



ME 308

Industrial Engineering and Operations Research

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Course Content



Part 1: Prof. A. Subash Babu
(2 lectures / week, usually Mon, Thu)

Part 2: Prof. M. S. Kulkarni
(1 lecture / week, usually Tue)



Part 2: Probability Based Approaches

Decision making using probability distributions

Poisson: Spares,

Geometric: Inspection,

Binomial: K-o-N

Normal: Maintainability,

Exponential-Poisson connection:

Home work: Study Weibull, Lognormal, Uniform and Beta distributions



Part 2: Probability Based Approaches

Application of probability concepts to quality control and maintenance

Acceptance Sampling

Control Charts

Maintenance optimization

Home work: Double sampling plans, Attribute and variables control charts

Part 2: Probability Based Approaches

Discrete event simulation

Random number generation using inverse transform

Application to queues

Failure simulation

Home work: Other methods of random number generation viz. Convolution,
Acceptance-rejection

Part 2: Probability Based Approaches

Probability based models for shopfloor production control

Introduction to production control: Two-bin system as an example

Queuing models

Little's law

CONWIP production control

Home work: Study Kan Ban system, Simulation of a production line with CONWIP

Part 2: Probability Based Approaches

Books:

Operations Research by Hamdy Taha,

Fundamentals of Quality Control and Improvement by Amitava Mitra



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