10 ME 32A ANALYSIS AND CONTROL OF PRODUCTION SYSTEMS & RELIABILITY ENGINEERING

III B.Tech II Semester

(with effect from the academic year 2012-2013)

Credits: 4

Lectures/week: 4Hrs. *Sessional Marks: 40*

Lectures/week: 3 Hrs. *End Examination Marks: 60*

UNIT –I

The Production Paradigm – Production as a System – Types of Production Systems – Job type, Batch type, flow type and Project type – Group technology – Lean and Agile manufacturing

UNIT –II

Facility Location and Layout – Multi plant location – Locational dynamics – use of REL charts and Travel charts – Computer based layout technique viz. CRAFT, CORELAP etc.

UNIT –III

Planning – Manufacturing and Service Strategies – Aggregate Planning –- Forecasting – Moving Average, Exponential Smoothing. Assembly Line Balancing, MRP, JIT, KANBAN Systems, MRP-II

UNIT –IV

Operations Scheduling – Job shops and flow shops: Sequencing n jobs – 2 machines, n jobs 3 machines, n jobs m machines – 2 jobs m machines.

Project planning and Controlling with PERT / CPM

UNIT –V

Reliability: Concepts of reliability, Scope, Importance of reliability, Failure data analysis: MTTF, MTBF, Failure rate, Hazard rate, reliability, Failure rate curve, Types of failures.

System Reliability: Series, Parallel and Mixed configurations. Reliability Improvement: Element, unit and Standby redundancies, Introduction to Fault Tree Analysis, Maintainability and Availability.

TEXT BOOKS:

1. Modern Production Management : Buffa E S
2. Reliability Engineering : Srinath L.S

REFERENCES:

1. Production Planning and Inventory Control : Narasimhan Etal
2. Analysis and Control of Production Systems : Elsayed Etal
3. Production and Operations Management : Adam and Ebert