EM COURSE OFFERINGS – SPRING 2018

EM 500 Thesis
CRN 27679 Prof. Simonton
CRN 28913 Prof. Yu

EM 501 Capstone
CRN 22043 Prof. Tolk

EM 502 Registration for Use of Facilities
CRN 22044 Prof. Simonton
CRN 29703 Prof. Yu

EM 533 Theory and Practice of Engineering Management

SEC. 001 CRN 22045 Students participating at Tullahoma classroom
002 CRN 22046 Students participating by distance ed.
003 CRN 22047 Students participating at Knoxville DE classroom

TEXT:
TIME: Monday 4:00 – 6:35 (Central time) E-113
PROFESSOR: Dr. Joe Costa

Principles of engineering management, including: business and organization design, culture, leadership, marketing and competition in global economy, motivation and performance management, empowerment, organizational behavior, and diversity. Systems thinking, learning organizations, and systems dynamics modeling. Principle application to work settings and case studies.

EM 534 Financial Management for Engineering Managers

SEC. 001 CRN 22049 Students participating at Tullahoma classroom
002 CRN 22050 Students participating by distance ed.
003 CRN 22051 Students participating at Knoxville DE classroom

TIME: Tuesday 4:00 – 6:35pm (Central time) E-113
PROFESSOR: Dr. Andrew Yu

Financial and managerial accounting in engineering and technology management. Transaction recording, financial statements, ratios and analysis, activity-based accounting, and standard practices for costing, budgeting, assessment, and control.
EM 538  New Venture Formation

SEC.  001 CRN  27688  Students participating at Tullahoma classroom
SEC.  002 CRN  27689  Students participating by distance ed.
SEC.  003 CRN  27690  Students participating at Knoxville DE classroom

TEXTS:


TIME: Thursday 4:00 – 6:35pm (Central time)    E-113

PROFESSOR: Dr. Sandra Affare

Factors other than mechanical or chemical which enter into successful establishment of manufacturing or service enterprise. Organizational and financial planning and evaluation. Cost and location studies and market analysis to determine commercial feasibility of new ventures. 

(RE) Prerequisite(s): 539.

EM 541  Managing Change and Improvement in Technical Organizations

Sec 001 CRN  22053 Pre-recorded


PROFESSOR: Dr. Janice Tolk


(RE) Prerequisite(s): Industrial Engineering 516

EM 600  Doctoral Research/Dissertation

Sec.  001 CRN  25267  Simonton
Sec.  002 CRN  28923  Yu
IE COURSES OFFERINGS – SPRING 2018

IE  516    Statistical Methods in IE

Sec.  002  CRN   31908    Record Only
ISBN 13: 9780534386696
TIME:   Tuesday    UTSI campus    4:00 – 6:35pm (Central time)    E-113
PROFESSOR:  Dr. James Simonton

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  517    Reliability of Lean Systems

SEC.  001  CRN   26984    UTK students participating at Knoxville classroom
          002  CRN   26985    UTK students participating by distance ed
          003  CRN   27020    UTSI students participating by distance ed
TEXT:   TBA
TIME:   Monday & Wednesday    John D. Tickle Building Room 410
PROFESSOR:  TBA

Course is divided into two major components. First half of the course will focus on introducing the students to the concepts of reliability and maintainability and the impact of lean on the reliability of complex systems. The concepts of reliability engineering are utilized to address lean system failures, including equipment failures, human failures, material failures and scheduling failures. Will develop the ability to design systems that are both lean and reliable. The second half of the course will introduce students to specific case studies of systems failures and ask student to develop solutions by considering different dimensions including financial, technical feasibility, risk, safety, security and others. Multi criteria decision making methodologies will be presented to allow students to make decisions when different criteria lead to conflicting solutions.

(RE) Prerequisite(s): 516. Recommended Background: Background in lean and reliability.

IE  518    Advanced Engineering Economic Analysis

SEC.  001  CRN   21755    UTK students participating at Knoxville classroom
          002  CRN   21756    UTK students participating by distance ed
          003  CRN   21757    UTSI students participating by distance ed
TEXT:   TBA
TIME:   Monday & Wednesday    John D. Tickle Building Room 410
PROFESSOR:  Dr. Reid L. Kress

Application of engineering economic analysis in complex decision situations. Inflation and price changes; uncertainty evaluation using non-probabilistic techniques; capital financing and project allocation; evaluations involving equipment replacement, investor-owned utilities, and public works projects; probabilistic risk analysis including computer simulation and decision trees; multi-attribute decision analysis; and other advanced topics.

(RE) Prerequisite(s): 405 Recommended Background: Statistics 251.
### IE 522 Optimization Methods for Engineering Managers

**SEC.** 001  **CRN** 21759  **TEXT**: TBA  
**TIME**: Tuesday & Thursday  
**PROFESSOR**: Dr. Alberto Garcia

Classical optimization applied to constrained and unconstrained, non-linear, multi-variable functions; search techniques; decision making under uncertainty; game theory; and dynamic programming.  
*Recommended Background: Linear Algebra.*

### IE 529 Application Linear Algebra in Engineering Systems

**CRN** 21767  
**TEXT**: TBA  
**TIME**: Tuesday & Friday  
**PROFESSOR**: Dr. Monty Smith

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

**SEC.** 001  **CRN** 25277  **TEXT**: TBA  
**TIME**: Friday  
**PROFESSOR**: Dr. James Ostrowski

### IE 602 Nonlinear Optimization

**SEC.** 001  **CRN** 21781  **TEXT**: TBA  
**TIME**: Tuesday & Thursday  
**PROFESSOR**: Dr. James Ostrowski

Kuhn-Tucker theory in nonlinear programming, solution procedures for constrained and unconstrained nonlinear programs, search techniques, quadratic programming, duality and sensitivity analysis.  
*Recommended Background: Differential equation and proficiency in computer programming.*  
*Registration Restriction(s): Minimum student level – graduate.*
IE 610 Heuristics in Optimization

TEXT: TBA

TIME: Tuesday & Thursday John D. Tickle Building Room 410

PROFESSOR: Dr. Oleg Shylo

Heuristic methods and their applications to optimization problems, including neighborhood search and major meta-heuristics methods.

*Recommended Background: Linear Programming.*

*Registration Restriction(s): Minimum student level – graduate.*

For more options see [Timetable of Classes](#)