SEMESTER III

Course Title: Supply Chain Management

Course Code: POM702

Course Objectives:
This course aims to develop an understanding of the supply chain management practices and their interrelationships with other organizational functions. This course provides students the necessary analytical tools and prepares them for managing the supply chain operations. Students completing this course will have basic knowledge of procurement, logistics, vendor management and supply chain management. The course also provides exposure to the latest developments, trends and practices in this field. Industry experts would be invited to present the practical issues in managing the function.

Syllabus:

Module I: SCM concepts. Sourcing Process and Managerial Issues.

Understanding the Supply Chain, Understanding logistics. Evolution of Logistics and Supply Chain Management in the Overall Organization's Functioning, Objectives of a Supply Chain. Process views of a Supply Chain. Value Chain of a Company. SCM drivers and Metrics.

Purchase Management, Sourcing Process, Strategic Sourcing, Total Cost of Ownership, Global Sourcing, INCO Terms, E-Procurement/E-Commerce. Vendor Management and Development.

Module II: Logistics Management

Logistics defined, Scope of logistics; Value added logistics services. Logistics at the centre of World Trade. Global logistics operation and its document handling. Types of shipment. Containerization in SCM, Role of logistics in Distribution channel. Multi-modal transportation. Logistics outsourcing:3PL and 4PL logistics. Reverse Logistics and Closed-Loop Supply Chain.

Module III: Managing the Supply Chain Performance .

Warehousing operations, Inventory Management, Supply Chain Cycle Inventory ,Safety Inventory, Vendor Managed Inventory, SCM and Information Technology, Application of RFID, ERP, JIT, Optimization of Supply Chain, Retailing Management, Waste Elimination and Lean Thinking in Supply Chain; Supply chain performance measurement systems; Supply Chain Balanced Score Card, SCOR Model..

Module IV: Latest Development, Trends and Practices

Application of Block chain, Artificial Intelligence and Internet Of Things in SCM, Risk Management in Supply chains, Governance issues and role of Ethics, Sustainability and the Supply Chain. Best Practices in SCM.

Text & References:

- Agarwal (2010), Supply Chain Management, Macmillan India

- Bowersox, Closs and Cooper (2008), Supply Chain Logistics Management, Tata McGraw-Hill
- Chopra, Meindl and Kalra (2019), Supply Chain Management: Strategy, Planning, and Operation, Pearson Ed.
- Rangaraj, et al (2009), Supply Chain Management for Competitive Advantage, Tata McGraw-Hill
- Ray (2010). Supply Chain Management for Retail, Tata McGraw-Hill,Sople (2010),Logistics Management, Pearson Education.
- Shah (2009), Supply Chain Management: Text and Cases, Pearson Education
- Sharma (2010), Supply Chain Management, Oxford University Press
- Simchi-Levi, et al (2008), Designing and Managing the Supply Chain, Tata McGraw-Hill
- Wisner, Leong and Tan (2005), Principles of Supply Chain Management, Cengage

Course Title: Capacity Planning and Management

Course Code: POM 704

Course Objectives:

The objective is to familiarize the students with the aspects of planning and control of capacity in an organization for enabling its economic utilization, as well as the ongoing changes required in it over the life cycle of the organization in consonance with changing environments. The aim is to instill sharper understanding about the economics of trade-off in outlaying an optimized capacity toward delivering competitive products and services nationally and worldwide in right quality, right quantity, at right time.

Syllabus:

Module I: Dimensions of capacity

Operational perspectives on capacity; Goods production and service creation capacity; Designed capacity and capacity utilization; Effective transformation capacity; Capacity efficiency; Collaborative capacity; Tactical and strategic dimensions

Module II Economics of Capacity

Rough cut & composite capacity requirement planning; Capacity forecasting on demand assessment; Capacity creation on Short-, Immediate-, and Long-Term capacity need & trade-off; Capacity creation typology; Create-hire-acquire capacity additions; Greenfield and brown field mode of capacity enhancement

Module III Optimizing Capacity

Service level-focus of capacity; Surge capacity; Manpower-, technology-, & facility-oriented capacity strategy; Capacity value vs. cost optimization; Capacity learning in goods and services; . Capacity reengineering

