Vidyalankar Institute of Technology

An Autonomous Institute affiliated to University of Mumbai

Master

of

Management Studies

Second Year Scheme and Syllabus (Operations)

(As per AICTE guidelines, with effect from the Academic Year 2024-25)

STRUCTURE OF SECOND YEAR OF POST GRADUATE MANAGEMENT PROGRAM:

Sr. No	Category	Credits Proposed
1	Core	03
2	General Education	04
3	Internship/Projects/Field Work	09
4	Specialisation Core	18
5	Specialisation Electives	12
6	Credit Transfer Course	04
	Total	**50**

The Autonomous curriculum for MMS is developed considering the current industry needs in terms of skill sets demanded under new business environment. The course structure is designed keeping in mind learner aspirations and corporate expectations. The second year of the programme offers following courses:

1. **Core Courses**: These are foundational and general management courses to help the learner to acquire tools, techniques, skills and concepts used in business. Core courses comprise of courses focusing on business administration areas like Accounting, Marketing, Communication, Leadership etc.
2. **General Education Courses:** To facilitate holistic and multidisciplinary education, novel and engaging course options will be offered to learners, in addition to courses of 2nd year. The emphasis of these courses is to develop proactive thinking to apply the knowledge in the dynamic and socio-economic business ecosystem.
3. **Specialisation Core**: Specialisation core courses focus on rigorous grounding corresponding to the area of selected specialisation. It helps the learners to develop proficiency in selected specializations after completing the core and open elective courses of business and management in 1st year.
4. **Specialisation Electives:** Learners can select electives from their chosen specialisation to explore and strengthen their area of expertise. It endeavours to strengthen learners chosen specialisation by selecting these electives to build the skill sets for learners through an integrated framework of theoretical and practical training for gaining deeper understanding in their selected specialisation.
5. **Summer Internship Project**: Summer internship project is a pivotal part of MMS program, offering real-world exposure, skills development, and a pathway to future career opportunities. It provides hands-on experience, allowing students to apply theoretical concepts in real-world business settings. This helps bridge the gap between classroom learning and actual business practices.
6. **Credit Transfer Course:** A credit transfer course is designed to allow students to earn academic credits at one institution and then transfer those credits to another institution, typically towards the completion of a degree or certification.

STRUCTURE OF SECOND YEAR (OPERATIONS) POST GRADUATE MANAGEMENT PROGRAM

SYMMS - Semester III – Operations (O)

Course Code	Course Name	Lecture Hours Per Week	Credits Assigned
MS34	Summer Internship Project	--	5
MS35	Business and Sustainable Development	3	3
MSO27	Technology Management	3	3
MSO28	Services Operations Management	3	3
MSO29	Purchasing and Materials Management	3	3
MSO30	Project Management	3	3
MSO31	Logistics Management	3	3
MSO32	Retail Store Management	3	3
MSOXX	Specialisation Elective I	3	3
MSOXX	Specialisation Elective II	3	3
MSOXX	Specialisation Elective III	3	3
MSGEXX	General Education Course	3	2
Total		**33**	**37**

Second Year Third Semester Specialisation Electives (SE): Operations (O)

Course Code	Course Name	Lecture Hours Per Week	Credits Assigned
MS36	Business Analytics	3	3
MSO33	Supply Chain Analytics	3	3
MSO34	Operations Outsourcing and Offshoring	3	3
MSO35	Retail Supply Chain Management	3	3
MSO36	Product Design	3	3
MSO37	Reverse and Contract Logistics	3	3
MSO38	World Class Manufacturing	3	3
MSO39	Warehouse Distribution and Transportation	3	3
MSO40	Total Quality Management	3	3
MSO41	Port and Terminal Management	3	3
MSO42	Containerization and Allied Business	3	3

SYMMS - Semester IV – Operations (O)

Course Code	Course Name	Lecture Hours/ Week	Credits
MS37	Functional Project/ Research Project	3	4
MS38	Credit Transfer Course	3	4
MSHXX	Specialisation Elective	3	3
MSGEXX	General Education Course	3	2
Total		**12**	**13**

Course Name: Technology Management

Course Code: MSO27

Category: Specialisation Elective/ Minor Degree Elective

Preamble:

The aim of this subject is to acquaint the students with the management of technology, various science and technology policies, technology forecasting and technology choice and evaluation.

Objectives:

The course introduces to technology management, technology forecasting, technology choice and evaluation, technology transfer and acquisition and technology absorption and innovation.

Pre-requisites: NA

Course Outcome:

1. Understand the issues around defining ‘technology’, ‘innovation’ and ‘innovation management’.
2. Recognize the diversity of types of innovation, innovators, and innovation settings.
3. Understand the nature and extent of technological change and innovation.
4. Critically assess and explain key current issues in our understanding of innovation as a field of study.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Technology management	Scope, components, and overview. Technology and environment, Technology and society, Technology Impact analysis, environmental, Social, legal, political aspects, methods, or techniques for analysis – steps involved. Technology policy strategy: Science and technology policy of India, implications to industry.	8
2	Technology forecasting	Need, methodology and methods – trend Analysis, analogy, Delphi, Soft System Methodology, Mathematical Models, Simulation, and System Dynamics.	8
3	Technology Choice and Evaluation	Methods of analysing alternate technologies, Techno-economic feasibility studies, Need for multi-criteria considerations such as, social, environmental, and political, Analytic hierarchy method, Fuzzy multi-criteria decision making, and other methods.	8
4	Technology Transfer and Acquisition	Import regulations, Implications of ‘Uruguay Round’, and WTO, Bargaining process, Transfer option, MOU	8
5	Technology adoption and Productivity	Adopting technology-human interactions, Organizational redesign and re-engineering, Technology productivity	8

Module No	Module Name	Content	No. of Hours
6	Technology Absorption and Innovation	Present Technology status in India, Need for new outlook, Absorption strategies for acquired technology, Creating new/improved technologies, Innovations – Technology Audit with reference to operations and SCM	5
Total			**45**

Suggested List of Tutorials :

Skill Set Acquired:

1. Understand the issues around defining 'technology', 'innovation' and 'innovation management'.
2. Recognize the diversity of types of innovation, innovators, and innovation settings.
3. Understand the nature and extent of technological change and innovation.
4. Critically assess and explain key current issues in our understanding of innovation as a field of study in manufacturing.

Textbooks:

1. Utterback, James, Mastering the Dynamics of Innovation, Harvard Business School Press,2010
2. Moore, G, Crossing the Chasm, Harper Collins,2009
3. Shapero, Albert, The Human Side of Managing Technological Innovation, Ralph Katz, Ed., Oxford U, Press,2008
4. Roberts, E.B., Entrepreneurs in High Technology: Lessons from MIT and Beyond, Oxford University Press,2009

Reference-Books:

1. Christensen, C.M. (1997) The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail, Boston, Harvard Business School Press.
2. Rogers, E. (2003) Diffusion of Innovations, 5th edn, London, The Free Press.

