National University, Bangladesh Gazipur-1704



# Syllabus for PGD in Supply Chain Management (SCM)

Effective from the Session: 2022-2023

## NATIONAL UNIVERSITY BANGLADESH PGD in Supply Chain Management (SCM) DETAILED SYLLABUS

## 1<sup>st</sup> Semester

<b>Course Code</b>	Course Title	Credit
827601	Fundamentals of Supply Chain Management	04
827603	Fundamentals of Management	04
827605	Organizational Behaviour	04
827607	Materials Management	04
827609	Quality Management	04
	Total Credits	20

## 2<sup>nd</sup> Semester

<b>Course Code</b>	Course Title	Credit
827611	Strategic Supply Chain Management	04
827613	Management Science	04
827615	Logistics and Distribution Management	04
827617	Procurement Management	04
827618	Internship+ Report Writing + Viva-voce	04
	Total Credits	20

## **Objectives of the PGD in SCM**

Supply Chain Management is a distinctive area of modern management which focuses on the development of business processes from suppliers to customers, including manufacturing, distribution, retailing, inventory, procurement, etc. The courses will provide knowledge to a student regarding the critical issues which are essential to ensure efficient SCM. After the end of the course, the student will be able to start up his or her own business focusing backward and forward linkage. Moreover, a student may start outsourcing service by utilizing the gained knowledge through the following courses.

## **Prospective Job Field**

- ✓ Anyone having knowledge regarding SCM may start his/her own business;
- ✓ A graduate can be a business consultant and help others to start and grow their businesses;
- ✓ Anyone having knowledge regarding SCM can work in the industry as\_\_\_\_\_
  - i. Supply Chain Manager,
  - ii. Logistics Manager,
  - iii. Transportation Manager,
  - iv. Front Line Supervisor,
  - v. Demand Planner,
  - vi. Inventory Manager,
  - vii. Procurement Manager,
  - viii. Purchase Manager,
  - ix. Store Manager,
  - x. Material Analyst and others related to this SCM field.

## NATIONAL UNIVERSITY DETAILED SYLLABUS

## 1<sup>st</sup> Semester

<b>Course Code</b>	Course Title	Credit
827601	Fundamentals of Supply Chain Management	4.00

## **Course Objectives**

This course will provide a conceptual understanding around the supply chain management to the learners. The learners will learn about the various issues that must be considered in designing, planning, and operating a supply chain in an organization effectively. This course is targeted toward an academic as well as a practitioner audience. Therefore the strategic frameworks and concepts included in this course which will enable the learners to significantly increase their competencies to achieve high level of organizational performance.

- 21<sup>st</sup> Century Supply Chains: Supply Chain Revolution, Definition of SCM, Objectives of SCM, Generalized Supply Chain Model, Decision Phases in SCM, Process views of a Supply Chain, Integrated Management, Responsive Business Model, Financial Sophistication, Impact of Globalization in SCM expansion, Digital Business Transformation, The "6 Fs" of Going Digital.
- Logistics: The Logistics of Value Proposition, The Work of Logistics, Logistical Operations.
- Customer Accommodation: Customer Focused Marketing, Customer Service, Customer Satisfaction, Customer Success, Forecasting, Collaborative Planning and Replacement.
- 4. **Procurement and Manufacturing:** The Quality Imperative, Procurement, Manufacturing, Logistical Interfaces.
- 5. **Inventory:** Planning for Inventory, Inventory Cost, Inventory Management Policies and Practices.
- Transportation Infrastructure and its Operations: Transportation Regulations, Transportation Structure, Transportation Services, Transportation Economies and Pricing, Transportation Administration, Transportation Documentation.
- 7. Warehousing, Packaging and Materials Handling: Strategic Warehousing, Warehousing Ownership Arrangement, Warehousing Decision, Packaging for

Materials Handling Efficiency, Materials Handling.

- 8. **Operational Integration:** Why Integration Creates Value? Systems Concepts and Analysis, Objectives of Logistical Integration, Enterprise Integration. Supply Chain Process, Supply and Operational Planning.
- 9. Logistics Design and Operational Planning: Planning Methodology, Supply Chain analysis Methods and Techniques.
- Information Technology Framework: Information Systems (IS) Functionality, Comprehensive IS Integration, Communication Technology, ERP Systems Design and its Rationality, SCIS.
- Global Supply Chain (SC) Positioning: Global SC Integration, Supply Chain Security, International Sourcing, The Off-shoring Decision: Total Cost, Risk Management of Global Supply Chain.

