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
          003 CRN 44958  UT Knoxville Campus
          004 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
          004 CRN 44963  Distance Education Campus
          006 CRN 52998  UT Knoxville 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  
004 CRN 44967 Distance Education 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 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  
Sections: 001 CRN 44970 UT Space Institute Campus  
004 CRN 53256 Distance Education Campus  
Professor: Dr. Andrew Yu  
Sections: 002 CRN 44972 UT Space Institute Campus  
005 CRN 53257 Distance Education Campus

EM 602 Supply Chain & Logistics Systems Engineering  
Time: Monday, 10:00 – 12:30 – E113  
Professor: Dr. Andrew Yu  
Section: 001 CRN 51849 UT Space Institute Campus  
003 CRN 51851 UT Knoxville Campus  
004 CRN 53254 Distance Education Campus  
Textbook: Instructor will provide electronic files through Canvas  
This course introduces the concepts, methods and techniques of supply chain management and logistics support from a systems engineering perspective. The discussion of different topics in the course will focus on the different stages in a system life cycle. (RE) Prerequisite(s): 537

**Industrial Engineering Courses Offerings**  
For complete listing of IE courses see Timetable of Classes -  
[https://bannerssb.utk.edu/kbanpr/bwckschd.p_get_crse_unsec](https://bannerssb.utk.edu/kbanpr/bwckschd.p_get_crse_unsec)
### 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

**Time:** Tuesday & Thursday – 9:40 – 10:55 am EST – UTK classroom, 410 Tickle Bldg.

**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

**Time:** Monday & Wednesday – 9:45 – 11:15 am EST – UTK classroom, 410 Tickle Bldg.

**Professor:** Dr. Rapinder Sawhney

**Section:** 004 CRN 52992 Distance Education Campus

**Textbook:**

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

**Time:** Tuesday & Friday – 9:30 – 10:45am CST – UTSI classroom

**Professor:** Dr. Monty Smith

**Section:**
- 001 CRN 43205 UT Knoxville Campus Lectures posted online
- 002 CRN 46570 UT Space Institute Campus
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.*