E- Resources:

http://www.open.ac.uk/postgraduate/modules/tb801

http://www.open.ac.uk/postgraduate/qualifications/f69

https://www.open.edu/openlearn/money-business/technology-innovation-and-management/content-section

MOOCs:

https://nptel.ac.in/courses/110/106/110106150/

Course Name: Services Operations Management

Course Code: MSO28

Category: Specialisation Core

Preamble:

This course will help students in improving organisations to make them better for customers and service providers. The Service Operations Management module will develop students' understanding of the concepts, tools and techniques taught previously relating to process design and delivery. However, in the Service Operations Management module we look at process design more from the customer's perspective.

Objectives:

1. To help understand how service performance can be improved by studying services operations management.
2. To familiarize various production processes and service systems, and to quantitative analysis of problems/ issues arising in the management of operations.

Pre-requisites:

1. Queuing Models
2. Simulation Techniques

Course Outcome: Student will be able to:

1. Define what a service is and how they can be strategic to organisations and learn how to classify services to better manage them.
2. Learn how services are designed, and explore service scape, service layout, flow, service blueprinting and new service development (NSD).
3. Describe the interplay between service demand and capacity through forecasting demand and planning capacity.
4. Understand how capacity management can be improved through effective queue design and implementation of flexible working.
5. Learn how to apply lean principles, tools and techniques, to improve the customer experience and service outcomes.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Introduction	Services – Importance, role in economy, service sector – growth; Nature of services -Service classification, Service Package, distinctive characteristics, open-systems view; Service Strategy – Strategic service vision, competitive environment, generic strategies, winning customers; Role of information technology; stages in service firm competitiveness; Internet strategies - Environmental strategies	9
2	Service Design	New Service Development – Design elements – Service Blue-printing - process structure – generic approaches –Value to customer; Retail	9

Module No	Module Name	Content	No. of Hours
		design strategies – store size – Network configuration; Managing Service Experience –experience economy, key dimensions; Vehicle Routing and Scheduling	
3	Service Quality	Service Quality- Dimensions, Service Quality Gap Model; Measuring Service Quality –SERVQUAL - Walk-through Audit; Quality service by design - Service Recovery - Service Guarantees; Service Encounter – triad, creating service orientation, service profit chain; Front-office Back-office Interface – service decoupling.	9
4	Service Facility	Services capes – behaviour - environmental dimensions; Facility design – nature, objectives, process analysis – process flow diagram, process steps, simulation; Service facility layout; Service Facility Location – considerations, facility location techniques – metropolitan metric, Euclidean, centre of gravity, retail outlet location, location set covering problem	9
5	Managing Capacity and Demand	Managing Demand – strategies; operations planning and control; Yield management; Inventory Management in Services– Retail Discounting Model, Newsvendor Model; Managing Waiting Lines –Queuing systems, psychology of waiting; Managing for growth- expansion strategies, franchising, globalization	9
Total			**45**

Suggested List of Tutorials:

1. Introduction to Service Operations

2. Simulation Techniques and Queuing Models

Skill Set Acquired:

1. Students will be able to design and operate a service business using the concepts, tools, and techniques of service operations management.

Text-books: **James A. Fitzsimmons, Service Management – Operations, Strategy, Information Technology, Tata McGraw-Hill – 7 th Edition 2013.**

Reference-Books:

1. Richard Metters, Kathryn King-Metters, Madeleine Pullman, Steve Walton Successful Service Operations Management, South-Western, Cengage Learning, 2nd Edition ,2012
2. Cengiz Haksever, Barry Render, Roberta S. Russell, Rebert G. Murdick, Service Management and Operations, Pearson Education – Second Edition.
3. Robert Johnston, Graham Clark, Service Operations Management, Pearson Education, 2nd Edition, 2005.
4. Bill Hollins and Sadie Shinkins, Managing Service Operations, Sage, 2006 6. J.Nevan Wright and Peter Race, The management of service operations, Cengage, 2nd Edition, 2004

E- Resources: International Journal of Services and Operations Management, International Journal of Operations Management and Services (JOMS) https://www.ripublication.com/joms.htm

MOOCs:

1. https://nptel.ac.in/courses/110/106/110106046/
2. https://www8.gsb.columbia.edu/courses/mba/2013/fall/b8107-002

Course Name: Purchase and Materials Management

Course Code: MSO29

Category: Specialisation Core

Preamble:

Industrial requirements to design appropriate systems to move goods, materials, and other industrial goods between points are addressed in this subject. Movement principles, frequency, and type of movements are studied considering reducing the overall cycle time, with due consideration on economics and payback period. This subject covers basic material planning, classification, coding, material handling equipment, safe and effective equipment operations, inventory management and warehouse management.

Objectives:

1. The aim of this course is to explain basic principles and development of automated material handling and storage systems in connection with the logistics processes.
2. To explain theories governing the mechanical design parameters of handling systems.

Pre-requisites:

NA

Course Outcome:

1. It explains about the different types of material handling, advantages, and disadvantages. It also suggests the selection procedure for the material handling along with its specifications.
2. Need for Material handling also explained with different techniques like Automated Material handling Design Program, Computerized material handling Planning will be dealt.
3. The Material handling is explained with models, selection procedure of material handling is depending on different function-oriented systems. This also related with plant layout by which the minimization of the handling charges will come down.
4. The ergonomics related to material handling equipment about design and miscellaneous equipment's.

Course Scheme:

Contact Hours		Credits Assigned	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	Module Name	Content	No. of Hours
1	Introduction	Operating environment-aggregate planning-role, need, strategies, costs techniques, approaches-master scheduling-manufacturing planning and control system-manufacturing resource planning-enterprise resource planning-making the production plan	8
2	Materials Planning	Materials requirements planning-bill of materials-resource requirement planning-manufacturing resource planning-capacity management-scheduling orders-production activity control-	8

Module No	Module Name	Content	No. of Hours
		codification. ABC Analysis: Meaning, Advantages, Objective, Purpose and Limitations, Simple Numerical of ABC Analysis.	
3	Inventory Management	Policy Decisions–objectives-control -Retail Discounting Model, Newsvendor Model; EOQ and EBQ models for uniform and variable demand With and without shortages -Quantity discount models. Probabilistic inventory models	8
4	Purchasing Management	Establishing specifications-selecting suppliers-price determination-forward buying-mixed buying strategyprice forecasting-buying seasonal commodities-purchasing under uncertainty-demand managementprice forecasting-purchasing under uncertainty-purchasing of capital equipment-inte	8
5	Warehouse Management	Warehousing functions – types - Stores management-stores systems and procedures-incoming materials control-stores accounting and stock verification-Obsolete, surplus, and scrap-value analysis material handling-transportation and traffic management -operational efficiency-productivity-cost effectiveness-performance measurement	8
6	Computers in Material Management	Electronic Computer, Integrated Computer System for Materials Management, Material Planning.	5
Total			**45**

Suggested List of Tutorials (10 Hours):

NIL

Skill Set Acquired:

Upon completion of this course, students will be able to understand the basics of material handling, the proper equipment to move different types of materials, how to safely move materials, understand general warehouse management procedures, and understand the basics of automated warehousing concepts and management.

