

**COMMONWEALTH GRADUATE ENGINEERING PROGRAM
DISTANCE LEARNING COURSE PLANNING SHEET
UNIVERSITY OF VIRGINIA**

Course MSE 734 – Phase Transformations Semester Spring 2005

Instructor Gary J. Shiflet Phone No. 434-982-5653

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Textbook(s): (Student to purchase)

The text will be a set of notes from the University of Virginia Bookstore. The instructor will announce when the notes are available. To purchase, call 434-924-1066 and request course notes for MSE 734

Reference(s): (To be put on library reserve) - Limit 4

Computer Needs:

Microcomputer
Capability _____

Software required? _____ Provided? _____

Other _____

MSE 734 - PHASE TRANSFORMATIONS (*Spring 2005 – 3 credits*)

Description:

This class will cover the fundamental theory of diffusional phase transformations in solid metals and alloys. The class will be based on application of thermodynamics to the calculation of phase boundaries and driving forces for particular transformations. Covered in detail will be the theory of solid-solid nucleation, diffusional growth, and comparison of both theories with experiment. Application of thermodynamics and nucleation and growth theory will then be applied to precipitation from solid solution, the massive transformation, the cellular and the pearlite reactions, martensite transformations and the role of shear therein.

Instructor:

Gary J. Shiflet; Phone: 434-982-5653; Email: gjs@virginia.edu

Lecture Time:

Tuesday/Thursday, 6:30-7:45 p.m.

Text:

Lecture notes available from the UVA Bookstore – 434-924-1066

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GARY J. SHIFLET

Dr. Shiflet has been a faculty member in SEAS since 1980. Dr. Shiflet's primary interests are in solid-state phase transformations of metal alloys and concerns thermodynamics, nucleation and the kinetics associated with growth of new phases. He has published more than 200 papers. He holds several patents concerning various amorphous metal alloys. He has been awarded two creativity awards from the National Science Foundation, the ASM Research Award and has been elected as a Fellow of the American Society for Materials and Japan Advancement of Science and was selected as Scientific American 50 for 2004. He is a member of The Metallurgical Society of AIME and the American Society for Materials.