

Management Science Applications
Professional - I

OBJECTIVES:

To provide the students with detailed knowledge of:

- a) The methods and techniques of strategic operational management to enable them to play an effective role in strategic business planning of marketing operations of an organisation.
- b) Strategic operational management to understand human behaviour within and outside the organisation for effective utilisation of human resources for improving the efficiency of the business.
- c) Control and improve the efficiency. Advise the management regarding effective use of resources.

ABILITY REQUIRED:

Professional knowledge and skills.

WEIGHTAGE

CONTENTS

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| 50 | 1. PRODUCTION TECHNOLOGY: |
| | 1.1 Metal casting, forging, pressing, swaging, drawing, extrusion. |
| | 1.2 Classification and fabricating characteristics of metals and composites, metal cutting, machining turning screwing, drilling, boring, hole punching, milling, broaching & sawing, grinding. |
| | 1.3 Plastic processing, thermoforming, plastic design principles, adhesive, bonding, surface preparation, adhesive joint design, adhesive and temperature. |
| | 1.4 Welding principles, arc welding, gas welding, resistance welding and specialized welding. |
| | 1.5 Processing planning, computer steps, numerical control (NC), NC operation, editing, computers and numerical control manufacturing, computer systems, graphics, CAD, CAM. |
| | 1.6 Precision measurement and statistical quality control: (SQC). |
| | 1.7 Heating, ventilation, air-conditioning (HVAC) concept, equipment's, basic operations, costs, heat treatment, welding, brazing, and adhesive bonding. |
| | 1.8 Simple mechanics, simple heat, simple magnetism and electricity. |
| | 1.9 Furnaces, boilers, boiler-house measuring instruments. |
| | 1.10 The steam engine, internal combustion engines, electrical generators. |

- 1.11 Control and distribution of electrical energy, electric motors, the improvement of power factor, power distribution, distribution of steam and gas, compressed air, hydraulic power.
- 1.12 Power and the cost accountant, units of measurement.
- 1.13 production processes of major industries, vegetable ghee, cement, fertilizer, chemical, heavy engineering, cotton ginning cotton textile, polyester fibre, polyester textile, sugar.

50 2. **STRATEGIC OPERATIONS MANAGEMENT:**

- 2.1 **INTRODUCTION:**
Production operation management, developing a strategy.
- 2.2 **DECISION MAKING TECHNIQUES IN PRODUCTION AND OPERATION MANAGEMENT:**
Decision-making tools, linear programming, forecasting, statistical tools for managers, waiting line (queuing) models, simulation techniques.
- 2.3 **STRATEGIC DECISIONS IN PRODUCTION AND OPERATIONS MANAGEMENT:**
Product strategy, process strategies, product life cycle, information technology in production operation management, location strategies, operations layout strategy, human resource strategy, work measurement, procurement and just-in-time strategies, learning curves.
- 2.4 **TACTICAL DECISIONS IN OPERATION PLANNING AND MANAGEMENT:**
Aggregate planning tactics, inventory management and just-in-time tactics, material requirements, planning, short-term scheduling tactics, project management, PERT/CPM, quality management tactics, quality control techniques, maintenance and reliability tactics.

- 3. **MICROSOFT PROJECT:**
Getting started with Microsoft project, project planning process, managing project with Microsoft project, creating and organising a schedule, scheduling tasks, adding people and equipment project, assigning costs to tasks and resources, evaluating and adjusting schedule, printing and reporting. Microsoft project tools: working with views, tracking the progress of project, working with multiple projects, importing and exporting files, customizing Microsoft project, copying and moving information, linking and embedding objects, automating work.

CORE READINGS:

AUTHORS:

PUBLISHER :

Production and Operations
Management

Jay Heizer & Barry Render

Allyn and Bacon, A division of
Simon & Schuster, Inc.,
160 Gould Street,
Needham Heights, Massachusetts
02194.

Processes & Materials of
Manufacture

Roy A. Lindberg

Prentice-Hall of India Pvt. Ltd.
New Delhi-110001,
India.

Power Economy in the Factory

J. C. Todman

Pak Publishers Ltd.

Freave's Chemical Process
Industries

Georg T. Austin

Mc-Graw-Hill Inc.,
Princeton Road,
S-1 Hight Shown
NJ08520, New York.

ADDITIONAL READINGS:

Essentials of Production
and Operations Management

Ray Wild

Cassell Educational Ltd.
Villiers House,
41-47 Strand,
London WC2N 5JC

Manufacturing Engineering
Principles for Optimisation

Daniel T. Koenig

Hemisphere Publishing Corp.
A subsidiary of Harper & Row
Publishers, Inc.
79 Madison Avenue,
New York
NY10016

Manufacturing Processes

B. H. Amstead, Phillip F. Ostwald
Myron L. Begeman

John Welley & Sons Ltd.
Baffins Ltd., Baffins Lane
Chickester West Sussex
PO19 WD
England

Modern Manufacturing Process

Benjamin W. Niebel,
Alan B. Draper &
Richard A. Wysk

Mc-Graw-Hill Inc.
Princeton Road,
S-1 Hight Shown
NJ08520
New York.

Manufacturing Technology

P. N. Rao

Tata Mc-Graw-Hill Publishing
Company Ltd.,
4/12 Asif Ali Road,
New Delhi 110002.