

IV B.Tech I Semester

15AME61-PRODUCTION AND OPERATIONS MANAGEMENT

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Course Objective:

- To make the students understand the functions of production planning & controls, generating of new products, issues in product design and strategies of aggregate planning.
- To provide the knowledge on principles of forecasting, forecasting methods, types and its accuracy.
- To provide the knowledge on facilities location, various types layouts and assembly line balancing.
- To provide the knowledge on lean management, concepts of JIT, six sigma, quality control, MRP,ERP and LOB.
- To make the students understand the inventory management and scheduling techniques.

UNIT I

Functions of Production Planning Controls operations and productivity, productivity measurement, Design of goods and services: selection, generating new products, product development, issues in product design. Strategies for aggregates planning, aggregate planning using O.R. Models, Chase planning, Expediting, controlling aspects.

Learning Outcome & Suggested Student Activities:

At the end of this unit students can get the concepts on Production planning & controls operations and its functions, productivity and productivity measurements, design of goods and services and aggregate planning

UNIT II

Forecasting - Importance of forecasting - Types of forecasting, their uses - General Principles of forecasting - Forecasting techniques - qualitative methods and quantitative methods - accuracy of forecasting methods.

Learning Outcome & Suggested Student Activities:

Students can understand the importance of forecasting, uses of long term and short term forecasting and application of qualitative and quantitative methods for finding the future demands.

UNIT III

Factors affecting facilities location, mathematical models for facilities, location, Types of facilities- layout: product layout, process layout, group technology layout, Assembly line balancing, computerized layout: ALDEP, CRAFT, CORELAP.

Learning Outcome & Suggested Student Activities:

At the end of the unit the student will be able to understand where the plant is to be located based on facilities available and what are the important factors affecting the facilities location of a plant, and plant layout. And also able to understand plant layout design to facilitate material flow and processing of a product in the most efficient manner through the shortest possible time. Can compare the rural & urban sites, methods of selection.

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UNIT IV

Lean Management, philosophy and creation of lean enterprise, JIT concepts-Kanban System- Elements of total quality management, Six Sigma Quality Control. MRP, -lot sizing techniques in MRP, introduction to ERP, LOB (Line of Balance).

Learning Outcome & Suggested Student Activities:

Students can understand the how philosophy of lean management applied to develop lean enterprise and basic concepts JIT, Six sigma control.

UNIT V

Scheduling Policies - Techniques, flow shop and job shop Scheduling techniques. Inventory management - Functions of inventories - relevant inventory costs - ABC analysis - VED analysis - EOQ model - Inventory control systems - P-Systems and Q-Systems-(S, s) Policy.

Learning Outcome & Suggested Student Activities:

At the end of the unit the student will be able to understand the scheduling policies, flow shop and job shop scheduling techniques and concepts of Inventory, Classification, Functions, it's associated costs etc., and also able to recognize the importance of Inventory control to ensure their availability with minimum capital lock up.

TEXT BOOKS:

1. Modern Production , Operations Management , Baffa&RakeshSarin.
2. Operation Management by B. Mahadevan, Pearson Edu.
3. Operation and O.M by Adam & Ebert- PHI Pub.,

REFERENCE BOOKS:

1. Operations Management - S.N. Chary.
2. Inventory Control Theory and Practice , Martin K. Starr and David W. Miller.
3. Production Control A Quantitative Approach , John E. Biegel.
4. Production Control , Moore.
5. Operations Management , Joseph Monks.
6. Operation Management by Jay Heizar& Read new Pearson
7. Elements of Production Planning and Control, Samuel Eilon.

SUGGESTED LINKS:

- <http://www.technologyevaluation.com/search/for/inventory-management-pdf.html>
- <http://freevidelectures.com/Course/3096/Operations-and-Supply-Chain-Management/10>
- <http://www.learnerstv.com/video/Free-video-Lecture-6944-Management.htm>;
- <http://ocw.mit.edu/courses/aeronautics-and-astronautics/16-852j-integrating-the-lean-enterprise-fall-2005/lecture-notes/>
- <http://freevidelectures.com/Course/2688/Human-Resource-Management/13>
- <http://www.slideshare.net/satya4/plant-layout-16143741>
- <http://freevidelectures.com/Course/2371/Project-and-Production-Management/32>
- <http://www.tcyonline.com/video-tutorials-computerised-layout-planning/101568>
- <http://www.learnerstv.com/video/Free-video-Lecture-2496-Management.htm>;
- http://www.slideshare.net/jrdn_27/qualitative-and-quantitative-methods-of-research
- http://www.nptel.iitm.ac.in/courses/IIT-MADRAS/Management_Science_II/Pdf/3_5.pdf
- <http://www.academicearth.org/lectures/product-development-process-observation>