

SUMMER 2018 – COURSE OFFERINGS

EM 536 Project Management

Time: Tuesday & Thursday – 1:00 – 3:30 CST – E113
Professor: Dr. Sandra Affare
Sections: 001 CRN 80005 UTSI students participating at Tullahoma
002 CRN 80006 UTSI students participating elsewhere
003 CRN 80007 UTK students participating elsewhere

Text: *Project Management: A Managerial Approach*, Jack R. Meredith, Samuel J. Mantel, Jr., Scott M. Shafer, John Wiley & Sons, Inc., 9th Edition ISBN: 978-1-119-03197-0

Development and management of engineering and technology projects. Project proposal preparation; resource and cost estimating; and project planning, organizing, and controlling: network diagrams and other techniques. Role of project manager: team building, conflict resolution, and contract negotiations. Discussion of typical problems and alternative solutions. Case studies and student projects. (RE) Prerequisite(s): 537 or consent of instructor.

EM 600 Doctoral Research and Dissertation

Professor: Dr. James Simonton CRN 82090
Professor: Dr. Andrew Yu CRN 83593

IE 529 Applications of Linear Algebra in Engineering Systems

Time: Monday, Wednesday & Friday – 9:30 – 10:45 – E111
Professor: Dr. Monty Smith
Section: 001 CRN 80103 (Video Recorded)

Text: *Advanced Linear Algebra for Engineers with MATLAB*; Sohail A. Dianat and Eli S. Saber; CRC Press; Latest Edition; ISBN 978-1-4200-9523-4

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.

Methods of linear algebra with application to engineering problems. Systems of linear equations: matrix-vector notation, solutions to linear equations, determinants, matrix inversion. Vector spaces: spanning sets, orthogonality, matrix decompositions, linear transformations. Eigenvalues and eigenvectors: characteristic polynomials, singular value decomposition. The Cayley-Hamilton theorem: matrix polynomials, functions of matrices. Optimization: least-squares and weighted least-squares methods.

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

IE 603 Advanced Design and Analysis of Experiments

Time: Tuesday & Thursday – 1:00-3:30 – E111
Professor: Dr. Alberto Garcia
Sections: 001 CRN 83669
Text: Instructor will provide electronic files through Canvas

Recommended Books

1. *Statistics for Experimenters*, Box, G.E.P., Hunter, J.S. and Hunter, W.G.; John Wiley & Sons
2. *The Design and Analysis of Industrial Experiments*, edited by O.L. Davies; Hafner Publishing Company
3. *An Introduction to Linear Statistical Models*, Graybill, F.A., McGraw-Hill, 1961

Fundamental theory, concepts and procedures required in the efficient design and analysis of industrial experiments. Specific topics discussed include: review of fundamental principles of the design of experiments and ANOVA methodology, introduction to linear statistical models, experimental design models, cross classification models, two-way classification models, mixed models, specialized designs allowing multiple restrictions on randomization with or without replication, orthogonal arrays, symmetric and mixed full and fractional factorial experiments, response surface methodology, and Taguchi methods. *(DE) Prerequisite(s): 516. Registration Restriction(s): Minimum student level – graduate.*