Module IV Capacity Management & Control

Queue management & service enhancement principles; Flow variability and demand management; Capacity maintenance; Applying Lean, 5S for capacity productivity. Capacity Re-Balancing. Capacity lifecycle management: installation through renewal

Module V Recent Trends

Flexible Manufacturing Systems. Subcontracting. Outsourcing. Technological advancement

Text Reading:

- Anupindi, et al., Managing Business Process Flows, New Delhi: Pearson Education
- Beckman and Rosenfield, Operations Strategy, McGraw-Hill International
- Chapman, The Fundamentals of Production Planning and Control, New Delhi: Pearson Education
- Johnston and Clark, Service Operations Management, New Delhi: Pearson Education
- Metters, et al., Successful Service Operations Management, Cengage Learning

- Mohanty and Deshmukh, Advanced Operations Management, New Delhi: Excel Books
- Narasimhan, McLeavey, Billington, Production Planning and Inventory Control, New Delhi: Prentice-Hall
- Nichloas, Competitive Manufacturing Management, Tata McGraw-Hill
- Wisner and Stanley, Process Management, New Delhi: Cengage Learning
- McNair and Vangermeersch, Total Capacity Management, Florida, U.S.A.: CRC Press

Course Title: OPERATIONS PLANNING, SCHEDULING AND CONTROL

Course Code: POM 705

Course Objectives:

The objective is to familiarize the students with the aspects of scheduling, planning and control of operations in an organization for enabling economic utilization of resources with regard to changing market dynamics over the planning horizons. The aim is to instil sharper understanding about the economics of trade-off in outlaying an optimized capacity toward delivering competitive products and services nationally and worldwide in right quality, right quantity, at right time.

Course Contents/Syllabus:

Module I Role of operations planning, scheduling and control

Role of operations planning, scheduling and control in goods and service businesses; Systems and processes; ATO, MTO and MTS scenarios; Matching supply with demand; Pre-planning operations; Managing Marketing and Finance interface activities; Orienting manpower for essential performance measures

Module II Forecasting and aggregate planning

Forecasting and aggregate planning in goods & services; Master schedules; Make or buy; Material requirement planning; Capacity engagement planning; Facility preparedness assessment; Manufacturing resources planning; Work order generation; Handling random priorities; Managing operational variability and flexibility

Module III Job-shop, flow-shop, and service sequencing

Work-order registration; Job-shop, flow-shop, and service sequencing; Operations resource allocation; Resource loading; Facilitating off-line setup; Operations activity control; Improving P: D ratio; Order closure and material redeployment; Generating work progress and variance reports for management information

Module IV Resource Management and JIT

Ascertaining schedule performance and gaps; Coordinating outsourced and in-house production; Bottleneck resource management; Process-based & capability-based flow control; Lean MRP; Toyota system and Kanban; JIT-I and JIT-II; Managing cycle time reduction and cost reduction imperatives; Factoring operations learning

Module V Recent Trends

An introduction to TPM. An introduction to ERP. Role of ERP in changing era

Text:

- Phillips, Robert. 2005. Pricing and Revenue Optimization. Stanford University Press, Stanford, CA.

References:

- Ingold, A., Yeoman, I., and U. McMahon-Beattie, Yield Management: Strategies for the Service Industries.
- Talluri, Kalyan T., Garrett J. van Ryzin. 2004. The Theory and Practice of Revenue Management. Kluwer, Boston, MA.
- Yeoman, I., and U. McMahon-Beattie, Revenue Management and Pricing: Case Studies and Applications, London: International Thompson Business Press, 2004.

Course Title: SERVICE OPERATIONS MANAGEMENT

Course Code: POM 711

Course Objectives:
The objective of the course is to understand the growing significance and impact of services on the growth and economy and the scientific ways to run the operations so as to optimize the business and brand returns.

