

Pharmaceutical Management



I Semester

PM-501 Fundamentals of Management

(3 credits)

1. Schools of management thought: Forerunners of Scientific Management; The era of Scientific Management; The human Behaviour School; The social system school; Decision theory school; The mathematical and quantitative school; The system school;
2. The contingency theory of Management; Contemporary Management thinkers; Contemporary organizational theories.
3. Organizations and the need for management: Why study organisations and management. Efficiency and effectiveness, management, process organisational environments.
4. Social responsibility and ethics.
5. Planning : Nature and process, importance, types of plans, strategy, policies, objectives, planning premises, principles of planning, decision making, making planning effective.
6. Organising : Process of organising principles, organizational design and organizational structure; Types of organisational structures.
7. Downsizing distribution of authority; Decentralisation, centralisation and making organisations.
8. Effective Communications - process, barriers and breakdowns in communications, effective communications.
9. Controlling : The system and process of controlling. Control techniques, control of overall performance. Ensuring effective controlling.

Recommended books:

1. Fundamentals of Management by J. F. Stoner,
2. Fundamentals of Management by Stephen. P. Robbins,
3. Fundamentals of Management by Andrew. J. Dubrin,
4. Fundamentals of Management by Ricky. W. Griffin,
5. Fundamentals of Management by Danay Samson, Richard.L.Daft.

PM-502 Accounting for Management

(3 credits)

1. Basic accounting: Concepts and conventions underlying preparation of financial statements; Accounting equations; Accounting Processes and accounting policies; Revenues and costs matching and inventory valuation; Preparation of final accounts; Trading account, profit and loss account, balance sheet. Depreciation accounting; Intangible assets accounting. Understanding published annual reports including funds flow statement. Accounting for price-level changes and human resources. Social and environmental accounting.
2. Basic cost concepts : Cost drivers, how and why costs are classified. Systems of cost determination. Cost analysis for decision -making; Marketing and production decisions like deletion or addition of products, optimal use of limited resources, pricing, make or buy, joint product costs etc.

3. Cost analysis for control: Standard costing; Variances- materials, labour, overheads, sales and profits, budgeting and control; Budget preparation including master budget and zero-base-budgeting. Contemporary issues in management accounting; Value chain analysis, activity based costing, quality costing, target and life cycle costing.

Recommended books:.

1. Introduction to Financial Accounting by Charles T. Horngren, Gart L. Sundem, John A. Elliott and Donna R. Philbrick
2. Cost Accounting: A Managerial Emphasis by Charles T. Horngren and S. Datar
3. Financial Statement Analysis by George Foster
4. Core Concepts of Accounting by Robert N. Anthony
5. Management Accounting by S N Maheshwari
6. Financial Accounting by Mukherjee and Hanif
7. Accounting: Text and Cases by Robert N. Anthony
8. Essentials of Cost Accounting by V K Saxena and C D Vashisht
9. Cost Management by V K Saxena and C D Vashisht
10. Cost Accounting: Principles and Practice by B M Lall Nigam
11. Cost Accounting by P C Tulsian
12. Fundamentals of Accounting by N K Agrawal and R K Sharma
13. Fundamentals of Accounting by T P Ghosh
14. Indian Accounting Standards by R.L.Gupta & M.Radhaswamy
15. Financial Accounting A Managerial perspective by Dr. D.Mukhopadhyay

PM-503 Managerial Economics**(3 credits)**

1. The nature and scope of managerial economics, economic theory and managerial economics. Managerial economist's role and responsibilities. The demand theory and analysis. The determinants of demand. Demand elasticities - price, income, cross; Using elasticities in managerial decision making.
2. The theory of consumer choice. The cardinal utility approach. The indifference curve approach. The revealed preference and the theory of consumer choice under risk.
3. The production theory and estimation. The production function. Production with one and two variable inputs. Three stages of production. Economics of state and scope. Estimation of production function. The Cob Douglas and CES function. Use of time-series. The cost theory and estimation. The economic concept of cost. The short and long run cost functions. Theories of cost. Estimation of cost functions.
4. Market structure and degree of competition. Perfect competition. Profit maximizing output in the short and long run monopoly. Profit-maximizing price and output in the short run and long run. Monopolistic competition. Price and output determination in short and long run. Product variation and selling expenses. Behaviour.

5. Oligopoly: Characteristics, price rigidity, interdependence. The Cournot Model, Cartels and Collision. Price leadership. The behaviour theory of the firm and managerial theory of the firm.
6. Price Practices: Pricing under multiple products, price discrimination. International price discrimination and dumping. Transfer pricing.
7. The theory of distribution. Determination of factor prices, rent, wages, interest and profit.

Recommended books:

1. Advanced Economics Theory by Ahuja, H.L.
2. Micro Economic Theory and Applications by Browning, E.K. and Browning, J.M.
3. Managerial Economics by Dean. J.
4. Managerial Economics by Duncan, W.R. and Crook, J.N.
5. Modern Micro-Economics by Koutsoyiannis, A.
6. Managerial Economics by Paul, S., Gupta, G. and Mote, V.
7. Managerial Economics by Varshney, R.L. and Maheshwari, K.L.
8. Macro Economics by Shapiro, E.

PM-504 Pharmaceutical Marketing

(3 credits)

1. Marketing tasks and philosophies: Marketing systems and pharma marketing environment,
2. Consumer market Pharmacuetical and buyer behaviour.
3. Strategic marketing process: Industrial market, market segmentation, market measurement and forecasting.
4. Strategic planning in pharma marketing: Situation analysis, developing marketing objectives; Determining positioning and differential advantage, selecting target markets designing marketing mix for target market.
5. Product decisions: Product classification, product life-cycle strategies,
6. Branding, packaging and labeling.
7. Pricing decisions: Pricing methods and strategies.
8. Distribution decisions: Importance and functions of distribution channels, distribution channel members.
9. Promotional Decisions : Promotion mix elements.
10. Communication in Pharmaceutical Industry

Recommended books:

1. Pharmaceutical Marketing by Subba Rao
2. Pharmaceutical Marketing by Dimitris and Dogramatiz
3. Pharmaceutical Marketing by Smith
4. Marketing Management, A South Asian Perspective by Kotlar
5. Marketing Management, Planning, Implementation and Control by Ramaswami and Namakumari.
6. Marketing Management and Administrative Action, Tata McGraw Hill