- Bowersos, D., J., Closs, J., D., & Cooper, M., B. Supply Chain Management (2<sup>nd</sup> Edition). The McGraw-Hill Companies.
- ii. Chopra, S., &Meindi, P. Supply Chain Management: Strategy Planning and Operation (6<sup>th</sup> Edition). Pearson.
- iii. Ronald H., Ballow, Samir K., Srivastava. Business Logistics/Supply Chain Management: Planning, Organizing, and Controlling the Supply Chain (5<sup>th</sup> Edition). *Pearson Education India Private Limited, New Delhi*, India.

Course Code	Course Title	Credit
827603	Fundamentals of Management	4.00

This course has designed to provide elementary knowledge regarding management. A learner can develop his fundamental managerial skills through the course which are essential to be a manager or leader or even entrepreneur. Through the course contents, it will be possible to provide a clear idea about basic management to a lay man which will help to develop both managerial and leadership capabilities.

- An Introduction to Management: Definition of Management, The Management Process, Levels of Organization, Kinds of Manager, Functional areas of Management, Managerial Roles, Managerial Skills, the Science and Art of Management.
- 2. **Contributors of Management:** Henri Fayol,Frederick Winslow Taylor,George Elton Mayo, Henry Laurence Gantt.
- 3. **Planning:**Definition of Planning, Types of Planning, Organizational Goals, Kind of Goals, MBO, Kinds of Organizational Plans, SWOT Analysis, Blue Ocean Strategy.
- 4. **Organizing:** Organizational Levels and the Span of Management, Factors Determining the Span of Management, Departmentalization, Bases for Departmentalization, Centralization and Decentralization, Line Authority, Staff Authority, Functional Authority, Matrix Organization, Virtual Organization, Learning Organization, Reengineering, Management by Processes.
- Leading Process: Meaning of Leadership, Leadership Traits, Leadership Styles, Management Vs. Leadership, Transactional Leader Vs. Transformational Leader, Situational Approach of Leadership, LPC Theory of Leadership, Path Goal Theory of Leadership, Power, Types of Power.
- Controlling: Meaning of Controlling, Types of Control, Steps in Controlling Process, Purpose of Control, Types of Control, Bureaucratic Control, Feedback Control, Feed Forward Control.
- Decision Making: Definition of Decision, Decision Making Conditions, Steps in Decision Making Process, Group and Team Decision Making in Organization, Advantages and Disadvantages of Group and Team Decision Making, Groupthink. Decision Tree.

- i. Griffin, R. W. (2014). Management (9<sup>th</sup> Edition), Houghton Mifflin Company Boston New York.
- Weihrich, H., Cannice, M. V., & Koontz, H. (2012). Management (12<sup>th</sup> Edition), Tata McGraw-Hill Publishing Company Limited

Course Code	Course Title	Credit
827605	Organizational Behaviour	4.00

Human are the most unpredictable, complicated and strategic resource of an organization. As a result, any manager, who deals with people need to explore the knowledge of leading them towards goal. In order tobuilding motivated workforce towards the job, it requires having the knowledge regarding organizational behavior. Though SCM manager need to work with people at different stages of organization, so he/she must have the knowledge regarding organizational behavior. This course will provide a learner the basic of people's management at work place.