Course Contents/Syllabus:
Module I : Understanding Service Operations

Introduction; Nature & Role of Services in Economy; Service Operations and their Management Fundamentals; Service Strategy; Positioning of Services in the Organisation Value Chain

Module II: Service Operation Infrastructure

Service Facility Design, Layout & Location, Off-shoring & Outsourcing; Technology in Services, Front-office Back-office Interface; Human Factor in Services; External Associates in Service Processes

Module III : Service Process Management

Service Encounter Design and Control; Managing Service Processes; Experience Management in Service Operations; Service Quality and Reliability Assurance; Service Process Improvement & the Associated Methodologies; Experience Innovation Paradigm; New Service Development

Module IV : Improving Service Delivery Propositions

Service Growth and Globalization; Forecasting Demand for Services; Capacity and Demand Management; Customer Expectations and the Planned Provision in Service Delivery; Legal Aspects of Expectation-Delivery Gaps; Service Waiting Line and Customer Relationship Management; Inventory Management for Improved service Delivery

Module VI Incorporating AI and Other Latest Technologies in Service Operations

Introduction to AI and other new age technologies. AI as a service (AIaaS). Futuristic Scenario of incorporating new technologies like cloud computing, simulation, robotics etc in service operations

Text Reading & References:

- Deborah (2008), Competitive Strategies for Service Businesses, New Delhi: Jaico
- Fitzsimmons & Fitzsimmons (2006), Service Management, Tata McGraw-Hill
- Haksever, et al. (2006), Service Management and Operations, Pearson Education
- Hollins (2007), Managing Service Operations, Sage Publications
- Johnston & Clark (2009), Service Operations Management, Pearson Education
- Metters, et al. (2006), Service Operations Management, Cengage Learning
- Davis & Heineke (2003), Managing Services: People and Technology,Tata McGraw Hill.

Course Title: Project Management

Course Code: POM 721

Course Objectives:

1. To provide theory and practice and the roles and responsibilities of the project manager.
2. To familiarize the student on the criteria of selection and identification of a project and carry out a rational appraisal
3. To understand project planning and be familiar with project control systems.
4. Explain global project management

Course Contents/Syllabus:

Module I Context of Project Management

Concept of Projects, Project Classification, Types and Categories of Projects; Infrastructure Projects, Project management in established firms, New Product Development Projects, Product/ Process Improvement Projects, Technology Induction & Assimilation Projects, Strategic Implications of Project Management Activities; Project Goals, Functions; Phases of Projects, 7S' of Projects; Project Life Cycles.

Module II Project Selection and Appraisal

Criteria for selection: Identification of the project; Project Portfolio Management; Request for Proposal; Project appraisal: Technical, Commercial, Economic, Financial and Management appraisal; Feasibility Study: Payback Period, NPV, IRR

Module III Project Planning and Organization

Project Planning: Planning steps, Master plan; Defining Project Scope, Work Breakdown Structure, Cost Breakdown Structure, Resource Breakdown Structure; Project Activity, Project Coordination, Scheduling Charts; Schedule, Gantt Charts, PERT & CPM, Allocation of Resources & resource leveling; Crashing of Projects, Project Team, Role of the leader; Project Organization: Pure, Matrix, functional

Module IV Cost & Time Estimation, Budgeting, Risk Analysis

Cost & Time Estimating methods, Budgets and Estimates; Cost-Time Overrun Issues and Implications; Project Risk Management process and Change control Management

Module V Project Review and Control

Project Monitoring and control; Project Quality Control; Critical Chain Project Management; Project Termination and Abandonment Analysis; Project Audit & closure

Module VI Recent Trends & Software Applications

Scrum Project Management. PERT Simulation. A hands on to MS Project software. Project Management in multi-cultural context

Text Reading:

- Badiru, A. B. (2012), Project Management: Systems, Principles and Applications, CRC Press (Taylor & Francis), 9781420083194
- Dalal, A.F. (2012), The 12 Pillars of Project Management, CRC Press (Taylor & Francis), 9781439849125
- Gray & Larson, Project Management, 5/e, Tata McGraw-Hill, 978-0-07-340334-2
- Harvard Business School Press (2007), The Essentials of Project Management (for HR Professionals), 9781591399247
- Keyes, J. (2011), Implementing the Project Management Balanced Scorecard, CRC Press (Taylor & Francis), 9781439827185
- Kloppenborg (2012), Contemporary Project Management, Cengage, 9780538477024
- Maley, C. H. (2012), Project Management: Concepts, Methods and Techniques, CRC Press (Taylor & Francis), 9781466502888
- Nagarajan (2012), Project Management, New Age Publishers, 9788122433241
- Nicholas and Steyn (2012), Project Management for Business, Engineering, & Technology, Taylor & Francis, 9780080967042
- Pinto (2009), Project Management: Achieving Competitive Advantage, Pearson India, 9788131727157
- Wysocki (2011), Effective Project Management, Wiley, 9788126533848

SEMESTER IV

Course Title: OPERATIONS STRATEGY

Course Code: POM724

Course Objectives:

The objective is to develop understanding about the practical aspects of operations strategy, selection of process and infrastructure development. The aim of this course is to make the students familiar with the changes required in the operational strategy with changing environment.