PM-505 Quantitative Techniques and Management Techniques (3 credits)

1. Frequency distribution; Graphical representations; Measures of central tendency (mean, median, mode, quartiles etc.); Measure of dispersion (range, variance, standard deviation). Probability-introduction ideas (probability rules, statistical independence, statistical dependence, joint probability, marginal probability).
 - a) Notion of random variable- expectation.
 - b) Discrete distribution- Binomial, Poisson.
 - c) Continuous distribution- normal, exponential, uniform, joint distribution.
2. Sampling design: sampling and non-sampling error, random sampling, systematic sampling, sampling with probability proportions of size, stratified sampling, cluster sampling and multistage sampling. Estimation- point estimation and interval estimation. Hypothesis testing- one sample test, two sample test, z test, x 2 test..
3. Simple regression and correlation: Estimation using regression line. Correlation analysis. Introduction to multiple and partial correlation. Time series- variations in time series, trend analysis, cyclical variation, seasonal variation, irregular variation. Index numbers- unweighted aggregates index, weighted aggregates index. Average of relative methods, quantity and value indices.
4. PERT/CPM : Phases of project management, work breakdown structure (WBS), network arrow diagram. Measure of activity, Forward and backward pass Computation, representation in tabular form, slack, critical path, probability of meeting the scheduled dates. A critical path for CPM, float, negative float, negative slack, crashing the network.
5. Basics of linear programming: Formulation of LPP, graphical method, simplex method, duality; Transportation model, least time transportation assignment model. TPT models- waiting line models, game theory.

Recommended books:

1. Business Statistics by Weiers
2. A first Course in Business Statistics by McClave
3. Quantitative Methods for Business and Economics by Glyn Burton, George Carroll, Stuart Wal
4. Business Statistics by J.K.Sharma
5. Business Statistics by S. P Gupta

PM-506 Information Technology and MIS**(3 credits)**

1. Introduction to hardware and software.
2. Office automation, business data processing including file organisation, data base management, artificial intelligence, flow charts and data flow diagrams.
3. End user computing using MS-Office package: MS Word, MS Excel, MS Power point, word processing including mail merge, transfer, editing, spreadsheet design, graphics, macros.

4. Networking concepts internet, network basics, tools and services on internet, browsing the net. Gopher Eile systems, network menus, electronic mail, address, newsgroup, all USENET, TELLNET for remote login, fundamentals of website design.
5. Data communication: Client/server technology, interactive computer graphics, computer viruses, downloading file with FTP, intranet and its business applications using HTML.
6. Functional applications of MIS with particular reference to knowledge management in pharmaceutical.
7. Application of following software in Management:
 - Sigma Stat · Excel
 - SPSS, SAS · ERP
 - SAP

Recommended books:

1. Management Information Systems by Kenneth C. Laudon
2. Information Systems for Modern Management by Robert G. Murdick
3. Fundamentals of Information Systems, Second Edition by Ralph M. Stair and George Walter Reynolds
4. Management Information system "Jayadevan".

PM-507 Human Behaviour in Organization

(2 credits)

1. Foundations of organisational behaviour: Understanding behaviour in organisations, OB model.
2. Introduction to Individual.
3. Motivation: Needs, contents and processes; Maslow's hierarchy of human needs, Herzberg's two factor theory of motivation, Vroom's expectancy theory.
4. Group processes:
5. Importance of values: Types of values, attitudes and consistency (cognitive dissonance theory).
6. Group dynamics and teams.
7. Leadership: Trait theories, behavioural theories, Ohio state studies, university of Michigan studies, the managerial grid, contingency theories; Hersey and Blanchard's situational theory and path goal theory.
8. Transactional analysis.
9. Organisational culture: What is organisational culture, what does culture do, creating and sustaining culture, how employees learn culture.
10. Organisational change: Forces of change, resistance to change, approaches to managing organisational change.
11. Conflict management: Transitions in conflict thought, functional Vs dysfunctional conflict, the conflict process.

Recommended books:

1. Organizational Behavior by Luthans, F.
2. Organizational Behavior - Human Behavior at Work by Newstrom, J.W. and Davis, K.
3. Understanding Organizational Behaviour by Pareek, U.
4. Organizational Behavior by Robbins, S.P., Judge, T. and Sanghi, S.
5. Organisational Behaviour and Change by Weiss, P.

PM-508 IPRs in Pharmaceutical Management**(1 credit)**

1. IPR fundamentals: IP vs conventional property. Importance/role of IPRs in business management. Introduction to 8 different IP mechanisms, their characteristics, properties and business.
2. IPRs in strategic business planning: Business implications and importance of various IP mechanisms, especially patents.
3. Elements of national and international patent applications: Forms and formats. Drafting of patent applications; Fee, time schedules and related aspects. International patenting and introduction to PCT. Understanding patent life cycle management.
4. Patents as sources of technological jumps: Introduction to technology capture concepts in business development. Making use of technology tools in business globalization. Technology development organizations in India and abroad.
5. Patent mapping: Introduction and practical utility in business development.
6. International treaties-I: Introduction to TRIPS. Concept behind GATT/TRIPS. Emergence of WTO.
7. International treaties-II: DOHA declaration and its significance for Indian pharma industry. Cancun agreement. WIPO and its role in IP promotion at global level.
8. Development of human IPR resources for business management: Essential requirements, job profiles. Introduction to MIPC (Germany) and FPLC (USA). Role of AUTM, LESI. Practical tips for enhancing IP related qualifications for management professionals.
9. Ethics in IP: Importance and need for training in ethics and values in the context of IPRs. Case studies.
10. Case studies:
 - a) Using patents as tools in strategic business planning.
 - b) Drafting of technology offers and requests.
 - c) Generating an ICC (infringement clearance certificate) and Technology status report) GTSR (Global
 - d) Practical exercise on patent mapping.

