ME 421 Industrial Engineering and Operations Research (3-0-0-6)

Introduction, Production Planning and Control, Product design, Value analysis and value engineering, Plant location and layout, Equipment selection, Maintenance planning, Job, batch, and flow production methods, Group technology, Work study, Time and motion study, Incentive schemes, Work/job evaluation, Inventory control, Manufacturing planning: MRP, MRP-II, JIT, CIM, Quality control, Statistical process control, Acceptance sampling, Total quality management, Taguchi's Quality engineering. Forecasting, Scheduling and loading, Line balancing, Break-even analysis. Introduction to operations research, linear programming, Graphical method, Simplex method, Dual problem, dual simplex method, Concept of unit worth of resource, sensitivity analysis, Transportation problems, Assignment problems, Network models: CPM and PERT, Queuing theory.

Texts:

[1] S. L. Narasimhan, D. W. McLeavey, and P. J. Billington, Production, Planning and Inventory Control, Prentice Hall, 1997.
[2] J. L. Riggs, Production Systems: Planning, Analysis and Control, 3rd Ed., Wiley, 1981.

References:

[1] Muhlemann, J. Oakland and K. Lockyer, Productions and Operations Management, Macmillan, 1992.
[2] H. A. Taha, Operations Research - An Introduction, Prentice Hall of India, 1997.
[3] J. K. Sharma, Operations Research, Macmillan, 1997.