

List of Graduate Courses

- 1- Decision Theory
- 2- Simulation
- 3- Reliability
- 4- Integer Programming
- 5- Linear & non-linear Programming
- 6- Total quality management
- 7- Advanced Production Planning
- 8- Multiple Criteria Decision Making
- 9- Technology Management
- 10- Multivariate Analysis
- 11- Strategic Planning
- 12- System Dynamics
- 13- Organizational Learning & Knowledge management
- 14- Transportation Systems analysis
- 15- Demand in Transportation
- 16- Economic analysis
- 17- Automatic Systems, Design and Implementations

GRADUATE COURSE DESCRIPTIONS

Mathematical Methods 3 Cr. A review of linear algebra and dynamic systems

Advanced Microeconomics 3 Cr. A complete course in theoretical Micro-Economics including consumer theory, producer theory, price mechanism in monopoly, duopoly, oligopoly and perfect competition markets, game theory, and general equilibrium.

International Economics 3 Cr. A course in international trade and international finance including classical models of trade, H. O. model. tests of models, tariffs and quotas, balance of payments, purchasing power parity, interest rate parity, models of balance of trade and payments, static and dynamic models of exchange rate determination, etc.

Econometrics 3 Cr. A course in econometrics models and economic forecasts including the classical linear model with its five assumptions, violations of those five assumptions, simultaneous systems, instrument variables, dummy variables, 2SLS, 3SLS, SUR and forecasting with econometrics models.

Scheduling Systems 3 Cr. Job shop, flow shop, project scheduling, dynamic programming, integer programming, branch and bound methods, heuristic methods for scheduling systems.

Mathematical Programming 3 Cr. Modeling, linear programming, duality theory, network models, introduction to integer programming, large scale problems, applications.

Queuing Systems 3 Cr. Basic definitions, classification of queuing systems, birth and death process, Markov and non-Markov queuing systems, optimization, simulation, and application of queuing systems.

Industrial Systems Design Systematic 3 Cr. Model classification, model validation, design process, layout design process, classification of production systems, design classification of facility layout and location problems, Systematic Layout Planning (SLP), computer aided layout planning, single and multi-facility location problems, discrete location problems, continuous facility design, quadratic assignment location problems, mini-max layout and location problems.

In this course, students must review and present two different papers from famous journals and also create a model or improve one of the published models in the area of facility planning problems.

Advanced Engineering Economics 3 Cr. Introduction to engineering economics: present worth comparisons, equivalent annual worth comparisons, rate of economics return comparisons, benefit- cost

comparisons, cash flow before and after tax, replacement analysis. Multiple project selection: zero-one mathematical programming, linear and goal programming, sensitivity analysis, break even, investment analysis under risk and uncertainty: expected value, variance, game theory, utility theory, decision trees, criteria for decisions, inflation: concepts, measuring, effects on cash flow before and after tax.

Advanced Statistical Methods 3 Cr.

Discrete and continuous random variables, univariate and joint distributions, Sampling and sampling distributions; normal, student's-T, Chi-Square and distribution, definition and distributions of order statistics, asymptotic distributions, Parametric point estimation; methods of moments and maximum likelihood properties of point estimators; closeness, mean-squared error, consistency and BAN, loss and risk function, unbiased estimation, sufficiency and completeness, UMVUE, Bays estimators, Parametric interval estimation, Test of hypotheses, simple hypotheses, composite hypotheses, chi-square tests, Linear regression and correlation, Analysis of variance and factorial experiments