Recommended books:

1. Law Relating to Intellectual Property by B.L.Wadhera
2. IPR Handbook for Pharma Students and Researchers by P.Bansal
3. The Patents Act, 1970 (Bare Act with Short Notes) (New Delhi: Universal Law Publishing Company Pvt. Ltd. 2012)

4. Patent Agent Examination by Sheetal Chopra and Akash Taneja
5. Making Innovation Happen- A simple and Effective Guide to Turning Ideas into Reality by Michael Morgan
6. Making Breakthrough Innovation Happen by Porus Munshi
7. Innovation X- Why a Company's Toughest Problems are its Greatest Advantage by Adam Richardson
8. Legal Drafting for the Layman by Nabhi Kumar Jain
9. How to Write and Publish a Scientific Paper by Rober A Day
10. Concise Law Dictionary-with Legal Maxims, Latin Terms and Words and Phrases by Justice Y.V.Chandrachud
11. Biomedical Research- From Ideation to Publication by G.Jagadeesh and others

PM-511 Seminar

(1 credit)

1. Introduction, information retrieval systems.
2. Writing term papers and reports.
3. Organization of scientific material, thesis, dissertation and references.
4. Reading research papers.
5. Skills in oral presentation.

Each student has to present a seminar before end of the semester.

II Semester

PM-601 Pharmaceutical Business Environment

(3 credits)

1. Concept, significance and nature of corporate environment. Critical elements of various broad environment factors changing dimensions of corporate environment. Emergence of new business houses in India.
2. Technique of environmental scanning. Environmental scanning of some industries.
3. Economic environment of business: Concept, component (fiscal and monetary policy) and development (pre-globalisation).
4. Political legal environment of business: The critical elements of political environment constitution provisions affecting business in India; The preamble, directive principles of state policy and fundamental rights, the economic roles of the government, growth and control of corporate sector in India. Political dimensions of doing business in India, changing dimensions of legal environment in India.
5. International and technological environment: Multinational Corporation, foreign collaboration and Indian business, nonresident Indian and corporate sector, World Bank, IMF polices and India, trade barriers, foreign trade policies, the technological environment in India, policy for research and development, technology and economic development, appropriate technology and problems of technology transfer.
6. Socio cultural environment.

Recommended books:

1. Business and Government by Francis Cherunilam
2. Business Environment by K Chidambaram and V Alagappan
3. Business Policy and Environment by K Aswathappa
4. Business Environment by F. Cherunilam
5. Business Environment by Raj Aggarwal and Parag Diwan
6. International Business Environment and Management by V K Bhall and S Shiva Ramu
7. Government and Business by N K Sengupta
8. World Trade Organization by Anne Krueger
9. Indian Constitution by D D Basu
10. Constitution of India by P M Bakshi
11. Technology Acquisition and Application: Interpretation of the Indian Experience by A V Desai
12. Technology and Economic Development The Indian Case by Debashish Mallick
13. Multinational Corporations in India by Shiva Ramu
14. Business Laws by N D Kapoor
15. Business Policy and Strategic Management by W F Glueck and Jauch
16. India's Family Owned Business ICFAI Case Study Series
17. Globalisation (The Economist Publication)

PM-602 Financial Management**(3 credits)**

1. Corporate finance function: Concept, scope and its relationship with other functional areas. Sources of financial information, financial institutions and markets. Objectives. Function in corporate finance- need, characteristics, classical objective functions, some real world problems, maximizing shareholders wealth. Understanding financial statements - ratio analysis, cash flow statement, EVA, reporting on corporate governance. Present value - time value of money as basis of financial decision-making, mathematics of finance, spreadsheet modeling in corporate finance. Risk and return - concept of risk, relationship between expected return and risk, models for risk and return - CAPM, APT and multi-factor models.
2. Investment decision making: Estimating free cash flows, cost of capital decision rules, capital budgeting rules to projects when facing capital rationing constraints. Capital structural planning - operating and financial leverage; Capital structure theories and value of firm; Capital structure planning and policy; Cost of capital, capital structure and value of firm.
3. Financing decision: Hybrid securities namely convertible and non-convertible debentures, deep discount bonds , warrants, secured premium notes. Asset-based financing - leasing, hire purchase. Dividend policy- dividend theories, determination of dividend policy, share buyback, retention of profits, dividend policy studies in India.
4. Venture capital financing: Concept, developments in India, process and method of financing, fiscal incentives, debt securitization.

5. Working capital estimation and management: Operating cycle concept, managing cash and cash equivalents, managing inventory, managing accounts receivables, managing payables. Working capital financing - trade credit, bank finance, commercial paper, factoring, money market structures and recent developments.
6. Valuation of M & A projects: Economics of M&A , methods of valuation - NAV, PECV, MPS, EPS.
7. Corporate strategy, financial policy and shareholder value creating: Link between corporate strategy and financial strategy, implications for capital structure, dividend policy and capital budgeting policy of each corporate strategy.

Recommended books:

1. Fundamentals of Financial Management by James C. Van Horne and John H. Wachowicz Jr.
 2. Financial Management: Theory and Practice by Prasanna Chandra
 3. Principles of Managerial Finance by Lawrence J Gitman
 4. Financial Management by R P Rastogi
 5. Financial Management by Ravi M. Kishore
 6. Financial Management: Principles and Practices by Dr. S N Maheshwari
 7. Financial Management by M Y Khan and P K Jain
 8. Financial Management by I M Pandey
 9. Financial Management by P V Kulkarni
 10. Principles of Corporate Finance by Richard A. Brealey and Stewart C. Myers
 11. Financial Statement Analysis by George Foster
 12. Modern Corporate Finance by Alan C Shapiro and Sheldon D. Balbirer
 13. Creating Value from Mergers and Acquisitions: The Challenges by Sudi Sudarsanam
 14. Understanding and Analyzing Balance Sheets using Excel Worksheet by Ruzbeh J. Bodhanwala
- Journals & Magazines
15. Vikalpa (IIM, Ahmedabad)
 16. Decision (IIM, Calcutta)
 17. Vision (MDI, Gurgaon)
 18. Chartered Accountant (ICAI, New Delhi)
 19. Management Accountant (ICWAI, now ICAI)
 20. Finance and Development (IMF)
 21. Capital Market
 22. Outlook Business

PM-603 Marketing Research

(3 credits)

1. Introduction: Nature, scope and importance of marketing research, role of marketing research in decision making; Factors influencing marketing research decisions, marketing information systems, the marketing research process.

2. Problem identification.
3. Research design: Exploratory, descriptive and conclusive. Methods of data collection - observation, experimentation, survey, desk research method.
4. Sampling Plan: Sampling method, sample size, designing of questionnaire.
5. Field investigation.
6. Data processing: Editing, coding, classification and tabulation.
7. Data analysis: Hypothesis testing.
8. Application: Product research, advertising research, market and sales analysis research.