- Fundamentals of Organizational Behaviour: Definition of OB, Goals, Key Forces, Fundamental Concepts of OB, Systems Approach of Organization, Models of OB and Limitations of OB.
- 2. Social Systems and Organizational Culture: Understanding Social Systems, Social Culture, Role, Status, Organizational Culture.
- 3. **Personality and Values:** Definition of Personality, MBTI, Personality Model, Definition of Values, Significance of Values, Terminal Vs. Instrumental Values.
- 4. Group Behaviour: Meaning of Group, Types, Formal Vs. Informal Organization, The Nature of Informal Organization, Benefits and Limitations of Formal/Informal Organization, Definition of Committee, Factors to be Considered in Committee Formation, Definition of Team, Significance of Teamwork, Process of Team Building, Matrix Organization, Group VS. Committee Vs. Team.
- 5. **Employee Attitude:** Meaning, Nature, Effects, Job Satisfaction and Its Benefits, Employee Turnover, Reasons for Turnover.
- Motivation: Concepts, Motivational Drives, Needs Theory, Behaviour Modification, Goal Setting Theory, The Expectancy Model Theory, and The Equity Model Theory.
- Conflicts and Negotiation: Meaning of Conflict, The Conflict Process, Meaning of Negotiation, The Negotiation Process.
- 8. **Power and Politics:** Meaning of Power, Bases of Power, Power Tactics, Meaning of Politics. Features of Organization Politics.

9. **Stress and Counselling:** Definition of Stress, Causes, Outcomes, Frustration, Approaches of Stress Management, Definition of Counselling, Significance, Types.

- i. Robbins, S. P.,& Judge, T. A., (2010). Organizational Behaviour (13<sup>th</sup> Edition), Prentice Hall India Private Ltd. New Delhi.
- ii. Davis, K., &Newstrom, J. W., (2018). Organizational Behaviour: Human Behaviour at Work (*12<sup>th</sup> Edition*). *McGraw Hill Publication Ltd*.
- iii. Dessler, G. (2014). Humn Resource Management (12thEdt.). Pearson Publication Ltd.

<b>Course Code</b>	Course Title	Credit
827607	Materials Management	4.00

Material management is a crucial task for any warehouse manager. This course will provide a conceptual understanding about the tasks involved in material management process. The learners will learn about the different tools involved in material management through the course contents.

- 1. Introduction to Materials Management: Concepts, Operating Environment, Order Qualifiers and Order Winners, Manufacturing Strategy, Manufacturing Planning and Control, Physical/Supply Distribution.
- 2. **Production Planning:** Manufacturing Planning and Control Systems, Sales and Operations Planning, Manufacturing Resource Planning, ERP.
- 3. **Master Scheduling:** Relationship to Production Plan, Development of a Master Production Schedule,Production Planning, Master Scheduling.
- 4. **Material Requirement Planning (MRP):** Concepts, Bills of Material,MRP Process, Use of MRP.
- 5. **Capacity Management:**Concepts, Capacity Requirement Planning, Capacity Available, Capacity Required (Load), Scheduling Orders.
- Production Activity Control:Order Preparation, Scheduling, Load Scheduling, Scheduling Bottlenecks, Theory of Constraints and Drum-Buffer-Rope, Production Reporting, Product Tracking.
- 7. Forecasting and Demand Management:Demand Forecasting, Characteristics of Demand,Principles of Forecasting, Forecasting Techniques.
- Physical Inventory and Warehouse Management: Warehouse Management, Physical Control and Security, Inventory Record Accuracy, Consignment Inventory and Vendor- Managed Inventory, Technology Application.
- Lean Production: Concepts, Waste, The Lean Production Environment, Manufacturing Planning and Control in a Lean Production Environment, ERP Vs. Kanban Vs. Theory of Constraints.

- Chapman, S. N., Arnold, J. R. T., Gatewood, A. K., & Clive, L. M., (2017). Introduction to Materials Management (8<sup>th</sup>Edt.). Pearson Publication, New York.
- Krajewski, L. J., &Ritzman, L. P., (2010). Operations Management; Strategy and Analysis (6<sup>th</sup> Edition). Pearson Education, Inc.
- iii. Richard, B. C., Jacobs, F. R., Aquilano, N. J., & Agarwal, N. K., (2010). Operations Management (11<sup>th</sup> Edition). Tata McGraw-Hill Publishing Company Limited, New Delhi.

Course Code	Course Title	Credit
827609	Quality Management	4.00

Quality management is a significant tasks to an efficient management systems. The managers in all level must know the basic tools to ensure quality in the development of products or services. This course will provide a conceptual understanding about the quality management systems through which the learners will learn about the techniques of quality management which will help to ensure efficient service.