Course Contents/Syllabus:

Module I: Concept and Framework of Operations Strategy

Role and Objectives of Operations Strategy; Operations Strategy Framework: Incorporating Operations Strategy in the Corporate Strategy; Operations performance essentials; Competition, Competencies & Operations; Defining a Operations Strategy in Overall Environment;
Process of Operations Strategy Formulation

Module II: Resource View of Operations Strategy

Principles and Concepts of Developing Operations Strategy; Methodology of Developing Operations Strategy; Capacity Strategy: Capacity Types, Flexibility & Consolidation, Capacity Timing & Expansion, Capacity Sizing & Investment; Facility Strategy & Globalization: Infrastructure Development; Supply Network Strategy: Capacity Location, Global Network & Off-shoring, Strategic Sourcing, Coordinating the Supply Chain

Module III: Process View of Operations Strategy

Process Technology Strategy: Effect of Technology Advancement and Technology Management, Integration of Operations Strategy Planning and Technology Planning, Production Implications of Corporate Marketing Decisions; Strategy Development and Practices; Improvement & Innovation; New Product & New Service Development; Product Variety Impact in Operations Strategy; Operations Strategy Process – Sustainable Alignment

Module IV: Competency View of Operations Strategy

Implementation of Operations Strategy; Business Implication of Process Choice: Dynamics of process-product life cycles, Product Profiling, Improving Operations Process by Process Positioning; Cross-Cutting Capability; Operations Strategy Process – Implementation; Pre-requisites of Organized and Focused Operations Strategy & Unit; Principles and Concepts of Factory-within-Factory; Involvement of Human Aspects

Module V: Redefining Operations Strategy

Operations Redefining & Restructuring; Demand and Revenue Management; Operations Strategy Process – Substitutes: BPR, TQM, Lean, Six Sigma: Business Process Focused Strategies & Organization Development: Quality Planning and Controlling System, Improving Response Time with IT, Operations Audit Approach; Risk Management & Hedging: Accounting &

Financial Perspectives and Operations System, Business Continuity Planning, Disaster Recovery strategy

Text & References:

- Beckman / Barry. Operations Strategy: competing in the 21st Century, McGraw-Hill Higher Ed,
- Brown / Lamming / Bessant / Jones. Strategic Operations Management, Elsevier-India (Butterworth-Heinemann)
- Deborah. Competitive Strategies for Service Businesses, New Delhi: Jaico
- Hayes / Pisano / Upton / Wheelwright. Operations, Strategy, and Technology: Pursuing the Competitive Edge, Wiley
- Lowson. Strategic Operations Management, Routledge (Taylor & Francis)
- Mieghem. Operations Strategy: Principles and Practice, Dynamic Ideas Llc, MA: Charlestown, USA
- Slack / Lewis. Operations Strategy, 2/e, Prentice Hall / Pearson Education
- Walters. Operations Strategy, Palgrave Macmillan -India

Course Title: MANUFACTURING AND SERVICES COMPETITIVENESS

Course Code: POM725

Course Objectives:

The objective is to familiarize the students with manufacturing and services competitiveness, practices and importance as well as the changes required in the operational technologies with rapidly evolving environments. The aim is to instill sharper understanding about the practical current aspects of creating and delivering competitive products and services nationally and worldwide.

Course Contents/Syllabus:

Module I: Competitiveness Profiling in Manufacturing & Services

1. Product positioning and competitiveness strategy; 2. Taking execution to increase output, reduce cost, and generate more cash; 3. Competitiveness in manufacturing; 4. Evolution of World Class Manufacturing; Early models of Hall, Gunn, Maskel & Schonberger; Later frameworks and current approaches; Core competence model; 5. Service competitiveness; 6. Service strategy; 7. World Bank, OECD, and HSBC PMI indicators; 8. RBI BOP trends

