UNIT INTRODUCTION
-I Facilities requirements, need for layout study – types of layout, Model Classification, Criterion Selection, Model Validation, Design Process.

UNIT PLANT LAYOUT
-II Layout problem, Plant layout procedures - various approaches, Flow and activity analysis, Designing the layout

UNIT PLANT LOCATION
-III Plant location analysis – factors, costs, location decisions – simple problems in single facility location problems, multi facility location problems, network location problems.

UNIT PROCESS MANAGEMENT AND STRATEGY

UNIT PROCESS FLOW

References
UNIT I INTRODUCTION
Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to be consider in planning design and implementation of cross functional integrated ERP systems - Case studies.

UNIT II ERP SOLUTIONS AND FUNCTIONAL MODULES

UNIT III ERP IMPLEMENTATION

UNIT IV POST IMPLEMENTATION
Maintenance of ERP- Organizational and Industrial impact; Success and Failure factors of and ERP Implementation -case studies.

UNIT V EMERGING TRENDS ON ERP
Extended ERP systems and ERP bolt –on -CRM, SCM, Business analytics etc- Future trends in ERP systems-web enabled, Wireless technologies so on-Case studies.

TEXT BOOK

REFERENCES
UNIT I INTRODUCTION

UNIT II LOGISTICS MANAGEMENT

UNIT III NETWORK DESIGN

UNIT IV SOURCING AND INVENTORY MANAGEMENT
Sourcing – Make vs buy decision, Creating World Class Supply base, World Wide Sourcing Inventory Management – managing cycle inventory, safety inventory. Value of information, Bullwhip effect, Coordination in supply chain, Analysing impact of supply chain redesign on the inventory.

UNIT V CURRENT TRENDS

TEXT BOOKS

REFERENCES
UNIT I INTRODUCTION

UNIT II PRODUCT PLANNING

UNIT III PRODUCT CONCEPT

UNIT IV INDUSTRIAL DESIGN AND DESIGN TOOLS

UNIT V PATENTS

TEXT BOOK

REFERENCES
UNIT I
Productivity – definition – concepts – importance of productivity circles Measures of productivity – qualitative and quantitative measures – three basic types of productivity – partial – total factor – total productivity – productivity indices – methods of recording data man power planning – productivity measurement at national and international levels – measures of productivity in different organizations like manufacturing and services and R & D etc.,

UNIT II

UNIT III

UNIT IV

UNIT V

TEXT BOOKS:
REFERENCE BOOKS:

1. Iwao Kobayashi – “Keys to work place improvement” – Productivity press India Ltd.
2. Lawrence Aft – “Productivity Measurement and Improvement” – Prentice Hall
UNIT I INTRODUCTION TO PRODUCTION AND OPERATION MANAGEMENT

UNIT II MATERIAL AND INVENTORY MANAGEMENT
Material Management (MM) – Handling Technology (Robots, Automated storage and retrieval systems (ASRS) and methods (JIT, Kanban, ABC Systems). Independent Demand Inventory Models – Fixed order system, Basic EOQ, EBQ Models, Quantity discount models. Dependent Demand Inventory models – MRP and MRP II systems Introduction to ERP, e-business and e-operations strategies.

UNIT III PLANNING AND FORECASTING
Introduction to Strategic, Tactical, Operational, Aggregate and Capacity Planning. Planning Product design and development – Applications of CAD, Expert systems, Standardisation, Group Technology (GT) and Research and Development. Forecasting – Types, Methods (Qualitative and Quantitative), Types of variation in data, Minimising forecasting errors and selection of forecasting methods.

UNIT IV SCHEDULING AND PROJECT MANAGEMENT METHODS
Johnson’s Algorithm for job sequencing (n job thro’ 2 machines, n jobs thro’ 3 machines, n jobs thro’ m machines and 2 jobs thro’ m machines) Use of Gantt charts, Queuing analysis and Critical Ratios as methods for job scheduling. PERT / CPM – Drawing the network, computation of processing time, floats and critical path. Resource leveling techniques.

UNIT V FACILITY, LAYOUT LOCATION AND WORK MEASUREMENT
Facility Location Decisions (FLcD) – Selections of country, region and site. Facility Layout Decision (FlyD) – Types (Fixed Position, and Production, Process, Flexible), Methodologies (Distance Minimising, Computer software systems (CRAFT, CORELAP, ALDEP), Line Balancing and performance ratios, work measurement methods (WM) - Time study, methods-time measurement, Work Sampling, White color measurement and learning curves, Using WM to increase productivity.

