ME 324 Industrial Engineering and Operations Research (3-0-0-6)

Introduction, Production Planning and Control, aggregate production planning, Product design, Job, batch, and flow production methods; Work study, Time and motion study; Inventory management, Manufacturing planning: MRP, MRP-II, JIT, Supply chain management; Quality control, Statistical process control, Acceptance sampling, Total quality management; Forecasting, Scheduling and loading, Line balancing, Break-even analysis. Industry 4.0. Internet of things (IoT). Data analytics.

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; Integer and Dynamic programming; Network flow models, CPM and PERT; Queuing models.

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.
[3] J. K. Sharma, Operations Research, Macmillan, 1997.

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.