Module II: Benchmarking Industry Competitiveness

9. Performance measurement; Measure to motivate; Traditional and non-financial measures; 10. Competitive intelligence; 11. Activity based costing; Transaction costs; 12. Process analysis and service blueprinting; 13. Comparing with efficiency frontier; 14. Competitor analysis; 15. Tracking outcomes for product experience enhancement

Module III: Attaining Competitiveness

Aligning strategy, structure, and processes for PESTEL factors; 17. Tracking and improving P: D ratio; 18. Master schedules for 3-R; Design Yield management; 19. Quantity, quality, and service learning; 20. Focused inventory management and service supply chain excellence; 21. Cycle time reduction; 22. Customer analysis and segmented initiatives to deliver faster, better, more and cheaper

Module IV: Emerging Trends & Challenges

23. WTO and GATS; 24. Role of subsidies in competitiveness; 25. Agreement on countervailing measures; 26. National Manufacturing Competitiveness Council, 27. National Manufacturing Plan and National Services Competitiveness Council agenda; 28. Technology and knowledge driven competitiveness; 29. Cultural sensitization and skill development for sustainable competitiveness

Text & References:

Hill and Hill, Manufacturing Operations Strategy: Text and Cases, Palgrave Macmillan. Johnston and Clark, Service Operations Management, New Delhi: Pearson Education Keegan & O'Kelly, Applied Benchmarking for Competitiveness, New Delhi: Jaico Mather, Competitive Manufacturing, Butterworth-Heinemann. Metters, et al.,

Course Title: LEAN SIGMA

Course Code: POM731

Course Objectives:

The objective of this course is to make the students understand the importance of a measurement based strategy, which focuses on process and sub-processes improvement through the application of Principles and methods of Lean Six Sigma.

Course Contents/Syllabus:

Module I: Overview of Six Sigma and Organizational Goals

1. The history and methodology, philosophy and goals,

2. Key drivers for business, project selection process, introduction to DMAIC, DFSS, seven basic quality tools.

3. Lean Principles: value chain, flow, pull, perfection, tools commonly used to eliminate waste, kaizen, 5S, error proofing, value-stream mapping. value-added and non-value added activities, excess inventory, space, test inspection, rework, transportation, storage, cycle time,

4. Theory of constraints.

Module II: Define Phase

5. Process components and boundaries, process owners, internal and external customers, other stakeholders, translating customer feedback into project goals,

6. Pareto chart,

7. CTQ attributes, VOC,

8. QFD, affinity diagrams, interrelationship digraphs, tree diagrams, prioritization matrices, matrix diagrams,

9. PDPC charts, activity network diagrams, business results for projects, process performance metrics,

10. DPU, RTY, COPQ,DPMO sigma levels and process capability indices, FMEA, RPN,

11. Six Sigma teams, Black Belt, Master Black Belt, Green Belt, Champion, executive, coach, facilitator, team member, sponsor.

Module III : Measure Phase

12. Process maps, written procedures, work instructions, flowcharts, SIPOC, relational matrices, techniques for assuring data accuracy and integrity,

13. GR&R, measurement correlation, bias, linearity, percent agreement, and P/T,

14. Natural process limits and specification limits, percent defective, Cp and Cpk, Pp, Ppk, Cpm,

Short-term vs. long-term capability, 1.5 sigma shift, sigma level for a process and its relationship to Ppk.

Module IV: Analyze Phase

15. Exploratory Data Analysis,

16. Create and Interpret Multi-vari studies to interpret the difference between positional, cyclical, and temporal variation; sampling plans to investigate the largest sources of variation,

17. Applications of simple linear correlation and regression,

Hypothesis Testing - Tests for means, variances, and proportions, paired-comparison tests, single-factor ANOVA and Chi squared Test in Six Sigma

Module V: Improve and Control Phase

18. DOE, SPC, rational sub grouping,

19. X Bar - R, p, np and c, implement and validate solutions,

20. Measurement system capability, re-analysis, and post-improvement capability,

21. Developing a control plan to document and hold the gains, implementing controls and monitoring systems.

Text:

- Evans, James R., Lindsay, William M., (2011), The Management and Control of Quality, 8th Edition, Cengage Learning
- Dale, Barrie G., Wieley, Ton Var Der, Iwaarden, Jos Van., Managing Quality, 5th Edition, Wiley India
- SubburajRamasamy, (2008), Total Quality Management, Tata McGraw Hill Education, India