Textbooks:

1. J. R. Tony Arnold, Stephen N. Chapman, Lloyd M. Clive, Materials Management, Pearson, 2012.

2. P. Gopalakrishnan, Purchasing and Materials Management, Tata McGraw Hill, 2012

3. A.K. Chitale and R. C. Gupta, Materials Management, Text and Cases, PHI Learning, 2nd Edition, 2006

4. A.K. Datla, Materials Management, Procedure, Text and Cases, PHI Learning, 2nd Edition, 2006

5. Ajay K Garg, Production and Operations Management, Tata McGraw Hill, 2012

6. Ronald H. Ballou and Samir K. Srivastava, Business Logistics and Supply Chain Management, Pearson education, Fifth Edition

7. S. N. Chary, Production and Operations Management, Tata McGraw Hill, 2012

Reference-Books:

1. Purchasing and Materials Management by N. K. Nair (Vikas Publishing House, New Delhi).
2. Materials Handling Equipment, N. Rudenko, A. Troitsky, Central Books Ltd.2002 ISBN 0714702854

3. Introduction to Materials Handling, Siddharta Ray, ISBN 978-81-224-2554-3

E- Resources:

1. Material Handling(https://www.oxfordhomestudy.com/courses/supply-chain-courses-online/material-handling)
2. https://www.vskills.in/certification/material-management-certification
3. https://www.hilarispublisher.com/scholarly/materials-management-journals-articles-ppts-list-167.html
4. http://www.iosrjournals.org/iosr-jmce/papers/vol13-issue4/Version-2/B1304021217.pdf

MOOCs:

1. https://nptel.ac.in/courses/110/105/110105095/
2. https://onlinecourses.nptel.ac.in/noc20_mg17/preview

https://www.mooc-list.com/course/purchase-management-edx

Course Name: Project Management

Course Code: MSO30

Category: Specialisation Core

Preamble: This course is designed to acquaint the students with the planning process in business and familiarize them with the project management. The students will get knowledge of various network techniques used in project management.

Objectives:

1. To familiarize students with the function & techniques of project management.
2. To acquaint students with Project co-ordination, Project audit and Project Termination

Pre-requisites:

NA

Course Outcome:

1. Develop tightly integrated project management plans and documents.
2. Apply appropriate estimating techniques to scope, schedule, cost, and resources.
3. Develop integrated change control procedures.
4. Plan and estimate project scope, resources, and schedule.

Course Scheme:

Contact Hours		Credits Assigned	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	Module Name	Content	No. of Hours
1	Introduction	Concept of Project Management. Scope & Coverage. Project Function in an Organization – Layout of Project Department. Role of Consultants in Project Management.	8
2	Project Identification	Selection of product identification of market preparation of feasibility study/report Project formulation -–Evaluation of risks preparation of Project report.	8
3	Project Location	Selection of location & site of the project – Factors affecting location – policies of Central – State Government towards location – Legal aspects of project management.	8
4	Financial Analysis	Profitability Analysis – Social cost Benefit Analysis preparation of Budget and Cash Flows. Materials Management in Project Planning – Procurement – storage – disposal.	8
5	Financing of the Project	Source of Finance – Cost implications thereof Financial Institutions –Guidelines for funding projects, Risk Analysis – Sensitivity Analysis.	8

Module No	Module Name	Content	No. of Hours
6	Quantitative Aspects of projects	PERT/CPM Network Analysis for monitoring of the project – Other quantitative techniques for monitoring and Control of project	5
Total			**45**

Suggested List of Tutorials :

NIL

Skill Set Acquired:

1. Plan projects from conception to implementation
2. Map out timelines.
3. Assess project risks and opportunities.
4. Execute each phase of the project life cycle.
5. Create, allocate, and manage the budget.
6. Deliver (and often maintain) the product or service.

Textbooks:

1. Prasanna Chandra, Project Planning, Analysis, Selection, Implementation, and review.
2. Gopalkrishanan P. & Ramamoorthy V. E., Textbook of project management.
3. Kemer Harold, Project Management
4. Dennis Hock, Project Management Handbook.
5. Choudhary S., Project Management

Reference-Books:

1. PMP - Project Management Professional - "Study Guide" - By Kimi Heldman
2. Project Management - By S. Choudhary
3. Project Appraisal - By P. K. Mattoo
4. Project Management - By Vasant Desai

E- Resources:

1. http://www.edo.ca/downloads/project-management.pdf
2. https://www.apm.org.uk/resources/what-is-project-management/
3. https://www.journals.elsevier.com/international-journal-of-project-management
4. https://www.pmi.org/learning/publications/project-management-journal

MOOCs:

1. https://www.coursera.org/specializations/project-management
2. https://www.coursera.org/professional-certificates/google-project-management
3. https://www.coursera.org/learn/uva-darden-project-management
4. https://www.coursera.org/learn/project-management-foundations
5. https://www.coursera.org/specializations/engineering-project-management

Course Name: Logistics Management

Course Code: MSO31

Category: Specialisation Core

Preamble:

1. This subject enables participants to demonstrate an understanding of logistics and its role in supply chain management. Participants will develop the ability to evaluate any logistics operations to which they are exposed and determine if it is working effectively. They will also be able to assess their own roles as operatives in the logistics process with the aim of improving their own performance.
2. This subject provides learners with the opportunity to develop an understanding of the logistics process and the various activities that form part of the process.

Objectives:

1. This course gives introduction to logistics, methods of logistics, providers, logistics issues and the introduction to supply chain management.
2. To learn the need and importance of logistics in product flow.

Pre-requisites:

Analytic and knowledge of business scenario.

Course Outcome:

1. To learn what is logistics.
2. To learn about the importance of logistics to business organizations.
3. To provide a brief overview of the set of activities that make up the logistics process.
4. To understand the relationship between logistics and supply chain management.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Introduction	Definition and Scope of Logistics – Functions & Objectives – Customer Value Chain – Service Phases and attributes – Value added logistics services – Role of logistics in Competitive strategy – Customer Service	8
2	Distribution Channels and Outsourcing Logistics	Distribution channel structure - channel members, channel strategy, role of logistics and support in distribution channels. Logistics requirements of channel members. Logistics outsourcing – catalysts, benefits, value proposition. Third- and fourth-party logistics. Selection of service provider.	8

Module No	Module Name	Content	No. of Hours
3	Transportation and Packaging	Transportation System – Evolution, Infrastructure and Networks. Freight Management – Vehicle Routing – Containerization. Modal Characteristics, Inter-modal Operators and Transport Economies. Packaging- Design considerations, Material and Cost. Packaging as Unitisation. Consumer and Industrial Packaging.	8
4	Performance Measurement and Costs	Performance Measurement – Need, System, Levels and Dimensions. Internal and External Performance Measurement. Logistics Audit. Total Logistics Cost – Concept, Accounting Methods. Cost – Identification, Time Frame and Formatting.	8
5	Current Trends	Logistics Information Systems – Need, Characteristics and Design. E-Logistics – Structure and Operation. Logistics Resource Management eLRM. Automatic Identification Technologies. Reverse Logistics – Scope, design and as a competitive tool.	8
6	Global Logistics	Operational and Strategic Issues, ocean and air transportation. Strategic logistics planning. Green Logistics	5
Total			**45**

Suggested List of Tutorials (10 Hours):

NIL

Skill Set Acquired:

1. To enable an efficient method of moving products with optimization of time and cost.
2. To acquaint the student with the scope, understanding and implementation with respect to the emerging stream of logistics and supply chain management.

