**FALL 2019 – COURSE OFFERINGS**

**EM 500 Thesis**  
Professor: Dr. James Simonton  
CRN 47446  
Professor: Dr. Andrew Yu  
CRN 49097

**EM 501 Capstone Project**  
Professor: Dr. Janice Tolk  
CRN 42980

**EM 502 Registration for Use of Facilities for EM Students**  
Professor: Dr. James Simonton  
CRN 42981  
Professor: Dr. Andrew Yu  
CRN 49099

**EM 532 Productivity and Quality Engineering**  
Time: TBD  
Professor: Dr. Tonya Brown  
Sections:  
001 CRN 44956 UT Space Institute Campus  
002 CRN 44958 UT Knoxville Campus  
003 CRN 44959 Distance Education Campus  
Textbook: TBD  

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: Monday – 4:00-6:30pm – E113  
Professor: Dr. Denise Jackson  
Sections:  
001 CRN 44960 UT Space Institute Campus  
006 CRN 52998 UT Knoxville Campus  
004 CRN 44963 Distance Education Campus  

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**  
Time: Tuesday, 10:00-12:30pm – E113  
Professor: Dr. Sandra Affare  
Sections:  
001 CRN 44964 UT Space Institute Campus  
003 CRN 44966 UT Knoxville Campus

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: Monday, 10:00-12:30 – E113
Professor: Dr. Andrew Yu
Sections:
001 CRN 53010 UT Space Institute Campus
002 CRN 53011 UT Knoxville Campus
003 CRN 53012 Distance Education Campus


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: Thursday, 10:00-12:30 – E113
Professor: Dr. Sandra Affare
Sections:
001 CRN 50844 UT Space Institute Campus
004 CRN 53008 UT Knoxville Campus
005 CRN 53009 Distance Education Campus


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 44970
Professor: Dr. Andrew Yu CRN 44972
Industrial Engineering Courses Offerings

IE 516 Statistical Methods in Industrial Engineering

Time: Tuesday & Thursday – 12:40pm – 1:55pm EST – UTK classroom, 410 Tickle Bldg.
Professor: Dr. Oleg Shylo
Section: 001 CRN 45037 UT Knoxville campus
         002 CRN 45038 Distance Education Campus
         003 CRN 45039 UT Space Institute Campus
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: TBA
Section: 001 CRN 45048 UT Knoxville Campus
         002 CRN 45050 Distance Education Campus
         003 CRN 45051 UT Space Institute Campus
Textbook: TBD

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 527 Lean Production Systems

Professor: Dr. Rapinder Sawhney
Section: 003 CRN 52991 UT Knoxville Campus
         004 CRN 52992 Distance Education Campus

Strategies for planning, development and implementation of Lean. Emphasis on integration of people, technology, processes and information dimensions (including product development, production and extended supply chain) into unified frameworks. Applications will be implemented into industry with work to further develop lean principles.

IE 529 Application of Linear Algebra in Engineering Systems
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 45416 UT Knoxville Campus  
- 002 CRN 45417 Distance Education Campus  
- 003 CRN 45418 UT Space Institute Campus

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.

### IE 604 Network Flow Optimization

Time: Tuesday & Thursday – 2:10 – 3:25pm EST – UTK classroom, 410 Tickle Bldg.

Professor: Dr. Hugh Medal

Section:  
- 001 CRN 47200 UT Knoxville Campus  
- 002 CRN 47201 Distance Education Campus  
- 003 CRN 47202 UT Space Institute Campus


(DE) Prerequisite(s): 522.

Registration Restriction(s): Minimum student level – graduate.
For complete listing of IE courses see Timetable of Classes -
https://bannerssb.utk.edu/kbanpr/bwckschd.p_get_crse_unsec