TEXT BOOKS:
UNIT I INTRODUCTION TO RESEARCH
The hallmarks of scientific research – the building blocks of science in research – the research process for applied and basic research – the need for theoretical frame work – hypothesis development – hypothesis testing with quantitative data. The research design. The purpose of the study: Exploratory, Descriptive, Hypothesis testing (Analytical and Predictive) – cross sectional and longitudinal studies.

UNIT II EXPERIMENTAL DESIGN
The laboratory and the field experiment – internal and external validity – factors affecting internal validity. Measurement of variables – scales and measurement of variables – development scales - rating scale and concept in scales being developed. Stability measures.

UNIT III DATA COLLECTION METHOD
Interviewing, questionnaires etc. Secondary sources of data collection. Guidelines for questionnaire design – electronic questionnaire design and surveys. Special data source: Focus groups, Static and dynamic data-collection methods and when to use each. Sampling techniques and confidence in determining sample size. Hypothesis testing determination of optimal sample size.

UNIT IV A REFRESHER ON SOME MULTIVARIATE STATISTICAL TECHNIQUES

UNIT V THE RESEARCH REPORT
The purpose of the written report – concept of audience – Basics of written reports. The integral parts of a report – the title of a report. The table of contents, the synopsis, the introductory section, method of sections of a report, result section – discussion section – recommendation and implementation section.

TEXT BOOKS:

REFERENCES:
UNIT-I INTRODUCTION
Decision concept – Steps - Decision support system -components, characteristics-
classification and applications

UNIT-II MODEL MANAGEMENT
Models- Modeling process – Types of models- Optimization – Simulation - Heuristics -
Descriptive –Predictive - Model base- Modeling languages - Model directory - Model base
management - System-Model execution- Integration and command processing

UNIT -III DATA MANAGEMENT SYSTEM
Data base – Sources of Data- Data Directory - Data Structure and database language -
Query facility- Data Management system-DBMS as DSS development tool.

UNIT IV DIALOG MANAGEMENT
User interface - Graphics – Multimedia- Visual interactive modeling- Natural language
processing- Speech recognition and understanding - Issues in user interface.

UNIT-V DEVELOPMENT OF DECISION SUPPORT SYSTEM
Development process-Software and hardware and data acquisition - Model acquisition-
Dialog development –Integration- Testing and validation -Training and implementation.

References
1. Efraim Turban, Jay E. Aronson, Ting-Peng Liang: DSS and Intelligent Systems,
   2003.
4. James A Obrien, george M Marakas: Management Information systems, ,Tata
5. Janakiraman and K Sarukesri, Decision Support system, PHI, 1999
UNIT I INTRODUCTION TO QUALITY MANAGEMENT

UNIT II PRINCIPLES AND PHILOSOPHIES OF QUALITY MANAGEMENT

UNIT III STATISTICAL PROCESS CONTROL AND PROCESS CAPABILITY

UNIT IV TOOLS AND TECHNIQUES FOR QUALITY MANAGEMENT
Quality functions development (QFD) – Benefits, Voice of customer, information organization, House of quality (HOQ), building a HOQ, QFD process. Failure mode effect analysis (FMEA) – requirements of reliability, failure rate, FMEA stages, design, process and documentation. Seven old (statistical) tools. Seven new management tools. Bench marking and POKA YOKE.

UNIT V QUALITY SYSTEMS ORGANIZING AND IMPLEMENTATION

TEXT BOOKS
REFERENCES


4. Indian standard – quality management systems – Guidelines for performance improvement (Fifth Revision), Bureau of Indian standards, New Delhi.
UNIT I TECHNOLOGY MANAGEMENT AND MANAGEMENT STRATEGY
Review of Technology Management - Technological Innovation - Business Competitiveness - Technology Strategy and Leadership -

UNIT II DEVELOPMENT OF TECHNOLOGICAL CAPABILITIES
Developing Technology Based Capabilities - Technology Based Developments - Diffusion and Adaptation Technology - Need for Technology Analysis

UNIT III MANAGEMENT ISSUES & BUSINESS COMPETITIVENESS
People and Organization Issues - Characteristics of Innovative Firms - Technology Interface with Markets - Customers and Suppliers - Operational System Strategies - Business Competitiveness Interface - Market Integration with Technology - Accountability with Share Holders

UNIT IV MANAGEMENT OF TECHNOLOGY
Factors Influencing Effective Integration in Technical - Organization Barrier to Implementation of Structure for Managing Technology - Need for Inter-Disciplinary Endeavour and Improved - Functional Relation

UNIT V IMPLEMENTATION OF PERFORMANCE
Decisions for Implementing - Performance & Impact of New Technology - International E Business Management -

References