ININ 5XXX and 6XXX Courses Offer 1st SEMESTER 2017-2018

ININ5009 LEAN SIX SIGMA METHODOLOGY.

*Discussion of the ba*sic principles of lean and six sigma methodologies to maximize the value of a product or service focusing primarily on customer satisfaction. Use of the DMAIC methodology as a structured way to integrate the tools of industrial engineering to solve problems related to processes and systems improvement.
Pre-requisites ININ 4078 and (ININ 4039 or ININ 4155).
Schedule: MJ 12:30 PM – 1:45 PM

ININ5105 INTRODUCTION TO MEDICAL DEVICE DESIGN METHODS.

Discussion of fundamental methods for medical device development. Study of the process of medical device development, from concept to marketing. Analysis of procedures of product definition, design, risk management, production planning and market introduction, FDA (Food and Drug Administration) regulations, and intellectual property protection. Case studies illustrating important considerations to manage the complexities of the development process are included.
Pre-requisites ININ 4020 or INME 4055 or INEL 4205 or INQU 4008.
Schedule: W 5:30 PM - 8:20 PM

ININ5555 INTRODUCTION TO NON-LINEAR OPTIMIZATION AND NEURAL NETWORKS

Basic concepts of classical optimization techniques. Unconstrained optimization will include multivariate-searching techniques without using derivatives, and optimization techniques based on the gradient method. Constrained optimization techniques will be focused in sequential quadratic programming. Application in Industrial settings will be focused. Neural networks will be introduced as a nonlinear modeling technique. Neural networks will cover the perception, the adaline, the backpropagation and levenberg-marquardt backpropagation algorithms. Applications of neural networks in industrial setting will be introduced.
Pre-requisites: Mate 3063 and Authorization of the Department.
Schedule: M 6:30 PM - 9:20 PM

ININ5565 MEASUREMENT AND PREDICTION OF PRODUCT RELIABILITY

Introduction to reliability theory; system analysis; constant failure rate models; time dependent failure rate models; state dependent systems; availability; maintainability; complete and censored data analysis (parameter estimation and distribution fitting); prediction of reliability.
Pre-requisites: ININ 4020 or authorization of the Department.
Schedule: W 4:30 PM - 7:20 PM

ININ6005 EXPERIMENTAL STATISTICS

Applications of multiple regression to analysis of variance and experimental designs. Analysis of multiple classifications involving fixed, random, and mixed effects, including crossed and nested variables of classification. Emphasis on computer model applications.
Pre-requisites: Authorization of the Director of the Department.
Schedule: L 6:30 PM - 9:20 PM

ININ6025 LINEAR AND DISCRETE OPTIMIZATION

Basic theory and development of the simplex method for solving linear programming problems with discrete variables. Dual problems and sensitivity analysis. Formulation of problems with discrete variables. Developments of implicit enumeration and related methods for integer problems. Application of linear and discrete optimization methods to problems of industry and government. Use of computer programs.
Pre-requisites Authorization of the Director of the Department.
Schedule: M 6:30 PM - 9:20 PM

ININ6026 SYSTEMS SIMULATION

Principles of feedback dynamics, levels, rates, delays. Simulation Languages and their applications in industrial and service systems. Analysis and interpretation of results. Recommendation and justification of proposed alternatives.
Pre-requisites Authorization of the Director of the Department.
Schedule: M 6:30 PM - 9:20 PM

ININ6055 MATHEMATICAL MODELS IN DISTRIBUTION LOGISTICS

Study on the logistics involved in transporting finished goods from manufacturers to customers. Particular emphasis in given to the design and operation of container terminals, cross-docks, and distribution centers, as well as modes. Emphasis will be given on mathematical models for the optimization of distribution systems and their implementation.
Pre-requisites Authorization of the Director of the Department.
Schedule: J 6:30 PM - 9:20 PM

Note: Graduate students could register for 5XXX and 6XXX level courses with authorization of the Department.