January 1976

Graduate Courses in Systems Engineering

Wright State University

Graduate Courses in Systems Engineering

Fall Quarter 1976-77 | Wright State University | Dayton, Ohio | 7/76/1.5M

Wright State University
Dayton, Ohio 45431

Nonprofit Organization
U.S. Postage Paid
Permit No. 551
Dayton, Ohio 45401

Graduate Program

The Department of Engineering at Wright State University offers a graduate program in systems engineering leading to the Master of Science degree. This is a versatile program designed to enable the engineer to solve complex problems in the systems or controls areas. Either a thesis or a nonthesis option may be followed.

Graduate Courses The graduate courses in engineering which are scheduled for the fall quarter (September 16-December 4) are described elsewhere in this brochure. These courses may be of interest to *nondegree* students as well as degree students.

Registration Registration for the fall quarter will continue through September 13. To register for graduate credit, as either a degree student or a nondegree student, it is necessary to be admitted to the School of Graduate Studies. For a fall schedule and additional information about admission, call the Admissions Office at 873-2214.

Courses in Systems Engineering

611 Advanced Dynamics 4 credit hours
Kinematics and kinetics in three dimensions; coordinate and vector transformations; general rigid body motion, principal axes of inertia; Eulerian angles, Lagranges equations. Application to inertial systems.
Prerequisite: EGR 213
Text: Applied Mechanics; More Dynamics by Smith
Instructor: Professor George R. Spalding, Systems Engineering, 873-2458

621 Communication Theory 5 credit hours
The analysis of linear systems by the Fourier transform and the time convolution integral methods. Introduction to information theory. Comparative evaluation of various analog and pulse modulation techniques. Selected topics from radar theory and electro-optics as well as an introduction to random process theory.
Prerequisite: EGR 322
Text: Information Transmission, Modulation, and Noise by Schwartz
Instructor: Professor Richard J. Bethke, Systems Engineering, 873-2187

623 Energy Conversion 4 credit hours
Study of important new developments in the field of energy conversion. Thermoelectric, photoelectric, thermionic, electromechanical, and electrochemical systems will be studied.
Prerequisite: EGR 315, EGR 322
Text: Energy: Conversion and Utilization by Krenz
Instructor: Professor Billy W. Friar, Systems Engineering, 873-2403

641 Electronic Circuits 4.5 credit hours
Theory and application of basic engineering electronics developed for discrete and integrated circuits. Topics include bipolar and field effect transistor amplifier analysis and design, frequency response, multi-stage and feedback amplifiers.
Prerequisite: EGR 341
Text: Electronic Fundamentals and Applications by Ryder
Instructor: Professors George Hankins and William S. McCormick, Systems Engineering, 873-2990, 873-2849

699 Special Topics in Bioengineering–Bioinstrumentation 3 credit hours
Basic electrical principals underlying instrumentation for the fields of biology, psychology, physiology and medicine. Simple circuits, instrumentation systems and transducers with application to biomedical problems. The course will include an elementary review of physiological systems where necessary.
Prerequisite: EGR 341 and 441; or 405; 403 suggested but not required.
Text: Biomedical Instrumentation and Measurements by Cromwell, et al.
Instructor: Professor Chandler A. Phillips, Systems Engineering, 873-2732

701 Linear Systems I 3 credit hours
Signal representation. Orthonormal families of signals and generalized Fourier Series. Generalized functions, the impulse function. Calculus of generalized functions. Superposition and convolution of signals. The Fourier transform. Sampled and periodic signals and their associated spectra. Time limited and band limited signals—sampling theorems, uncertainty principle.
Prerequisite: EGR 321, 322.
Text: State Variables for Engineers by DeRusso, Roy, and Close
Instructor: Professor George R. Spalding, Systems Engineering, 873-2458

750 Switching and Finite Automata Theory I 3 credit hours
The analysis and synthesis of finite state systems including the following: Definition and representation of finite automata and sequential machines. State transition diagrams and state table. Machine realization using flip flops and delay lines. Races and hazards in sequential circuits. Equivalence of states and machines. Incompletely specified machines. Reduced machines. Asynchronous machines.
Prerequisite: EGR 450.
Text: Switching and Finite Automata Theory by Kohavi
Instructor: Staff, Systems Engineering

890 Special Problems: Kalman Filter Theory and Systems Identification 3 credit hours
Study of theory and application of Kalman filter theory. Case studies of typical engineering applications will be presented. Sequence of topics: Development of system models, elements of probability theory and stochastic processes, optimal prediction and filtering, and case studies. Enrollment by instructor permission only.
Text: Stochastic Optimal Linear Estimation and Control by Meditch
Instructor: Professor Russell A. Hannen, Systems Engineering, 873-2701.

Tentative offerings for winter quarter 1976
EGR 615, 625, 630, 650, 670, 675
EGR 702, 710, 751

If you would like more information, contact Professor Russell A. Hannen in the Department of Systems Engineering, 873-2701.