

POLYMER NEWS

Summer Courses

The Massachusetts Institute of Technology Department of Mechanical Engineering announces 4 special summer courses in textiles and fibers intended for personnel in government agencies and in other universities. Key speakers are expected to participate in each week-long session. It is hoped to present an authoritative state-of-the-art review, subject by subject. A general announcement of each course is given below.

Applied Mechanics of Fibrous Structures, Monday, July 29–Friday, August 2

Paper, cordage, woven cloth, nonwovens, composite materials, laminates, knit fabrics, all constitute fiber systems whose general mechanical behavior can be anticipated from techniques of applied mechanics.

This Program will review recent research on the mechanical behavior of fibrous materials as influenced by rheological properties of the fibers, by structural geometry, and by interaction between system components—fiber-to-fiber, or fiber-to-matrix. Specific attention will be devoted to the translation of fiber modulus into tensile stiffness, flexural rigidity, bending recovery, and shear rigidity of the assembly. The initiation of structural failure and the propagation of rupture will be considered, as well as the varying modes of structural deformation.

The Program is directed towards the researcher in the fiber, textile, paper, or material composites industry. The principal lectures will be given by Professor Percy Grosberg of Leeds University, Dr. John W. S. Hearle of Manchester University, and Professors Stanley Backer and Charles A. Berg of the M.I.T. Department of Mechanical Engineering. Industry and government research engineers will contribute coverage in special topics. *Tuition \$250.*

Dynamics of Textile Processing, Monday, August 5–Friday, August 9

Greater speeds, higher material throughput, and entirely new fiber properties have upset accepted standards for efficient textile production, and considerable research on processing is necessary to take advantage of these improvements.

This Program presents a review of recent research on both old and new textile processes, emphasizing the mechanics of the processing in terms of general machine variables, material properties, and the interactions between fiber and process, rather than in terms of specific machines or devices.

The Program is intended for engineers and technologists who seek a deeper insight into the physical nature of textile processing from the viewpoint of production or product improvement. Lectures will be given by Professor Percy Grosberg of Leeds University, Professor John W. S. Hearle of Manchester University, and Professor Stanley Backer of the M.I.T. Department of Mechanical Engineering. Visiting lecturers from industry will participate. *Tuition \$250.*

Structure and Mechanical Properties of Fibers and Semicrystalline Polymers, Monday, July 15–Friday, July 19

A survey of recent developments in studies of polymer structure and mechanical behavior. Introductory lectures will include a chemical, physical, and mechanical classification of amorphous and semicrystalline polymers. Topics to follow will include a contrast between the phenomena of vitrification and crystallization; polymer crystallization from solution and melt and recrystallization during annealing; morphology of

semicrystalline polymers; theory of linear viscoelastic behavior and its application to the systematic treatment of mechanical properties; nonlinear mechanical behavior of amorphous and semicrystalline polymers; drawing of polymers; fiber morphology; fracture; optical studies of polymers undergoing deformation.

The Program is intended for chemists, physicists, and engineers who seek to understand fundamentals of fiber formation, as well as their fine structure and basic mechanical properties.

Lectures will be given by Professor Ioannis V. Yannas and Dr. Emery I. Valko of the M.I.T. Department of Mechanical Engineering, by Professor John W. S. Hearle of Manchester University, and by speakers from industry. *Tuition \$250.*

Performance Characteristics of Textile Materials, Monday, July 22-Friday, July 26

A new textile technology is evolving for both the consumer and product developer. Fabric performance can no longer be predicted from past experience when so many current products are comprised of new or radically modified fibers, when new finishes dominate behavior, or when entirely new cloth fabrication systems are used.

This short Program will survey new fiber materials, textile finishes, and manufacturing processes, and will consider their influence on textile product performance. Discussion of recent developments will be related to fundamentals of fiber, yarn, and fabric mechanics so as to provide a coherent picture of the new textile technology.

The Program is intended for textile researchers, for home economics faculty, for testing laboratory technologists, and for product development technologists in industry and in government.

Lectures will be given by Professor Stanley Backer and Dr. Emery I. Valko of the M.I.T. Department of Mechanical Engineering and by invited speakers from industry and from other universities. *Tuition \$250.*

For more detailed information on any of the Summer Session Office Programs, write to the Director of the Summer Session.

UCLA Announces Two Short Courses on Polymers

High Polymers, May 27-31, 1968

Intended for physical scientists either unfamiliar with polymers or wishing to broaden their background, presents fundamentals of polymer science in areas of chemistry and physics. The course covers mechanisms of polymerization; rubber elasticity; emulsion polymerization; the glass transition and the glassy state; vitrification; viscoelasticity; crystallinity in polymers; and polymer solutions.

Applied Polymer Science, June 3-7, 1968

Intended for those involved in the synthesis, characterization, and evaluation of new and existing polymers, covers practical aspects of the synthesis of useful high molecular weight polymers and the measurement and interpretation of the physical and mechanical properties most important for their characterization and utilization.

The courses are being presented at UCLA under the sponsorship of University of California Extension, Los Angeles, by Dr. Adi Eisenberg (Associate Professor, Department of Chemistry, McGill University, Montreal, Canada), Dr. Maurice Morton (Professor of Polymer Chemistry and Director, Institute of Polymer Science, University of Akron, Akron, Ohio), Dr. Robert W. Lenz (Associate Professor, Department of Chemical Engineering and Polymer Science, University of Massachusetts, Amherst, Massachusetts), and distinguished guest lecturers.

The first course provides a useful preparation for the second. However, the two are independent and may be taken separately. The fee for the combination of both courses is \$375; for either course alone, \$275.

For a detailed course brochure write to Engineering/Physical Sciences Extension, 6532 Boelter Hall, University of California, Los Angeles, California 90024.