Recommended books:

1. Marketing Research by Agrawal, S.
2. Marketing Research by Boyd, Westfall and Stasch
3. Marketing Research, Methodological Foundations by Churchill, G. A.
4. Marketing Research for Managers by Crouch, S.
5. Handbook of Marketing Research by Ferber, R.
6. Research for Marketing Decisions by Green, Tull and Albauni
7. Marketing Research - Measurement and Method by Tull and Hawkins
8. Marketing Research by Aaker
9. Marketing Research by Naresh Malhotra
10. Statistics in Marketing Research by Chuck Chrapani
11. Statistics for Marketing and Consumer Research by Mario Mazzocchi
12. Questionnaire Design by IAN Brace Marketing Research by Malhotra

PM-604 Materials and Operations Management**(3 credits)**

1. Integrated materials management: Concept, need, definition, and scope and advantages.
2. Materials planning: Need and definition, factors affecting planning, external and internal, purchasing and materials planning, techniques of planning, guidelines of planning.
3. Materials identification and standardization: Classification of materials, codification systems, standardization.
4. Inventory control: Importance and scope, costs, economic order quantity; Inventory control techniques.
5. Introduction to production and operations management: Evolution of Production / operations management; Nature of production/operations management; Production function and its environment, functions of production /operations manager, organization of production function.
6. Facilities planning: Product selection and design, service design, process and technology selection, location of manufacturing / service facility, center of gravity and median models, dimensional analysis, Brown and Gibson model.

7. Layout of manufacturing /service facility: Product layout, process layout, fixed position and group layout , layout design; Relationship based and load-distance cost matrix, materials handling concepts.
8. Production planning and control: Aggregate production planning, materials requirement planning, operations scheduling and production, activity control for mass manufacturing, batch processing and job shop.

Recommended books:

1. Operations Research by Kalavathy, S.
2. Operations Research by Kapoor, V.K.
3. Operations Research by Paneerselvam, R.
4. Operations Research: Theory and Applications by Sharma, J.K.
5. Operations Research: An Introduction by Taha, H.A.
6. Operations Management by Bernard Taylor
7. Production and Operations Management by Adam, Ronald and Ebert
8. Production and Operations Management by Aswathappa and Bhat

PM-605 Business Communication

(3 credits)

1. Executive communication perspective: Meaning, importance, elements of the communication model, barriers to communication.
2. Ethics in business communication: Ethics, audit, communication in a global market place. Business communication and legal issues, business communication and technology contract.
3. The case method: Introduction and brief history. Steps in case analysis, case presentation.
4. Principles of business communication - written: The Gunning Fog Index. The reasoning process.
5. Principles of business communications - oral: Making speeches, conducting meetings. Giving dictation.
6. Types and techniques of business letters: Basic qualities of business letter. Opening paragraph, closing paragraph.
7. Mechanics of letter writing: Specific types of letters, resume, inquiries - solicited and unsolicited, answers to inquiry letters, favourable and unfavourable, order, order acknowledgement. Thank you letters, claims, answers to claims, bad news letters, sales letters.
8. Report Writing.

Recommended books:

1. Business Communication Today by Courtland, B. L. and Thill, J.V.
2. Business Communication: Building Critical Skills by Lochar, K.O. and Maczmarch, S.K., Effective
3. Business Communication by Murphy, H.A; Hilderbrand, W. and Thomas, P.J.,
4. Management Communication: A case Analysis Approach, Pearson Education by O'Rourke, J.S.

5. Handbook for Writers and Editors by Rao, S.S.
6. Basic Communication: Skills for Empowering the Internet Generation by Raymond, L. and Flately, M.

PM-606 Human Resource Management**(2 credits)**

1. The field of HRM: An overview, concept and functions, personnel to HRM.
2. The Personnel organisation: Structure of human resource development and role and responsibilities of the human resource manager.
3. Personnel policies: Formulation and essentials of sound personnel policies.
4. Acquisition of human resources: Objectives, policies and process, manpower planning, job analysis, job description, job specification, recruitment, selection, induction, placement, promotion and transfer.
5. Development of human resources: Determining training needs, training, management development and performance appraisal.
6. Maintenance of human resources: Compensation, administrative job evaluation, designing and administering the wage and salary structure.
7. Separation processes: Turnover, retirement, layoff and discharge, VRS.
8. Research and the future: Current trends and future implications for HRM.

Recommended books:

1. Human Resource Management by Aswathappa, K.
2. Human Resource Management Theory and Practice by Bratton, J. and Gold, J.
3. Human Resource Management by Dessler, G.
4. Human Resource Management by Flippo, E.
5. Managing Human Resources by Gomez-Mejia, L.
6. Human Resource Management by Ivantsevich, J.
7. Human Resource Management by Kandula, S. R.,

PM-607 Supply Chain Management in Pharmaceutical Sector**(3 credits)**

1. Concept of supply chain management, scope of SCM in Pharma Sector
2. Drivers and obstacles of supply chain.
3. Planning - demand and supply in a supply chain.
4. Management of inventories in supply chain.
5. Transportation, network design in supply chain
6. Role of information technology in supply chain.
7. Co-ordination in supply chain.
8. Financial factor affecting supply chain.
9. Role of Logistics in supply chain.

Recommended books:

1. Supply Chain Management by Chopra
2. Marketing Logistics by Kapoor and Kansal
3. Logistics and Supply Chain Management by Cristropher
4. Strategic Supply Chain Management by Cohen and Rossel
5. Strategic Supply Chain Management by Micheal Hugos

**PT-610 Topics Relevant to Drugs and Pharmaceutical Industry
(1 credit)**

1. Drug and pharmaceutical plants: Building layout, equipment layout, regulatory requirements for the same.
2. Safety aspects: Fire, explosion, toxicity, hazards of some selected organic/ inorganic chemicals- methods for handling them safely
3. Disaster Planning: Hazard appraisal and control, disaster planning ("on-sight" and "off-sight").
4. Corrosion and its prevention: Corrosion characteristics of selected organic/ inorganic chemicals and compatible materials of construction.
5. Documentation and regulatory record keeping: Record keeping as required by different statutory bodies,
6. Management information systems (MIS): Information Managemenet, need, users, systems
7. Pollution and Pollution control concept: cept and type of pollution, ecology and ecological balance, pollution and health hazards, gaseous pollution and control, water pollution and control,
8. Waste Management: Waste minimization technology used in pharma plants.
9. Instrumentation and process control: Fundamentals of automatic control, process measurements -concept of accuracy, sensitivity and precision, measurement and control of temperature, pressure level, density, PH, dissolved oxygen and carbon dioxide
10. Use of computers in process control: Basics and recent computer developments in automation.

