projects**
8. Nov. 7 – Nov. 11	**Phase Diagrams** Assignment: Lab report (Due 11/18)

PROJECT SCHEDULE

1. Oct. 6 (In Lecture)	**Pre-proposals due**
2. Oct. 11 – Nov. 30	**Project work**
3. Dec. 12	**Final project reports due**

NOTE:

1. All labs meet in EPIC 102 Design Studio One.
2. Lab reports are to be turned in to Mechanical Engineering front desk reception by 4pm on due date (110 Cummington Mall, First Floor). Late reports will not be accepted.
3. Unless previously arranged with the GTF, you are not allowed to attend other lab sections.