FALL 2017 – COURSE OFFERINGS

EM 500 Thesis
Professor: Dr. James Simonton CRN 47874
Professor: Dr. Andrew Yu CRN 49671

EM 501 Capstone Project
Professor: Dr. James Simonton CRN 43039
Professor: Dr. Andrew Yu CRN 48653

EM 502 Registration for Use of Facilities for EM Students
Professor: Dr. James Simonton CRN 43040
Professor: Dr. Andrew Yu CRN 49676

EM 532 Productivity and Quality Engineering
Professor: Dr. Janice Tolk CRN 45208 Prerecorded

Textbooks:
1. Improving Performance: How to Manage the White Space on the Organization Chart, Geary A. Rummler and Alan P. Brache, 3rd Edition

Course Description: Productivity and quality measures defined and used to analyze current competitive position of important sectors of American industry with respect to national and international competition. Study of management theorists and systems which promote or inhibit productivity or quality improvements.

EM 537 Analytical Methods for Engineering Managers
Time: Tuesday – 4:00-6:30pm – E113
Professor: Dr. Denise Jackson
Sections: 001 CRN 45212 UTSI students participating at Tullahoma
002 CRN 45213 UTSI students participating elsewhere
003 CRN 45214 UTK students participating elsewhere


Course Description: Survey of management analysis and control systems through industrial engineering techniques. Qualitative and quantitative systems: methods analysis, work measurement, incentive systems, wage and salary development, production and inventory control, facility layout, linear programming, and applied operations research techniques.
EM 539 Strategic Management in Technical Organizations

Professor: Dr. Janice Tolk       CRN 45216       Prerecorded


Course Description: Strategic planning process and strategic management in practice; corporate vision and mission; product, market, organizational, and financial strategies; external factors; commercialization of new technologies; and competition and beyond.

EM 542 Design of Experiments

Time: Tuesday – 10:00 – 12:30am – E111
Professor: Dr. Andrew Yu

Sections: 001 CRN 49365       UTSI students participating at Tullahoma
          002 CRN 49673       UTSI students participating elsewhere
          003 CRN 49674       UTK students participating elsewhere


Course Description: Methodology for experiments in product, service, and process improvements. Factorial experiments, screening designs, variance reduction, and other selected topics for engineering managers. Taguchi philosophy and concepts. Optimization and response surface methods. Case studies. (RE) Prerequisite(s): Industrial Engineering 516.

EM 543 Legal & Ethical Aspects of Engineering Management

Time: Monday – 4:00 – 6:30pm – E113
Professor: Dr. Joe Costa

Sections: 001 CRN 51755       UTSI students participating at Tullahoma
          002 CRN 51762       UTSI students participating elsewhere
          003 CRN 51763       UTK students participating elsewhere


Optional text: Legal Aspects of Managing Technology, Lee B. Burgunder, West Legal Studies in Business Academic, South-Western College/West; 5 edition (January 20, 2010)

Course Description: Legal aspects imposed by government and ethical considerations in engineering practice. Selected readings, lecture, discussion, and student presentations. Current topics from government and industry.
EM 600 Doctoral Research and Dissertation
Professor: Dr. James Simonton   CRN 45222
Professor: Dr. Andrew Yu   CRN 45224

EM 601 Systems Theory and Engineering
Time: Thursday – 4:00-6:30pm – E113
Professor: Dr. James Simonton
Sections: 001 CRN 51781  UTSI students participating at Tullahoma
          002 CRN 51782  UTSI students participating elsewhere
          003 CRN 51783  UTK students participating elsewhere


Course Description: Technology course that will examine theoretical foundations of General System Theory applied to engineering and organizational enterprises addressing issues concerning systems, the effectiveness of organizations in the context of traditional management related issues, as well as incorporating the critical impact of systems thinking on the socio-technical environment. Among the topics to be covered in the course are: the meaning of General Systems Theory (GST); GST and the unity of science; the concept of Equifinality; the characteristics and modeling of open systems; the concepts of the Learning Organization; the principle of Leverage; building Learning Organizations; and issues related to Socio-Technical Systems. Systems Engineering focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, then proceeding with design synthesis and system validation while considering the complete problem including operations, performance, test, manufacturing, cost, and schedule. This subject emphasizes the links of systems engineering to fundamentals of decision theory, statistics, and optimization.
*(RE) Prerequisite(s): 533. Registration Restriction(s): Minimum student level – graduate.*

Industrial Engineering Courses Offerings

IE 516 Statistical Methods in Industrial Engineering

Time: Monday & Wednesday – 11:10am – 12:25pm EST – UTK classroom, 410 Tickle Bldg.
Professor: Dr. Oleg Shylo
Section: 001 CRN 45289  UTK students participating at Knoxville
          002 CRN 45290  UTK students participating elsewhere
          003 CRN 45291  UTSI students participating elsewhere

Textbook: TBD

Course Description: Application of classical statistical techniques to industrial engineering problems. Statistics and statistical thinking in managerial context of organizational improvement; descriptive statistics and distribution theory; relationship between statistical process control techniques and classical statistical tools; parameter estimation and
hypothesis testing; goodness-of-fit testing; linear regression and correlation; analysis of variance; single and multiple factor experimental design. Recommended Background: Statistics 251 or equivalent.

IE 526 Advanced Systems Modeling & Simulation

Professor: Dr. Xueping Li
Section: 001 CRN 45300 UTK students participating at Knoxville
         002 CRN 45302 UTK students participating elsewhere
         003 CRN 45303 UTSI students participating elsewhere


Course Description: Modeling of discrete, continuous, and combined systems using current simulation software. Development of flexible simulation models to enhance accessibility of simulation models for experimentation. Development of distributed simulation models to represent and test production and supply chain systems.

IE 529 Application of Linear Algebra in Engineering Systems

Time: Tuesday & Friday – 9:30 – 10:45am CST – UTSI classroom
Professor: Dr. Monty Smith
Section: CRN 46937 Lectures posted online
Textbook: TBD

Fundamental concepts of linear algebra to problems in engineering systems: steady state and dynamic systems. Geometric and physical interpretations of relevant concepts: least square problems, LU, QR, and SVD decompositions of system matrix, eigenvalue problems, and similarity transformations in solving difference and differential equations; numerical stability aspects of various algorithms; application of linear algebra concepts in control and optimization studies; introduction to linear programming. Computer projects.

Cross-listed: (See Chemical and Biomolecular Engineering 529.)

Comment(s): Graduate standing or consent of instructor required.

IE 550 Graduate Seminar

Time: Friday – 2:30 – 3:30pm EST – UTK classroom, 402 Tickle Bldg.
Professor: Dr. Ming Jin
Section: 001 CRN 45694 UTK students participating in Knoxville
         002 CRN 45695 UTK students participating elsewhere
         003 CRN 45696 UTSI students participating elsewhere

Seminar provides an opportunity for Master’s and Doctoral students to acquaint themselves with research being conducted by both faculty and graduate students in the Industrial and Information Engineering Department, as well as select campus-wide and off-campus researchers from both academia and industry. Research work and relevant results are presented in a professional environment that promotes continued interaction among interested parties. Presentations are not restricted to thesis and dissertation work. Grading Restriction: Satisfactory/No Credit grading only.
For complete listing of IE courses see Timetable of Classes -
https://bannerssb.utk.edu/kbanpr/bwckschd.p_disp_dyn_sched