Recommended books:

1. Fire Safety Management by Satish Tandon
2. Pollution Prevention of Chemical Processes by Allen David T.
3. The Treatment and Handling of Wastes by Bradshaw, A.D.
4. Good Pharmaceutical Manufacturing Practice: Rationale and Compliance by Sharp John
5. Management Information Systems by Laudon Kenneth C.
6. Plant Design and Economics for Chemical Engineers by Peters, Max S.

PM-611 Seminar**(1 credit)**

1. Introduction, information retrieval systems.
2. Writing term papers and reports.
3. Organization of scientific material, thesis, dissertation and references.
4. Reading research papers.
5. Skills in oral presentation.

Each student has to present a seminar before end of the semester.

III Semester**PM-551 Project Management****(3 credits)**

1. Overview: Phases of capital budgeting; Levels of decision making and objectives of capital market and demand analysis: Situational analysis and specification of objectives, collection of secondary information, conduct of market survey, characterization of the market, demand forecasting, market planning.
2. Technical analysis: Study of material inputs and utilities, manufacturing process and technology, product mix, plant capacity, location and site, project charts and layouts, work schedule financial analysis: Estimation of cost of project and means of financing, estimates of sales and production, cost of production, working capital requirement and its financing. Estimates of working results, breakeven point. Project cash hours. Time value of money. Cost of capital appraisal criteria: Net present value. Benefit cost ratio. Internal rate of return, payback period. Accounting rate of return, Investment appraisal in practice.
3. Analysis of risk: Types and measure of risk: Single estimation of risk, sensitivity analysis, scenario analysis, Monte Carlo simulation, decision tree analysis, selection of a project, risks analysis in practice.
4. Financial feasibility analysis: Preparation of detailed project report, format of application form of all India financial institutions.
5. Project management: Forms of project organisation, project planning, project control, human aspects of project management, pre-requisites for successful project implementation.
6. Social cost benefit analysis (SCBA): Rationale for SCBA: UNIDO approach to SCBA, Little Mirrless approach to SCBA, SCBA by financial institutions, public sector investment decision making in India.
7. Environment appraisal of projects: Types and dimensions of a project, meaning and scope of environment, environmental resources and values, environmental impact assessment and environmental impact statement.
8. Project financing in India: Means of finance, issues and policies of financial institutions, SEBI guidelines for financing, plans, structures of financial institution in India, schemes of assistance, term loan procedures, project appraisal by financial institutions.

Recommended books:

1. Projects: Preparation Appraisal and Implementation by Prasanna Chandra
2. Project Management: Strategic Financial Planning, Evaluation and Control by Bhaunesh M Patel
3. Total Project Management The Indian Context by P K Joy
4. United Nations: Industrial Development Organization's guide to Practical Project Appraisal Social Benefit Cost Analysis in Development Countries
5. Practical Project Management by R G Ghattas
6. Project Management by Harvey Maylor

PM-552 Entrepreneurial Development**(3 credits)**

1. Entrepreneurship: Need, scope and philosophy.
2. Creativity and entrepreneurship.
3. Entrepreneurial competencies and traits.
4. Factors affecting entrepreneurial development: Religious, social, cultural, political, ancestral and demographic.
5. Entrepreneurship: A function of innovation.
6. Entrepreneurship: The achievement motive in economic growth.
7. Entrepreneurship: Theory of social change.
8. Entrepreneurship: Family structure, migration and the enterprise entrepreneurship.
9. Intrapreneuring and Entrepreneurship
10. Barriers to entrepreneurship
11. Intrapreneurial grid.
12. Becoming an Intrapreneur
13. Phases in intrapreneurship
14. Major approaches to corporate entre-preneurship.
15. Entrepreneurship competencies: Meaning and evaluation.
16. Community and entrepreneurship.
17. Social determinants of entrepreneurial growth
18. Functions of entrepreneur
19. Classification of entrepreneurs.

Recommended books:

1. Dynamics of Entrepreneurial Development and Management by Vasant Desai
2. Entrepreneurship Development Small Business Enterprises by Poornima Charanthimath
3. Small Scale Industries and Entrepreneurship by Vasant Desai
4. The Theory of Economic Development by Joseph A. Schumpeter

5. Entrepreneurial Development by S S Khanka
6. Business Innovation by Praveen Gupta
7. Launching New Ventures by K. Allen
8. Business Start-Up Kit by Steven D. Strauss Journals/Magazines:
9. The Journal of Entrepreneurship
10. Harvard Business Review
11. California Management Review
12. Economic and Political Weekly
13. Business World
14. Business Today
15. The Economist
16. Franchisee
17. Business Line
18. Business Standard
19. The Economic Times
20. Financial Express

PM-553 National Regulatory Environment**(2 credits)**

1. The Pharmacy Act, 1948.
2. The Drugs and Cosmetics Act, 1940.
3. The Drugs and Magic Remedies (Objectionable Advertisement Act), 1954.
4. DPCO, 1995.
5. Patents Act, 2005/
6. Infant Milk substitutes, feeding bottles (Regulations of production, supply and distribution Act, 1992).
7. Clinical trial application requirement in India.
8. IND, NDA, ANDA application in Indian context.
9. Prevention of Food Adulteration Act.
10. Narcotics Drugs and Psychotropic Substance, 1985.
11. Latest amendments to the Drugs & Cosmetics Act.

Recommended books:

1. New Drug Approval Process, edited by Richard A. Guarino
2. The Pharmaceutical Regulatory Process, edited by Ira R. Berry
3. Medical Product Regulatory Affairs, edited by J. J. Tobin and G. Walsh
4. Pharmaceutical Jurisprudence by G K Jani
5. Official websites related to various guidelines - www.ICH.Org

6. Compliance Quality Standards in the Pharmaceutical and Regulated Industries,
7. FDA Regulatory Affairs, edited by Douglas J. Pisano
8. The Pharmaceutical Regulatory Process edited by Ira R. Berry, Marcel Dekker.