- Understanding Quality:Definition of Quality, Competitiveness and Customers, BuildingQuality Chains, Managing Quality, Needs Assessment in Quality Management, Quality in all Functions.
- 2. **Policy, Strategy and Goal Deployment:** Integrating TQM into the Policy and Strategy, The Development of Policies and Strategies.
- Design for Quality:Definition of Design, Innovation and Improvement, Design Process, Quality Function Deployment (QFD), Specifications and Standards, Design Quality in the Service Sector.
- Performance Measurement Frameworks:Performance Measurement and the Improvement Cycle, Costs of Quality, The Process model for Quality Costing, The Implementation of Performance Measurement Systems (PMS).
- Self-assessment, Audits and Reviews: Frameworks for Selfassessment, Methodologies for Self-assessment, Capability Maturity Model Integration (CMMI) Assessment, Securing Prevention by Audit and Review of the Management Systems, Internal and External Management System Audits and Reviews.
- Benchmarking and Change Management: Definition of Benchmarking, Significance of Benchmarking, Communicating, Managing Stakeholders and Lowering Barriers, A Framework for Organizational Change.
- Quality Management Systems (QMS):Definition of QMS, Significance for QMS, QMS Design and ISO 9000, QMS Requirements.
- 8. Continuous Improvement: Approaches, Methodologies and Tools for Continuous

Improvement, The 'DRIVER' Framework for Continuous Improvement, Statistical Process Control, Taguchi Methods for Process Improvement, Six Sigma, Lean Systems, Approaches to Lean Intervention, The Building Blocks of Lean.

- 9. **Culture Change Through Teamwork:**Group, Team, Committee, The Need for Teamwork, Sages for Team Development, Personality Types and the MBTI.
- Total Quality Management (TQM):Definition of TQM, TQM Framework, Quality Award Models, The Four P's and Three C's of TQM, Planning the Implementation of TQM, Sustained Improvement.

- i. Oakland, J. S. (2014). Total Quality Management and Operational Excellence(4<sup>th</sup>Edt.). *Routledge Taylor & Francis Group, London and New York*.
- Besterfield, D. H., Michna, C. B., Besterfield, G. H., &Sacre, M. B. (2004). Total Quality Management (3<sup>rd</sup>Edt.). *Pearson Edition, Inc.*
- Dean, J. W., &Evans, J. R. (1994). Total Quality Management, Organization and Strategy. San Francisco, Los Angeles, New York.
- iv. Hasin, A. A. (2007). Quality Control and Management (1<sup>st</sup>Edt.). Bangladesh Business Solutions.
- v. Mannan, M. A., &Ferdousi, F., (2007). The Essentials of Total Quality Management (1<sup>st</sup>Edt.). *The University Grants Commission of Bangladesh.*
- vi. John, B.A. The Essence of Total Quality Management. New York: Prentice -Hall.

Course Code	Course Title	Credit
827611	Strategic Supply Chain Management	4.00

## **Second Semester**

#### **Course Objectives**

The course Strategic Supply Chain Management has designed by focusing the constrains in SCM process. Through the course, the learner will learn the different tools to deal with excessive competition. Moreover, the learner will develop knowledgeregarding collaborative efforts to deal with crisis moments.

- Supply Chain as Strategic Assets: Key Configuration Components, Types of Operations Strategy, Criteria of Good Supply Chain Strategy, Boundary Conditions of Core Strategic Vision, Contributions of Supply Chain in Business Strategy, Next Generation Strategy.
- 2. Development of an End-to-End Process Architecture: Components of Supply Chain Architecture, Tests of Supply Chain Architecture, Collaborative Planning withinand Extended Enterprise, Automation and Over automation, Levels of Supply Chain Operations Reference (SCOR) Model, Benefits of Using Each level of SCOR, Process of End-to-End SCM, Next Generation Process.
- 3. Designing Organization for Performance: Challenges of Organization Relating to Supply Chain, Organizational Change is an Ongoing Process, Preconditions of Effective Organization Relating to Supply Chain, Evolution of the Supply Chain Organization, Guiding Principles for Organizational Design, RACI Analysis, Gaining Respect for the Supply Chain Discipline, Next-Generation Organizational Design.
- 4. **Building Right Collaborative Model HR:** Drivers of Collaboration, Benefits, Types, Collaboration is a Spectrum, Finding the Right Place for Spectrum, The Path of Successful Collaboration, Considerations to Select the Right Partner, Considerations towards Collaborative Operations, Next-Generation Collaboration.
- 5. Use Metrics to Drive Business Success: Performance Measurement, Needs, Managing Performance with Metrics, Components of Effective Metrics Program, Components of Total SCM Costs, Specific Metrics to Solve Performance Problem, Steps in Implementing Performance Management Program.