Textbooks:

Reference-Books:

1. Bowersox Donald J, Logistics Management – The Integrated Supply Chain Process, Tata McGraw Hill,3rd edition 2016
2. Sople Vinod V, Logistics Management – The Supply Chain Imperative, Pearson Education, 3 rd Edition, 2012.
3. Coyle et al., The Management of Business Logistics, Cengage Learning, 7th Edition, 2004.
4. Ailawadi C Sathish & Rakesh Singh, Logistics Management, PHI, 2011.
5. Bloomberg David J et al., Logistics, Prentice Hall India, 2005.
6. Ronald H. Ballou, Business Logistics and Supply Chain Management, Pearson Education, 5th Edition, 2007.

E- Resources:

1. https://www.coursera.org/courses?query=supply%20chain%20logistics
2. https://www.emeraldgrouppublishing.com/journal/ijlm
3. http://www.sapub.org/journal/aimsandscope.aspx?journalid=1089

MOOCs:

1. https://www.oxfordhomestudy.com/courses/supply-chain-courses-online/free-online-courses-in-logistics-and-supply-chain
   (https://www.edx.org/course/logistics-fundamentals?index=product&queryID=0cdeaa576b0973db18d9088de073df64&position=10)

https://www.mooc-list.com/course/supply-chain-logistics-coursera

Course Name: Retail Store Management

Course Code: MSO32

Category: Specialisation Elective

Preamble: This course examines the overall organizational structure and relationships within a retail organization. It emphasizes sales supporting (non-merchandising) functions and current trends. It includes single-unit and multi-unit structures, receiving, marking, stock, warehousing, logistics, delivery, wrapping-packing, adjustments, credit, accounts payable, audit, security, workrooms, and personnel.

Objectives:

1. To enable students to critically analyse the retailing process, the environment within it operates and the functions that are performed.
2. To acquaint with managing a retail store, logistics and information, and setting up a retail organization.
3. To develop knowledge of contemporary retail management issues at the strategic level.
4. To describe and analyse the way retailing works, specifically the key activities and relationships.

Pre-requisites: NA

Course Outcome:

1. To describe factors involved in planning, organizing, pricing, and physically handling merchandise in the retail environment to make profit.
2. To demonstrate an understanding of the principles of store design, layout, and merchandise presentation.
3. To demonstrate an understanding of the current trends in retail management; and
4. To demonstrate an understanding of organizational structure and relationships that exists within a retail organization.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Overview of Retailing	Functions of Retailing – Retailing Formats and The Parameters For Strategy Mix Decision – Non Store Retailing – Wheel Of Retailing – Dialectic Process.	8
2	Setting Up Retail Organization	Size and Space Allocation – Location Strategy, Factors Affecting the Location of Retail – Retail Location Research And Techniques – Objectives Of Good Store Design.	8
3	Retail Store Management	Managing the Retail Store: Store Manager's Responsibilities: Staffing, Selection, Socializing and Performance Management –	8

Module No	Module Name	Content	No. of Hours
		Cost Control – Shrinkage Control.	
4	Logistics and Information System	Logistics and Information System, Improved Product Availability – Improved Assortment – Improved ROI, Strategies, Quick Response Systems.	8
5	Store Management	Responsibilities of Store Manager – Store Security – Parking Apace Problem at Retail Centres – Store Record and Accounting System – Coding System – Material Handling in Stores.	8
6	Store Layout	Design and Visual Merchandising, Exterior, Objectives of Store Design – Type of layouts (their relevance to various Formats) – Merchandise Presentation Techniques – Store Location Strategy.	5
Total			**45**

Suggested List of Tutorials :

NIL

Skill Set Acquired:

1. List and describe factors involved in starting and operating a retail business.
2. Discuss factors relating to location, site, and building decisions.
3. Demonstrate an understanding of the principles of store design, layout, and merchandise presentation.
4. Economic and social environment in which retailers operate.
5. Principles of retail selling, sales training, and management of sales personnel

Textbooks:

1. Marketing logistics, Martin Christopher, Butterworth Heinemman,2008

2. Retail Marketing Management, David Gilbert, Prentice Hall,2006

3. Retailing, George H, Lucas Jr. Robert P. Bush, Larry G. Greshan,2008

Reference-Books:

1. Berman B., Evans J. Retail Management: a Strategic Approach. 10th ed. Prentice Hall. 2007
2. Levy M., Weitz A. Retailing Management. McGraw-Hill/Irwin; 6th ed. 2006
3. Sternquist B. International Retailing. Fairchild Books & Visuals. 1998.
4. Underhill P. Why we buy: The science of shopping. Simon & Schuster. 2000 Whalin G. Retail Success! Willoughby Press. 2001

E- Resources:

1. https://courses.aiu.edu/Retail-Management_syllabus.html
2. https://www.emerald.com/insight/publication/issn/0959-0552
3. https://journals.sagepub.com/doi/full/10.1177/0950017012445091
4. https://www.researchgate.net/journal/International-Journal-of-Retail-Distribution-Management-0959-0552

MOOCs:

1. Introduction to Retail Management Indian Institute of Management Bangalore via Swayam - https://www.classcentral.com/course/swayam-introduction-to-retail-management-14163
2. Retail Store Operations and Store Management - https://www.udemy.com/course/retail-store-operations-and-store-management

Course Name: Business Analytics

Course Code: MS36

Category: Specialisation Elective

Preamble:

The problems faced by decision makers in today's competitive business environment are complex. Achieve a clear competitive advantage by using data to explain the performance of a business, evaluate different courses of action, and employ a structured approach to business problem-solving is the main aim of this subject.

Objectives:

Business analytics is a set of data analysis and modelling techniques for understanding business situations and improving business decisions. These techniques range from everyday methods such as Pivot Table to advanced methods such as neural networks.