PM-554 International Marketing

(3 credits)

1. International marketing: Basis of international trade, theories of international trade, Adam Smith, Ricardo. Difference between domestic and international marketing.
2. EPRG framework. Scanning of international environment: Social, political, legal, economic, cultural environment for overseas markets.
3. Factors affecting international trade: Methods of entry, WTO/GATT, regional agreements commodity agreements.
4. Product: Identifying new products, international product planning, product design strategy, product elimination, adoption and diffusion of new products, branding strategies.
5. Pricing strategies: Methods of pricing, pricing an international product, transfer pricing, exchange rates and its impact on pricing factors affecting international prices.
6. Dumping and anti-dumping regulations.
7. Distribution strategies: Direct and indirect channels, factors affecting international channels, international channel management.
8. Promotion strategy in overseas markets: Perspectives of international advertising, standardization v/s localization, global media decisions, global advertising regulations, industry self-regulation.
9. Export documentation and procedures.
10. Foreign trade policy: EXIM Policy

Recommended books:

1. International Marketing Management by Miracle and Albaum
2. Management of International Operations by John Fayerweather
3. Accessing Export Potential by Martin T. Sliiper
4. Manager in the International Economy by R. Vernon
5. International Marketing by Vern Terpstra
6. International Marketing by V. H. Kriplani
7. Export Marketing by B.S. Rathore
8. Export Procedures and Documents by S.C. Jain
9. Global Marketing by Keegan

PM-555 Sales Management and Sales Promotion

(3 credits)

1. Sales management: Objectives of sales management, functions and qualities of sales executive.
2. Sales function and its relationship with other marketing function.

3. Sales organization: Relationship of sales department (distributors, government and public).
4. Salesmanship and process of selling.
5. Sales forecasting methods, sales budget, sales techniques and quotas.
6. Sales force management: Recruitment, selection, training, motivation and compensation of the sales staff. Evaluation and control of sales force.
7. Sales promotion: Marketing communication, how it works, barriers to communications.
8. Sales promotion objectives, introduction of sales promotion in pharma sector; Advertising, personal selling, public relations and sales promotion of pharma products with elaboration of sales promotion methods and techniques of target at customer / consumers; Coupons, cash rebates, premiums (gifts), free samples, contests and sweepstakes, point-of - purchase displays, product demonstrations, trade shows and exhibitions, advertising specialties, middlemen; Trade shows and exhibitions, point-of-purchase displays, free goods, advertising allowances, contents for sales people, training middlemen's sales forces, product demonstrations, advertising specialties, and sales force; Sales contests, sales training manuals, sales meeting, packets with promotional materials, demonstration model of product and ethical issues.

Recommended books:

1. Myers: Advertising Management by Aaker
2. Advertising by James and Morris
3. Sales Management, Decisions, Policies and Cases by Cundiff, Still and Govind
4. Sales Programme Management by Benson P. Shapdiro
5. Professional Sales Management by Rolper E. Anderson, Joseph F.Hair, Alex J. Bush
6. Sales Management: Concepts and Cases by Johnson, Kurtz and Scheving
7. Marketing Management by Philip Kotler

PM-556 Industrial and Service Marketing

(3 credits)

1. Industrial marketing: Role of industrial marketing, comparison with consumer marketing, purchasing and industrial marketing.
2. Product decision in case of industrial products.
3. Pricing in case of industrial products.
4. Product, and distribution decision with reference to industrial products.
5. Services: Service sector and economic growth, service concept characteristics and classification of service, challenges in service marketing.
6. Marketing mix in services marketing: Product, price, place, promotion, people, physical evidences and process decisions.
7. Strategic issues in service marketing; Service differentiation and positioning,
8. Managing service quality, productivity in services.

8. Designing a service strategy: marketing of health services hospitals and path labs
9. Designing a service strategy: Consultancy Organizations.

Recommended books:

1. Industrial Marketing by Alexander, Cross A Hill
2. Industrial Marketing by Raymond Corey
3. Industrial Marketing by Dodge
4. Services Marketing by S. M. Jha
5. Services Marketing by Ravi Shanker
6. Service Marketing by Lovelock

PM-557 Contemporary Issues in Pharmaceutical Marketing (2 credits)

1. Director to consumer.
2. E-detailing
3. Customer relationship management -CLV.
4. E-branding
5. Organised retailing
6. Integrated communication.
7. Good marketing practices

Recommended books:

1. Marketing Management by Czinkota, M.R. and Kotabe, M.
2. Marketing Management: Text and Cases by Douglas, J., Darymple, J. and Parsons, L.J.
3. Marketing Management: Analysis, Planning, Implementation & Control by Kotler, P.
4. Marketing Management by Michael, J.E., Bruce, J.W. and William, J.S.
5. Basic Marketing by Perreault, W.D. and Jerome, E.M.

PM-558 Fundamentals of R&D Management-I (2 credits)

1. Pharmaceutical Industry-an introduction: An introduction to the course and a brief discussion about the Pharma Industry in the national and global context
2. R&D- Understanding the nuances of Research and Development:
The meaning of 'Research' and 'Development'-How Research differs from Development
Role of research in national development and economic progress, Financial aspects of national research- outlays/outcomes/challenges

3. Management of Research- Funding, Monitoring, Outcome: Management of research at national level; Major organizations .e.g. DRDO, ICAR, ICMR, CSIR; Universities and autonomous institutes-1; Management of Research at Global level (USA and Europe); Major organizations (USA)/Europe-1; Organization of Research at Regional and Global levels, procedures adopted-1; Linkages and modalities for collaboration and co-ordination1
4. Research policy making: Research prioritization at National and Global level
5. R&D and Intellectual Property Rights: Critical role of IPRs in research management: Meaning and definition of IPRs, types and the mechanism most appropriate for R&D. Usefulness of patents for researchers; Role of prior art search in affecting quality of research; Avoiding duplication, infringement, identification of potential linkages and hot areas of research.
6. Practical strategies on making R&D benefit society: Challenges/ mechanisms, - Case studies and success stories.
7. Ethics and values in R&D: Understanding the elements of ethics and values; Critical importance in R&D - plagiarism and legal remedies

Recommended books:

