UNIVERSITY OF SOUTHERN CALIFORNIA
OFFERS FOUR OUTSTANDING
CONTINUING ENGINEERING EDUCATION SHORT COURSES

1 MICROCOMPUTERS SYSTEMS DESIGN I: HARDWARE, SOFTWARE & APPLICATIONS

PURPOSE: Introduce available microcomputer systems, software aids to design process, technology trends.

SELECTED TOPICS: Microprocessor Architecture; Microprocessor building blocks including CPU's, RAM's, ROM's, PROM's; I/O's; I/O including signal converters, displays, keyboards, Modems, printers, floppy disks; Microcomputer applications including aircraft navigation, point of sale terminals, digital communications, control systems, automobile electronics, telecommunications; Software aids including assemblers, editors, compilers and simulators; Survey of available microcomputers.

COORDINATORS AND LECTURERS: Dr. John P. Hayes (USC); Dr. Richard K. Smyth (Milo International); Mr. Gordon H. Smith (Rockwell International); Dr. Arthur Y. Arellanes (Cal-State Polytechnic at Pomona).

DATES: March 3-7, 1975
FEE: $345.00

2 MICROCOMPUTERS SYSTEMS DESIGN II: PROGRAMMING & APPLICATIONS WORKSHOP

PURPOSE: To familiarize the participant with microcomputer applications through a workshop experience.

SELECTED TOPICS TO BE COVERED: The use of programming aids for microcomputer software development including assemblers, timesharing computer terminals, editors, compilers, microprograms, loaders, and debuggers for microcomputers; Use of hardware/software assemblers for software development, validation of program using RAM's, editing, burn-in of PROM's, simulations with timeshare support software; Software user library subroutines with illustrative examples; Operational microcomputer program; Programming for fast real time applications, memory and speed requirements; Microcomputer laboratory; Programming of real problems using actual microcomputer hardware and software assemblers, and timeshare terminals.

COORDINATORS AND LECTURERS: Same as in course 1.

DATES: March 10-14, 1975
FEE: $345.00

3 MODERN MEDICAL COMPUTER IMAGE PROCESSING

PURPOSE: To provide an intensive introduction to modern techniques for medical image processing. An introduction to computer image processing, pattern recognition, segmentation, and performance measures of imaging systems will be given. Particular emphasis will be devoted to modern techniques, equipment and application which promise to produce a significant improvement in medical care through graphs, Computerized Transaxial Tomography, Quantitative Measurements in Cardiology, Electron Radiography, Automated Chromosome Analysis, Microscopic and Electron Microscopic Applications, Ultrasonic Imaging and Acoustical Holography.

COORDINATORS AND LECTURERS: Dr. Ernest L. Hall (USC); Dr. Richard P. Kruger (USC); Dr. Kenneth R. Castlemain (JPL and Cal-Tech); Dr. C. Metz (Univ. of Chicago); Dr. E. Phillip Mantz (USC); Mr. Robert H. Siezer, M. S. (JPL and Cal-Tech); Dr. G. Wade (Univ. of California, Santa Barbara).

DATES: March 26-28, 1975
FEE: $275.00

4 PRESENT AND FUTURE APPLICATION OF CHARGE-COUPLED DEVICES FOR MEMORY SIGNAL PROCESSING & IMAGING

PURPOSE: To furnish the practitioner with the concepts, applications, and a technical projection of Charge-Coupled Devices (CCD's). Applications to be explored are memory (volatile and non-volatile), signal processing (analog filters and data format conversion), and solid state videocons (visible and infrared). Furthermore, the implications of the charge transfer concept to reduced power consumption, noise, circuit complexity and cost will be presented. The course will conclude with a laboratory tour.

SELECTED TOPICS TO BE COVERED: Device Operations; Electrical Character of Epi-layers; Visible Imaging; Infrared Imaging Flash Detection; Device Noise; Analog Signal; Digital Memory; Technology Projection, and Department of Defense Perspective.

COORDINATORS AND LECTURERS: Dr. Richard D. Nelson (Rockwell International); Dr. Barry T. French (Rockwell International); Dr. Kurt Lehovac (USC); Dr. Dave Barbe (Naval Research Laboratory, Washington, D. C.); Dr. Dennis Buss (Texas Instruments).

DATES: February 24-28, 1975
FEE: $345.00

5 ADVANCED COMPUTER MEMORY TECHNOLOGY

PURPOSE: To provide a comprehensive review of the latest advances in device and material technologies for computer memory.

SELECTED TOPICS TO BE COVERED: Computer memory architecture; Bipolar and MOS memory devices; Charge-coupled memory devices; magnetic storage technologies (bubble domain devices, ferromagnets, magnetic disks and tapes); Fabrication technologies (ion implantation, ion milling, sputter etching, projection masking, e-beam lithography); Memory applications.

DATES: March 31-April 4, 1975
FEE: $345.00

OTHER CONTINUING ENGINEERING EDUCATION COURSES OFFERED BY USC:

ENERGY ALTERNATIVES: SOURCES, SUPPLY-DEMAND, AND FUTURE PROJECTIONS

SUMMER, 1975

COMPUTER SCIENCE:
- Modern Techniques for the Design of Reliable Software.
- Introduction to Designing Assemblers, Compilers, etc.
- Design Automation of Digital Systems.
- Diagnosis & Reliable Design of Digital Systems.
- Design & Analysis of Efficient Algorithms.
- Present and Future Application of Charge-Coupled Devices for Memory, Signal Processing & Imaging.
- Advanced Computer Memory Technology.

IMAGE PROCESSING:
- Pattern Recognition.
- Optical Information Processing.
- Image Processing Concepts.
- Advanced Topics in Image Processing.

MATERIALS SCIENCE:
- M-N-D5 Memory Devices.
- Laser Safety.
- Laser Material Processing.

For further information or these and other Engineering short courses, write:
Dr. R. S. Kashef, Director
Continuing Engineering Education
Powell Hall 212, University Park
Los Angeles, California 90007
or telephone (213) 746-6708

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