Pre-requisites:

NA

Course Outcome:

The availability of large data in the organizations are compelling them find patterns in them for better decision making. This course will help the students to analyse the data using data exploration and modelling techniques.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module no	**Module Name**	**Content**	**No. of Hours**
1	Introduction	Understanding business analytic, Importance of data in business, Framework of business analytics, Basics of R programming-Basics of R, Introduction to R libraries, Data structures and data types in R, Operators, control structures and functions in R, Lists and data frames	8
2	Data preparation	Treatment of missing values, Identification of outliers and Erroneous data, Data Visualization Techniques, Dimension Reduction Techniques- Principal Component Analysis	8
3	Supervised learning	Regression – Simple, multiple and logistic regression, K Nearest Neighbors (KNN); Unsupervised learning: Clustering analysis, Association Rule Learning.	8
4	Time series analysis and forecasting	Time series patterns, forecast accuracy, moving averages and exponential smoothing, using regression analysis for forecasting.	8
5	Data Analysis: Methods and	Econometric Modelling for Panel Data-Categorical Data Analysis-Bayesian Analysis-Network Analysis-Machine Learning with Big	8

Module no	Module Name	Content	No. of Hours
	Models (I)	Data	
6	Data Analysis: Methods and Models (II)	Textual Data Analytics- Experiments and Causal Inference- Optimization Problems in Business-Business Simulation-Model Thinking	5
Total			**45**

Suggested List of Tutorials :

Skill Set Acquired:

It rounds out the student's background in data analysis by adding to the classical statistical tools taught in the core tools from artificial intelligence, machine learning, and data exploration. It develops the student's background in decision science by adding tools ranging from data visualization to time series analysis.

Textbooks:

1. Camm, J.D. et al. (2015) . Essentials of Business Analytics. Cengage Learning
2. Acharya, S (2018). Data Analytics using R. McGraw Hill Education

Reference-Books:

1. Rakshit, S (2017). R for Beginners. McGraw Hill Education
2. Prasad, R.N and Acharya, s. (2017). Fundamentals of Business Analytics. Wiley

E- Resources:

https://web.iima.ac.in/exed/programme-details.php?id=NzMx

MOOCs:

https://www.coursera.org/specializations/business-analytics

https://www.mooc-list.com/tags/advanced-business-analytics-specialization

Course Name: Supply Chain Analytics

Course Code: MSO33

Category: Specialisation Elective

Preamble: Supply chains are complex systems involving multiple businesses and organizations with different goals and objectives. Many different analytical methods and techniques are used by researchers and practitioners alike to better design and manage their supply chains. This business and management course introduces the primary methods and tools that you will encounter in your study and practice of supply chains.

Objectives:

a) Understand the process and information required for preparing the different types of demand forecasts required for operations and supply chain management.

b) Be able to isolate business and economic variable with predictive value for the preparation of demand forecasts.

c) Be able to use statistical techniques to incorporate historical data with other business and environmental variables to prepare dynamic forecasts.

d) Be able prepare top-down, bottom-up and middle out demand forecasts.

e) Understand the costs and benefits of shaping demand and be able to combine advertising, pricing and other interventions in the optimization production and distribution in supply chains

Pre-requisites: Basics analytics knowledge

Course Outcome:

Students learn to apply analytics for effective supply chain strategies and decisions that serve the needs of the customers whilst maximizing overall profitability of an enterprise.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
2	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Introduction	Evolution of Supply Chain Management, Supply Chain Strategy, Supply Chain Drivers, Supply Chain Planning. Analytics in Supply Chain Management, importance of supply chain analytics in the flows involving material, money, information and ownership, Decision Domains in supply chain analytics, Application of Descriptive Analytics, Predictive Analytics and Prescriptive Analytics in a Supply Chain: An overview	8
2	Descriptive	Data aggregation and data mining, insights regarding the company's	

Module No	Module Name	Content	No. of Hours
	Analytics in Supply Chain	production, financials, operations, sales, finance, inventory and customers.	
3	Bullwhip Effect	Bullwhip Effect and Time Series Analysis, Transportation problem in a Supply Chain.	8
4	Predictive Analytics in Supply Chain	Predictive Analytics and related technologies: Introduction to machine learning and cloud-based inventory management solutions, Applications in inventory management, pricing and maintenance, Forecasting using multiple characteristics in Demand Data and Inventory Management.	8
5	Prescriptive analytics in Supply Chain	Prescriptive analytics and scenario planning, Design of Logistics Network using Heuristics/optimization, Optimal Level of Product Availability in Supply chain, Using Excel Solver for Network Optimization, Network Design in Uncertain environment and Flexibility.	8
6	Trends, Challenges and Future of Supply Chain	Introduction to Modelling, Approaches for Optimization and Simulation, Modelling software, Basics of Modelling, Supply chain applications using latest software's	5
Total			**45**

Suggested List of Tutorials :

NIL

Skill Set Acquired:

1. Be able to perform practical quantitative analysis related to operations and supply chain management.
2. Understand the relevance of quantitative analysis related to operations and supply chain management and the implication related to competence requirements in the companies.

Textbooks:

1. Drake, M. J. (2013). The Applied Business Analytics Casebook: Applications in Supply Chain Management, Operations Management, and Operations Research. Pearson Education.

2. Laursen, G. H., & Thorlund, J. (2016). Business analytics for managers: Taking business intelligence beyond reporting. John Wiley & Sons.

Reference-Books:

1. Feigin, G. (2011). Supply Chain Planning and Analytics: The Right Product in the Right Place at the Right Time Business Expert Press.

2. Barlow, M. (2015). Learning to Love Data Science: Explorations of Emerging Technologies and Platforms for Predictive Analytics, Machine Learning, Digital Manufacturing and Supply Chain Optimization. " O'Reilly Media, Inc.".

3. Plenert, G. (2014). Supply chain optimization through segmentation and analytics. CRC Press.

E- Resources:

1. https://www.edx.org/course/supply-chain-analytics
2. https://scg-lm.s3.amazonaws.com/pdfs/opentext-wp-dummies-guide-to-sca-100318.pdf

3. https://www.tandfonline.com/doi/abs/10.1080/00207543.2020.1793011?journalCode=tprs20
4. https://journalofbigdata.springeropen.com/articles/10.1186/s40537-020-00329-2

MOOCs:

1. https://www.coursera.org/learn/supply-chain-analytics
2. https://www.my-mooc.com/en/mooc/supply-chain-analytics-mitx-ctl-sc0x-0/
3. https://www.classcentral.com/course/edx-supply-chain-analytics-6367
4. https://www.classcentral.com/course/supply-chain-analytics-essentials-12088

Course Name: Operations Outsourcing and Offshoring

Course Code: MSO34

Category: Specialisation Elective

Preamble:

This course follows a holistic approach to teaching and learning, i.e., it is important that students understand the wider connections of logistics within a company and the supply chain. To acquaint the student with the awareness on the need for outsourcing and the importance of suppliers and vendors. This course covers the functions of logistics and procurement and explains the systems used in transport, transhipment, warehousing as well as logistics planning and controlling. Concepts of Supply Chain Management (SCM) and Efficient Consumer Response (ECR) are discussed to illustrate the integrating effect of logistics functions for companies.

Objectives:

1. The course offers introduction to outsourcing, vendor rating, logistic service providers, logistics alliances etc.
2. Understand the connections between physical transport and distribution of goods and the necessary flow of information.
3. Understand key performance areas of logistics and procurement about cost and quality parameters including their connections to the overall targets of a company.
4. Determine the potential benefits offered by logistics service providers and evaluate the pros and cons of outsourcing business processes.