1. Research and Development Management in the Chemical and Pharmaceutical Industry by Peter Barnfield
2. Third Generation R & D by Philip Roussel
3. Fourth Generation R & D by William and Miller
4. Towards Sixth Generation of R & D Management by Denis Nobelius
5. R&D Tactics by H.R. Kaufman
6. Strategic Management of Technology and Innovation by Burgelman and Maidique
7. Practical Process Research & Development by Neal G. Anderson
8. Research and Development Management by Alan Glasser

IV Semester

PM-651 Management Control System**(3 credits)**

1. Nature and scope of management control systems: Basic concepts, boundaries of management control. The management control environment - Behaviour in organizations including goals, goal congruence; Informal factors influencing goal congruence; Informal and formal control system; Types of organizations. Functions of the controller.
2. Management control structure: Responsibility centers; Revenue centers; Expense centers; Administrative and support centers; Research and development centers; Marketing centers; Profit centers. Transfer pricing - objectives, methods, pricing corporate services, administration of transfer prices. Measuring and controlling assets employed - structure of the analysis. Measuring assets employed; Economic value added (EVA) vs. return on investment (ROI); Additional considerations in evaluating managers; Evaluating the economic performance of the entity.

3. Understanding strategies: Concept of strategy; Corporate level strategies; Business unit strategies. Strategic planning - nature, analyzing proposed new programmes; Analyzing ongoing programmes. Strategic planning process. Budget preparation - nature, other budgets, budget preparation process; Behavioral aspects, quantitative techniques.
4. Analyzing Financial Performance: Variance Analysis. Performance measurement - information used in control system performance measurement systems; Interactive control. Management compensation - characteristics of incentive compensation plans; Stock options; Phantom shares; Performance shares; Performance criteria and agency theory.
5. Variations in management control: Revolution in management control; Emerging management system. Implication on management accounting; Position of management accounting controls for differentiated strategies - corporate strategy; Business unit strategy. Modern control methods - Just-in-time (JIT); Computer integrated manufacturing; Decision support systems. Total quality management: Core concepts of total quality management - quality for profits; Costs of quality; Learning from quality gurus such as Edward Deming, Joseph M. Juran, Kaoru Ishikawa, Philip B. Crosby, William E. Conway, Pitfalls in operationalizing TQM, ISO-9000: Concepts, certifications, methods and certifications. Service organizations and M.C.S.: Service organizations in general, professional service organizations; Financial service organizations; Health care organizations; Nonprofit organizations. Multinational organizations and M.C.S.: Cultural differences; Transfer pricing and exchange rates. Management control of projects.

Recommended books:

1. Management Control Systems by Robert N Anthony and Vijay Govindarajan
2. Cost Accounting: Planning and Control by Usry and Hammer
3. Cost Accounting: Processing, Evaluating and Using Cost Data by Morse and Roth
4. Cost Accounting A Managerial Emphasis by Charles T. Horngren and Srikant Datar
5. Management Accounting and Behaviour Sciences by Edwin H. Caplan
6. Concepts in Strategic Management and Business Policy by Thomas L. Wheelen and J David Hunger

PM-652 Strategic Management

(3 credits)

1. The conceptual framework of strategy: Concept and significance in pharmaceutical sector, definition.
2. Strategic Management Process
3. External and Internal Environmental process
4. Grand strategies:
 - a) Intensive growth opportunities: Market penetration strategy, market development strategy, product development strategy, diversification strategy.
 - b) Integrative growth strategy: Backward integration, forward integration, horizontal integration.
 - c) Diversification growth strategy: Concentric diversification, horizontal diversification, conglomerate diversification.

5. Concentration strategy, market development, product development, innovation, joint venture, retrenchment / turnaround, divestiture strategy, liquidation, combination strategy.
6. Choice of strategy: Factors affecting choice of strategy - firms mission, environmental factors, firm's strengths and weaknesses, managerial attitudes towards risk, managerial power relationships.
7. Implementation of strategies: Leadership implementation, functional policy implementation, organizational implementation.
8. Evaluation of strategy.
9. Strategic choice-considering strategic alternatives: Stability, retrenchment, expansion, combination.

Recommended books:

1. Business Policy and Strategy Concepts and Readings by McCarthy, Minichiello & Curran
2. Business Policy and Strategic Management Concepts and Application by Gupta, Gollakota and Srinivasan
3. Innovating Organization by Pettigrew & Fenton (eds.)
4. Strategic Management : Building and Sustaining Competitive Advantage by Pitts
5. Strategic Management by Dess and Miller
6. Business policy and Strategic Management by Azhar Kazmi

PM-653 International Regulatory Environment

(2 credits)

1. Concept and historical development of registration of pharma companies and their process over the year:
 - a) Safety
 - b) Efficacy
 - c) New drug approval.
2. Types of Registration application:
 - a) NDA
 - b) ANDA
 - c) DMF
 - d) Hybrid NDAs
3. Information consideration in regulatory filing:
 - a) Preclinical data.
 - b) Clinical data
 - c) Chemistry manufacture and control of data.
 - d) Labeling information, environment relating issue.
4. Comparative study of US and EU models with respect to NDA/ANDAs.
5. Attempt towards harmonisation of Global regulatory requirements - ICH initiatives.
6. Regulatory consideration for bio-tech derived products.

Recommended books:

1. New Drug Approval Process, edited by Richard A. Guarino
2. The Pharmaceutical Regulatory Process, edited by Ira R. Berry, Marcel Dekker

3. Medical Product Regulatory Affairs, edited by J. J. Tobin and G. Walsh
4. FDA Guidelines
5. Effective Drug Regulation, A Multi Country Study, by Sauwakon Ratanawijit www.ICH.Org

PM-654 Pharmaceutical Product Management (3 credits)

1. Introduction to product management: Definition, role of product management and scope of product management.
2. Product planning and development: Meaning of product, classification of pharma products, strategic planning for segmenting, targeting and positioning pharma products, product research and need gap analysis and health services. Operational pharma product planning including pharma sales programmes and budgeting, organising and controlling for pharma product management.
3. New product development process and methods: Type of new pharma products, complete product development process, product innovation, new product adoption and diffusion process, opinion leadership.
4. Pharma product mix strategies: Product portfolio management strategies, product mix and product line strategies, decisions regarding buying or making new products.
5. Product life cycle strategies: Domestic pharma product life cycle and international pharma product life cycle; Stages and strategies for each stage. R & D management for new product development.
6. Brand, packaging and other pharma product features: Pharma branding process and strategies, OTC generic and prescription product branding. Packaging and labeling, legal and social consumer inputs for different kind of packaging and labeling design control of spurious products.
7. Pharma product pricing issues: Social, economic, legal, ethical issues for pharma product pricing in India. Pricing methods and techniques. Other factors influencing pharma product pricing.
8. Pharma product distribution management: Pharma product channel design, single channel v/ s multiple channel strategies, roles and responsibilities of chemists for product promotion and distribution.
9. Pharma product promotion: Issues in pharma product promotion, approaches for pharma product promotion, DTC, e-detailing, physician related promotional programmes for increasing acceptance and sales of pharma products.