## **BOOKS RECOMMENDED**

 Cohen, S., &Roussel, J., (2005). Strategic Supply Chain Management: The Five Disciplines for Top Performence (1<sup>st</sup>Edt.). *McGraw-Hill Companies*.

Course Code	Course Title	Credit
827613	Management Science	4.00

Decision making is an inevitable and most critical task of manager. In this regard, the manager need to take decision on the basis of his own intuition which may not be perfect in all situation. In modern era, a manager may apply different forms of quantitative tools with his own intuition which will reduce the risk. This course will help a student to develop the capacity to analyze a real world any type of complex situation. Moreover, this knowledge will strengthen their ability to make decision in a most systematical and logical manner.

- Introduction: Concept of Operations Research, Characteristics, Significance of Operations Research, Scope of Operations Research in Modern Management, Ways of Developing Quantitative Analysis Model, Types of Mathematical Models, Limitations of Operations Research.
- Decision Analysis: Definition of Decision, Steps Involved in Decision Making, Types of Decision- Making Environments, Decision Making Conditions, Tabular analysis in Decision Making, Decision Trees.
- Business Forecasting and Time Series Analysis: Definition of Forecasting, Types of Forecasting, Steps in Forecasting, Time-Series Models, Trend Analysis, Casual Models and Qualitative Models, Judgmental Forecasting Methods, Moving Averages and Exponential Smoothing, Forecasting Errors.
- 4. Linear Programming (LP): Nature of LP, Formulation of LP Model, Advantages and Limitations and Solution Methods, Graphic Method of Solution.
- Duality: Duality in LP, Dual Form of the Problem, Primal- Dual Relationship, Solution to the Dual, Economic Interpretation to the Dual, Sensitivity Analysis: Objective Function, Sensitivity Analysis: Right Hand Side.
- Distribution Models: The Transportation Problem-Characteristics and Assumption, Transportation Method and Assignment Problem.
- 7. Waiting Line and Queuing Theory: The Queuing Situation, Methodology of Queuing Analysis, Characteristics of Queuing System, Arrival Process, Waiting Line, Service Process, Single-Channel Queuing Model, Multichannel Queuing

Model, Constant Service Time Model, Finite Population Model.

- 8. **Game Theory:** Definitions, Characteristics of Games, Types of Game, Determination of Value of Game.
- 9. **PERT, CPM and Other Networks:** Introduction to PERT and CPM, PERT Vs. CPM, Formulation and Solving PERT and CPM, Event Analysis, Activity Analysis.

- i. Gupta, P. K., &Hira, D. S., (2015). Problems in Operations Research: Principles and Solutions. *S. Chand & Company Ltd. New Delhi.*
- Turban, E., &Merideth, J. R., (2010). Fundamentals of Management Science (6<sup>th</sup> Edition). The McGraw-Hill Companies, INC. Primis Custom Publishing.
- Render, B., Stair, R. M., Michael, J., Hanna, E., &Badri, T. N., (2017). Quantitative Analysis for Management (*11<sup>th</sup> Edition*), Dorling Kindersley (India) Pvt. Ltd.
- iv. Gupta, S. P., & Gupta, M. P., (2013). Business Statistics (New Edition).Sultan Chand & Sons, New Delhi.

Course Code	Course Title	Credit
827615	Logistics and Distribution Management	4.00

Logistics Management is an inevitable and technical task of Supply Chain manager. This course will provide a details knowledge of logistics management. The learner will learn about the different weapons of logistics management through the course which will make him efficient regarding it.