Pre-requisites: NA

Course Outcome:

1. The course helps students to with the knowledge and skills in logistics and supply chain management to make a significant difference in the global marketplace using outsourcing.
2. Explore the opportunities and challenges involved in domestic and international logistics.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Outsourcing	Introduction, need and importance- Lean companies- Preparation of outsourcing contract, Efficient Consumer Response (ECR)	8
2	Suppliers and vendors	Rating- methods- Challenges and opportunities in Global outsourcing- Modern logistics concepts.	8
3	Logistics controlling	Evaluation and revolution of logistics and supply chain management	8

Module No	Module Name	Content	No. of Hours
4	Logistic Service providers (LSP)	Logistics service providers and trends, Roles, and responsibilities of third and fourth party, domestic and international logistics LSP	8
5	Logistics structures and network planning	Difference between global, national, and local LSPs-need and selection – LSAM Alliances- Risks of logistics alliances, integrated value chains in logistics	8
6	Performance evaluation of LSP	Benchmarking- International contracts: Documents- cargo clearances, Sustainability in logistics and supply chains	5
Total			**45**

Suggested List of Tutorials :

Skill Set Acquired:

Students will gain an in-depth understanding of logistics, outsourcing, supply chain strategy and sustainability; how to analyse and design effective supply chain operations for effective and efficient logistics network and how to use data models and software to solve logistics and outsourcing problems and inform decisions.

Textbooks:

1. Donald J Bowersox Davi J Class" Logistics Management, Tata Mc.Graw Hill,New Delhi, 2008
2. Reji Ismail,"Logistics Management" Excel Books, 2008.
3. Chopra S and P Meindl "Supply chain management: Strategy, planning and operations" , Himalaya Publications, 2008
4. Global operations & Logistics- Philippe - Pierre Dornier, John Wiley & sons Inc,, 1998.
5. Bhuvan Unhelkar, Global Integrated Supply Chain Systems, Idea group Publications, 2005.

Reference-Books:

1. Ballou, R.H., 2003, Business Logistics Management: Supply Chain Management. Planning, Organizing, and Controlling the Supply Chain, Prentice Hall.
2. Chopra, S., Meindl, P., 2012, Supply chain management: Strategy, planning & operation, Prentice Hall.
3. Gleissner, H., Möller, K., 2011, Case Studies in Logistics: The practical application of logistics methods and instruments, Springer Gabler

E- Resources:

1. https://ukdiss.com/examples/importance-of-outsourcing-of-logistics-function.php
2. https://www.cranfield.ac.uk/som/masters-courses/logistics-and-supply-chain-management

MOOCs:

1. https://www.classcentral.com/course/supply-chain-logistics-6929
2. https://www.mooc-list.com/course/supply-chain-logistics-coursera
3. https://www.coursera.org/learn/supply-chain-logistics

Course Name: Retail Supply Chain Management

Course Code: MSO35

Category:

Preamble:
To develop an understanding of the significance of Supply Chain Management to achieve cost effective supply and distribution of goods & services to meet varying customer demand.

Objectives:

Consists of the basic concept of operations management, operation strategy and competitiveness, supply chain network and inventory control, EOQ and sequencing.

Pre-requisites:

NA

Course Outcome:

1. Understand the functions of retail business and various retail formats and retail channels.
2. Understand the difference between Retail and Manufacturing Supply Chain
3. Understand, key drivers of retail supply chain and ways to select a retail store location.
4. Analyse Retail Market and Financial Strategy including product pricing.
5. Integrate the various Supply Chain partners and how to collaborate with them.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Operations Management Overview	Basic Concepts of Operations Management-Operations Management and its relevance to Service Sector – Brief History and its Current Status – Current issues facing Operations Management.	8
2	Operations Strategy and Competitiveness	Operations Strategy and its competitive dimensions, Strategic fit – fitting operational activities to Business Strategy	8
3	Need of SCM	Understanding the need for Supply Chain Management (SCM) – Basic definition of Supply Chain, its Scope and Orientation – Achieving Strategic Fit and Understanding Implied Uncertainty – Supply Chain Drivers and Obstacles.	8
4	Supply Chain Network	Different types of Distribution Network with the Concept of Cross Docking – Facility Location Models – Forecasting – Different types of forecasting Techniques	8

Module No	Module Name	Content	No. of Hours
5	Inventory Control	Basic concepts of EOQ, Lot Size Determination, Sensitivity to EOQ – Principle of Aggregation, Rationale of discounts for bulk purchase.	8
6	Sequencing	Safety Inventory with Demand Uncertainty – Lead Time Uncertainty and Product Availability – Sourcing Decisions and Vendor Selection, Vehicle Routing and Route – Sequencing.	5
Total			**45**

Suggested List of Tutorials :

Skill Set Acquired:

1. Students will demonstrate analytical skills in identification and resolution of business problems pertaining to SCM & general management.
2. Students will exhibit the ability to integrate functional areas of management with domain perspective for the purpose of planning, implementation & control of SCM.
3. Students will have global perspective towards business situations in SCM.
4. Students will exhibit deployable skills pertinent to the SCM sector.

Textbooks:

1. Supply Chain Management: Strategy, Planning and Operation, Sunil Chopra and Peter Meindl, Prentice Hall, 2011.

2. Supply chain management, 6th edition, Chopra and Kalra, Pearson, 2016.

3. Designing and managing the supply chain: Concepts, strategies, and case studies. By David Simchi- Levi, Philip Kaminsky and Edith Simchi Levi, McGraw Hill, 2007.

4. Service Operations Management. By Richard Metters, Kathryn King-Metters and Madeline Pullman, Thomson, 2000.

Reference-Books:

1. Supply chain management: Concepts and cases, Altekar, Prentice Hall, 2005

E- Resources:

1. https://gaqm.org/certification/supply_chain_management

MOOCs:

1. https://nptel.ac.in/courses/110/108/110108056/
2. https://nptel.ac.in/courses/110/106/110106045/
3. https://www.coursera.org/specializations/supply-chain-management
4. https://www.coursera.org/courses?query=supply%20chain
5. https://www.edx.org/learn/supply-chain-management

Course Name: Product Design

Course Code: MSO36

Category: Specialisation Core

Preamble:

Product Design is important for both established companies and social entrepreneurs. A successful product requires matching of user needs with available technology with consideration of manufacturing and marketing. In this course we will learn methodologies for identifying customer needs, developing new product concepts, prototype development, estimation of manufacturing costs, and developing business plans to support the development and marketing of these products.

Objectives:

Understand the application of structured methods to develop a product.