Recommended books:

1. Marketing: Concepts and Strategies by Pride, W.M. and Ferrell, O.C.
2. Marketing Management: Planning by Ramaswamy, V.S. and Namakumari, S. Marketing by Zikmund, A.
3. Innovating Organization, edited by Pettigrew & Fenton
4. Marketing Research - Measurement and Method by Tull and Hawkins
5. Product Policy and Strategy by Luck, D.J.

6. Product Management in India by Majumdar, R.
7. Product Policy, Concepts, Methods and Strategy by Wirid, Yoran R.

PM-655 Pharmaceutical Brand Management**(3 credits)**

1. Branding and its potential within the pharmaceutical industry: History, meaning, need, importance,
2. Branding in pharmaceutical industry,
3. Building brand values and brand strategy, timing, patient power,
4. Strategic brand management process.
5. The valuation of pharmaceutical brand: Relevance of brand valuation to the pharmaceutical Industry, The value of a brand, Inter-brand's brand valuation methodology,
6. Role of branding index, assessing brand strength.
7. The role of advertising in branding pharmaceuticals.
8. Brand development
9. Trade mark and regulatory issues.

Recommended books:

1. Strategic Brand Management by Kevin Keller
2. Brand Positioning by Sen Gupta
3. Managing Indian Brands by Ramesh Kumar
4. Brand Failures by Matt Haig

PM-656 Consumer Behaviour**(2 credits)**

1. Introduction to the study of consumer behaviour: Nature, scope and application.
2. Environmental influences on consumer behaviour: Cultural, social, personal, family and situation influences, opinion leadership and life style marketing.
3. Consumer as an individual: Involvement and motivation, knowledge, attitude, values, personality, learning and life style.
4. Consumer Behaviour Models. Consumers economic view, passive view, cognitive view and emotional view. Nicosia Model, Howard Sheth Model, Engel- Blackwell and Miniard Model, Family Decision Making Model.
5. Consumer decision process: Pre-purchase process, information processing, purchase processes, consumer decision rules, post-purchase processes; Framework, dissonance, satisfaction / dissatisfaction.
6. Consumer behaviour and society: Consumer rights, deceptive advertising and consumer education and consumerism.

Recommended books:

1. Consumer Behaviour by Long, G. Schiffman & Kanuk, L.L.
2. Consumer Behaviour by Engell and Blackwell
3. Consumer Behaviour by Walters
4. Consumer Behaviour by Holleway, Mattelshaedit and Venkatesan

PM-657 Advertising in Pharmaceutical Sector**(3 credits)**

1. Introduction of marketing communication and promotion management: Nature, scope, importance, role and promotion mix elements.
2. Nature and scope of advertising: Changing concepts of advertising, functions and types of advertising, economics and social effects of advertising.
3. Campaign, planning: Advertising campaign, campaign planning process:
(a) Product market analysis (b) Setting advertising objectives - DAGMAR approach (c) Advertising budgeting (d) Creative strategy and information processing (e) Media planning and scheduling.
4. Copy design and development: Copy, writing, script, story board, copy formats, layouts and illustration.
5. Advertising control: Measurement of advertising effectiveness, pre-measurement and post-measurement techniques of advertising research.
6. Advertising agency operations and management
7. Sales promotion: Factors affecting sales promotion, type of sales promotion, sales promotion planning.
8. Direct marketing: Direct response advertising, tele-marketing, advertising on internet.
9. Public relations and sponsorship marketing, even marketing

Recommended books:

1. Advertising Management by Aaker, Myers
2. Advertising by Wright, Warner, Winter and Zeigler
3. Advertising by James and Morris
4. Strategic Marketing, Guide for Developing Sustainable Competitive Advantages, Response Books by M.J. Xavier
5. Strategic Planning Formulation of Corporate Strategy by Ramaswamy and Namakumari
6. Marketing Management by Philip Kotler

PM-658 Fundamentals of R&D Management-II**(2 Credits)**

1. Strategic issues in R&D- an introduction: Introduction to the course and a brief discussion about strategic issues in R&D- project identification and selection; Human resources, infrastructural resources and execution strategies.

2. Research project selection criteria:
 - ◆ Avoiding duplication and infringement- appropriate search strategies and inputs for planning. oldidentification of relevance to national and societal needs- practical strategies.
 - ◆ Industrial problems as a source of project ideas, short-term and long term perspectives.
3. Human resources for research projects- building scientific skills and development of human resources for R&D: Identification of the human skill gap; Monitoring performance, reviewing, development of leadership qualities and managerial skills.
4. Infrastructural resource optimization: Strategies to avoid duplication of facilities; Networking and strategic tie-ups / creation and access of 'infrastructure databases'
5. Exploitation of research- invention management and business strategy development for research commercialization:
 - ◆ Understanding and addressing the 'development gaps' in research-reproducibility, scale-up, manufacturing challenges, regulatory aspects, ownership issues, material transfer aspects in case of biotech and pharmaceuticals.
 - ◆ Strategies for research commercialization- joint ventures, licensing, transfer of technology (tot) and strategic alliances (MOUs).
6. R&D management issues:
 - ◆ Interface between R&D, manufacturing and marketing.
 - ◆ National perspectives on R&D collaborations with industry.

Recommended books:

1. Research and Development Management in the Chemical and Pharmaceutical Industry by Peter Bamfield
2. Third Generation R & D by Philip Roussel
3. Fourth Generation R & D by William and Miller
4. Towards Sixth Generation of R & D Management by Denis Nobelius
5. R&D Tactics by H.R. Kaufman
6. Strategic Management of Technology and Innovation by Burgelman and Maidique
7. Practical Process Research & Development by Neal G. Anderson
8. Research and Development Management by Alan Glasser.