- 1. Logistics, The Supply Chain and Competitive Strategy: Logistics Management, Competitive Advantage, Mission of Logistics Management, The Supply Chain and Competitive Performance, The Changing Competitive Environment.
- Measurement of Logistics Costs and Performance:Logistics and the Bottom Line, Logistics and Shareholder Value, Logistics Costs Analysis, Total Cost Analysis, Costs-to-Serve Customer Profitability Analysis, Cost Drivers and Activity- Based Costing.
- Creating the Responsive Supply Chain: Volume/Variability Matrix, The Product 'Push' Vs. Demand 'Pull', The Japanese Philosophy, The Agile Supply Chain, The Foundations of Agility, A Route Mapto be Responsive.
- 4. **Strategic Lead Time Management:**Time Based Competition, Lead Time, Logistics Pipeline Management, Reduction of Logistics Lead-Time.
- Service Logistics: Meaning of Service, Service Dominant Logic, The Trend to *Servitisation* 'The Critical Role of Capacity, Service Supply Chain Process, Management of Service Supply Chain.
- Risk Management: Why are Supply Chains More Vulnerable? Supply Chain Risk Profile, Management of Supply Chain Risk, Achievement of Supply Chain Resilience.
- The Era of Network Competition: The New Organizational Paradigm, Collaboration and Trust in Supply Chain, Reduction of Costs Through Supply Chain Collaboration, 'Co-opetition'-Co-operating with Competitors, Supply Chain Orchestration, From 3PL to 4PL.

8. **Overcoming the Barriers to Supply Chain Integration:** Developing Logistics Vision, The Problems with Conventional Organizations, Developing the Logistics Organization, Benchmarking.

- Christopher, M., (2015). Logistics and Supply Chain Management (5<sup>th</sup>Edt.). . *Chand* & Company Ltd. New Delhi.
- Bowersos, D., J., Closs, J., D., & Cooper, M., B. Supply Chain Management (2<sup>nd</sup> Edition). The McGraw-Hill Companies.
- iii. Chopra, S., &Meindi, P. Supply Chain Management: Strategy Planning and Operation (6<sup>th</sup> Edition). Pearson.

Course Code	Course Title	Credit
827617	Procurement Management	4.00

Procurement is a complex strategic decision where a number of considerations are involved. A person who works in the area of SCM need to know in depth knowledge regarding procurement process. This course has designed by focusing the basic knowledge which are inevitable for knowing the basic of procurement process.

- 1. **Introduction:**Definition of Procurement, Strategic Role of Procurement, Procurement as Organizational Buying, The Evolution of Purchasing Through to Procurement, The Status of Procurement and Supply Management (PSM).
- Strategic Procurement:Strategy, Levels in Organizational Strategy, Types of Strategy, Strategic Analysis, Strategy Formulation, The Evaluation of Alternative Strategies, Post-Implementation Evaluation, Control and Review. Strategic Procurement and Supply Chain Process Models.
- Procurement Policies, Procedures and Support Tools:Procurement Procedures, Analysis of Procurement Process, E-commerce, E-business, E-SCM, E-procurement, The Evolution of E-procurement Models, Electronic Data Interchange (EDI), E-HUBS, Exchanges, Portals, Marketplaces, E-catalogues, E-auctions, Reverse Auctions, E-payment, Procurement Manuals, Supplier Manuals.
- 4. Legal and Contractual Management:Procurement Specialist, Contract Law, Offer and Acceptance, Contracts for the Sale of Goods,Contracts for the Supply of Services, Drafting the Detail of Contract Clauses, Standard Forms of Contract.
- 5. Sourcing, Supplier Selection and Performance Management:Strategic Sourcing Process, Analysis of Market Conditions, E-sourcing, Locating Suppliers, Supplier Assessment, Evaluation of Supplier Performance, Outsourcing, Outsourcing Manufacturing and Services, Drivers of Outsourcing, Types, Benefits and Problems of Outsourcing, Sub-contracting, Partnering, Intra-company Trading, Procurement Consortia, Sustainability, Sourcing Decision, Factors in Deciding Where to buy?
- Purchase Price Management: Strategic Pricing, The Buyers' Rolein Managing Purchase Price, Supplier Pricing Decision, Supplier Choice of Pricing Strategy, Price and Cost Analysis.

## **BOOKS RECOMMENDED**

i. Lysons, K., & Farrington, B., (2016). Procurement and Supply Chain Management (9<sup>th</sup>Edt.). *Pearson Publication Ltd.* 

Course Code	Course Title	Credit
827618	Internship + Report Writing+Viva-Voce	4.00