Pre-requisites:

NA

Course Outcome:

The course provides the student with a comprehensive view of the product development process, including basic skills in sketch techniques and understanding the importance of design while manufacturing using latest methods and techniques. Student gains knowledge on how a product is designed based on the needs of a customer.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Introduction	Defining Product, Types of products. Product development – characteristics, duration and cost, challenges. Development Process: Generic Process- Adapting to product types. Evaluation – decay curve – cost expenditure curve	8
2	Product Planning	Product Planning Process – Steps. Opportunity identification – breakdown structure- product development charter. Product Life Cycle. Technology Life Cycle - Understanding Customer Needs - Disruptive Technologies- Product Specification - Concept Generation – Activity- Steps- Techniques	8
3	Product Concept	Concept Selection – Importance, Methodology, concept Screening, Concept Scoring. Concept Testing. Product Architecture- Definition, Modularity, implication, Establishment, Delayed Differentiation, Platform Planning.	8

Module No	Module Name	Content	No. of Hours
4	Industrial Design And Design Tools	Industrial Design, Design for Manufacturing-Value Engineering-Ergonomics-Prototyping-Robust Design-Design for X-failure rate curve-product use testing-Collaborative Product development-Product development economics-scoring model- financial analysis	8
5	Product Design – Influencing Factors	Product design approaches, Legal, Ethical and Environmental issues. Process – Planning, Selection, Strategy, Major Decisions	8
6	Patents	Defining Intellectual Property and Patents, Patent Searches and Application, Patent Ownership and Transfer, Patent Infringement, New Developments, and International Patent Law	5
Total			**45**

Suggested List of Tutorials :

Skill Set Acquired:

1. Describe the product development process and account for its conditions and terms, and use the most common methods of managing terms and concept development.
2. Develop the skills to create fully functioning new products which are visually appealing and efficiently manufactured.
3. Learn to combine virtual and physical design and prototyping in our digital design suite.

Textbooks:

1. Karl T. Ulrich, Steven D. Eppinger, Anita Goyal Product Design and Development, Tata McGraw – Hill, Fourth Edition, reprint 2009.

2. Kenneth B.Kahn, New Product Planning, Sage, 2nd Edition 2011.

3. Product Design Techniques in Reverse Engineering and New Product Development, KEVIN OTTO & KRISTIN WOOD, Pearson Education (LPE), 2001.

Reference-Books:

1. A.K. Chitale and R.C. Gupta, Product Design and Manufacturing, PHI, 2008.
2. Deborah E. Bouchoux, Intellectual Property Rights, Delmar, Cengage Learning, 2005.
3. Anil Mital. Anoop Desai, Anand Subramanian, Aashi Mital, Product Development, Elsevier, 2009.
4. Michael Grieves, Product Life Cycle Management, Tata McGraw Hill , 2006.
5. Kerber, Ronald L, Laseter, Timothy M., Strategic Product Creation, Tata-McGraw Hill, 2007.

E- Resources:

1. https://www.strath.ac.uk/courses/undergraduate/productdesignengineeringbeng/
2. https://www.inderscience.com/jhome.php?jcode=ijpd
3. https://link.springer.com/journal/10970/volumes-and-issues
4. https://library.fxplus.ac.uk/subject-guides/sustainable-product-design/journals

MOOCs:

1. https://www.my-mooc.com/en/mooc/product-design--ud509/
2. https://www.coursera.org/courses?query=product%20design

Course Name: Reverse and Contract Logistics

Course Code: MSO37

Category: Specialization Core

Preamble:

Traditionally, businesses have concentrated on improving the forward supply chain for their products (e.g., manufacturer-wholesaler-retailer). However, as the business environment becomes more competitive, it becomes increasingly important for them to concentrate on optimising the backward loop, as well. Reverse logistics practices have been in existence for a long time, especially in the automotive industry, where manufacturers try to recover value from recycling car parts.

Objectives:

1. To prepare students successfully implement a contract logistics and closed supply chain in Retail, FMCG and Automobile sectors.
2. To explain the concept and principle of contract logistics and closed supply chain

Pre-requisites: NA

Course Outcome:

The students will be able to understand the basics of contract logistics, third party logistics industry and third-party logistics providers. And it helps to gain knowledge about Make in India concept and its impact on the GDP growth.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Contract Logistics	Third party logistics industry overview - A framework for strategic alliances - Evolution of contract logistics - Types of third-party logistics providers – Automobile, FMCG and Retail-Third party services and integration	8
2	Closed Loop Supply Chains and Logistics	Introduction closed loop supply chains and logistics – Logistics and closed loop supply chain service - Overview of return logistics and closed loop supply chain models – Introduction product returns - Product Vs Parts returns - Strategic issues in closed loop supply chains	8
3	Business and Market	Overview - Introduction life cycle management - Trends and opportunities – Auto Warranty management, return process and benchmarks - Market overview - Reasons for using reverse logistics - General characteristics - Consumer goods Depot	8

Module No	Module Name	Content	No. of Hours
		repair and value-added services - Operating dynamics - Competitive evaluation - Secondary markets and final disposal	
4	Emerging Trends	Emerging trends in Retail, E-Commerce- FMCG and Automobile sectors- Systems and technology - For consumer goods operations, High tech logistics system - Impact and value of advanced logistics	8
5	Managing Processes	Managing processes - Step by step process - Use of third-party service providers - Additional factors – Contemporary issues – Make in India and its impact on Countries GDP and Economic Growth.	8
6	Green reverse logistics	Green reverse logistics practices- Green buildings that support logistics (LEED Certification) - Successful global projects	5
Total			**45**

Suggested List of Tutorials (10 Hours):

Skill Set Acquired:

It helps in valuable and practical skills needed to fully implement and manage Reverse Logistics and Closed Loop Supply Chains, manage the returns process decisions with respect to repair, refurbishment, disposition, and secondary market more efficiently, act in a socially and environmentally responsible manner, and produce real value for the company, environment, and society.

Textbooks:

1. Janat Shah, Supply Chain Management: Text and Cases, Pearson Education India, 2009

2. John Manners-Bell, Logistics and Supply Chains in Emerging Markets, Kogan Page, 2014

Reference-Books:

1. Coyle et.al, Management of Transportation, 7th Edition, Cengage Learning, 2011

2. D. F. Blumberg, Reverse Logistics & Closed Loop Supply Chain Processes, Taylor, and Francis, 2005 3. Hsin-I Hsiao, Wageningen, Logistics Outsourcing in the Food Processing Industry, Academic Pub, 2009.

4. Surendra M. Gupta, Sustainability in Supply Chain Management Casebook: Applications in SCM, McGraw Hill, 2013

E- Resources:

1. https://core.ac.uk/download/pdf/18511673.pdf
2. https://www.supplychainbrain.com/blogs/1-think-tank/post/31217-mapping-the-reverse-logistics-supply-chain
3. https://www.bmc.net/Reverse-Logistics-Best-Practices

MOOCs:

1. https://www.udemy.com/course/reverse-logistics-management-and-sustainability/

https://www.coursera.org/learn/supply-chain-logistics

Course Name: World Class Manufacturing

Course Code: MSO38

Category: Specialisation Elective

Preamble:

To acquaint the students about the international developments in manufacturing, and the systems, tools and techniques required for achieving competitive edge through world-class manufacturing.

Objectives:

The course gives an orientation to world class manufacturing, JIT, technological innovation in manufacturing, factory of the future automated systems and world class manufacturing.

Pre-requisites:

NA

Course Outcome:

1. Able to understand the concept and the importance of manufacturing strategy for industrial enterprise competitiveness.
2. Apply appropriate techniques in the analysis and evaluation of company's opportunities for enhancing competitiveness in the local regional and global context.
3. Identify formulation and implement strategies for manufacturing and therefore enterprise competitiveness.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Introduction	World-Class Manufacturing: introduction – product development process – process mapping – Information Age Competition.	5
2	JIT	JIT – total quality strategies for manufacturing success and WCM model – MRPI and MRP II – developments – gaining competitive edge.	8
3	Technological Innovation in Manufacturing	Technological innovation in manufacturing – computer integrated manufacturing – flexible manufacturing systems – cellular manufacturing.	8
4	Automated Systems	Factory of the future automated systems – human factors in automated systems – optimized production technology – Modelling – optimizing – simulation of manufacturing systems.	8
5	World-Class Manufacturing	World-Class manufacturing – International Scenario and Indian Scenario	8
6	Manufacturing Innovations	Manufacturing innovations – quick response manufacturing – agile manufacturing – rapid prototyping – concurrent engineering	8

Module No	Module Name	Content	No. of Hours
Total			**45**

Suggested List of Tutorials :

NIL

Skill Set Acquired:

To apply principles and techniques in the identifiable formulation and implementation of manufacturing strategy for competitive in global context.

Textbooks:

1. World-Class Manufacturing – A Strategic Perspective, B.S. Sahay, K.B.C. Saxena & Ashish Kumar, MacMillan India,2007

2. World-Class manufacturing, Richard J. Schonberger, The Free Press,2013

3. The Manufacturing Advantage – Achieving Competitive Manufacturing Operations, Nigel & Slack, Viva Books,2009

4. Just in Time Management for World Class Manufacturing The Japanese Way, A.K. Chitale & G.S. Narang, Ajanta Publications,2010

Reference-Books:

1. By Richard B. Chase, Nicholas J. Aquilano, F. Robert Jacobs – Operations Management for Competitive Advantage, McGraw-Hill Irwin, ISBN 0072323159
2. Moore Ran, Making Common Sense Common Practice: Models for Manufacturing Excellence, Elsevior Multiworth
3. Narayanan V. K., Managing Technology and Innovation for Competitive Advantage, Pearson Education Inc.
4. Korgaonkar M. G., Just In Time Manufacturing, MacMillan Publishers India Ltd.,

E- Resources:

1. world-class-manufacturing.com/training.html, www.tvp.zcu.cz
2. https://www.sciencedirect.com/science/article/pii/S2405896315004103
3. https://www.worldscientific.com/doi/10.1142/S0219877018500426
4. https://journals.sagepub.com/doi/10.1177/09500179922118169

MOOCs:

https://alison.com/courses/manufacturing-strategy-achieving-world-class-manufacturing/content

https://www.coursera.org/courses?query=manufacturing

Course Name: Warehouse Distribution and Transportation Management

Course Code: MSO39

Category: Specialisation Elective/ Minor Degree Elective

Preamble:

This course introduces the key principles and activities related to the Warehousing function in a modern organization. It addresses the operational aspects of planning and managing warehouses. In addition, the student is given an exposure to the related business functions in Supply Chain Management including inventory, purchasing, materials and logistics.

Objectives:

To make aware about "warehousing and inventory management including the types of equipment, storage processes and systems, and technologies used to identify and track units in a warehouse, and the regulations designed to ensure safety in warehouse operations."

Pre-requisites: NA

Course Outcome:

1. The student will learn to explain the major operational processes used in warehouse operations by evaluating and describing proper and safe warehouse operations and techniques.

2. At the end of the course, the students will be able to get complete insight in to warehouse concepts, various inventory control techniques and application of inventory management in supply chain. **Course Scheme:**

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No of Hours**
1	Concept of Warehouse	Introduction, Objectives, meaning of a Warehouse, Need for warehousing management, Evolution of warehousing, Role of a warehouse manager, Functions of Warehouses, Types of Warehouses, Warehousing Cost, Warehousing Strategies, Significance of Warehousing in Logistics, Warehousing Management Systems (WMS)	5
2	Role of Warehousing in Retail	Introduction, Objectives, Retailing and Warehousing, Challenges in retail warehousing, Warehousing in fashion retail, setting up a warehouse, Retail product tracking in warehouse using RFID, Types of warehouses, Benefits of warehousing, Role of government in warehousing, Characteristics of an ideal warehouse, Storing products in a warehouse, Warehousing — the way forward, Warehousing and Supply Chain	8

Module No	Module Name	Content	No of Hours
3	Strategic Aspects of Warehousing	Introduction, Objectives, Different Types of Customers in Warehousing, Importance of Warehouse in a Value Chain, Warehouse Location, Modern Warehouse Operations, World-class Warehousing	8
4	Strategic Retail Product and its Procurement and Replenishment	Introduction, Objectives, Retail Product, Product Assortment Management, Assortment management framework, Assortment objectives, Assortment selection, Assortment Plan, Product Selection, Retail Suppliers, Retail Distribution, Retail Replenishment, Direct Store Delivery, Managing Retail Home Delivery, Measures for Retail Distribution and Replenishment, Role of IT in Retail Distribution and Replenishment	8
5	Technology Aids in Retail warehouse	Introduction, Objectives, Bar Code Scanners, Wireless LAN, Mobile Computers, Radio Frequency Identification (RFID	8
6	Health and Safety Perspective	Introduction, Objectives, Health and Safety at Work, Health and Safety Risks at the Warehouse, Assessment of Risks, Management of Health and Safety	8
Total			**45**

Suggested List of Tutorials :

Skill Set Acquired:

students will have an understanding of the role of warehousing in logistics and business, know standard inventory policies, understand modern storage systems and paperless identification technologies including RFID, understand how to use appropriate hardware and software to avoid shipping and billing errors, be familiar with standard safety operations and avoid industrial hazards, know industry terminology and acronyms, be able to work as part of a team, and apply the principles learned in the activities to professional applications.

Textbooks:

1. Vinod. V. Sople, Logistics Management, Pearson Education, 2004.

2. Arnold, Introduction Materials Management, Pearson Education, 2009.

Reference-Books:

1. Frazelle, World Class Warehousing & Material Handling, Tata McGraw-Hill, 2008
2. Satish K. Kapoor and PurvaKansal, Basics of Distribution Management - A Logistical Approach, Prentice Hall, 2003
3. Satish K. Kapoor and PurvaKansal Marketing, Logistics - A Supply Chain Approach , Pearson Education, 2003

E- Resources:

1. https://www.reed.co.uk/courses/warehouse-management/247457
2. https://www.ioscm.com/courses/warehouse-management-courses/ioscm-level-5-warehouse-management/
3. https://www.ioscm.com/courses/warehouse-management-courses/ioscm-level-5-warehouse-management/

MOOCs:

https://www.coursera.org/lecture/supply-chain-principles/warehouse-management-systems-FPzuc

Course Name: Total Quality Management

Course Code: MSO40

Category: Specialisation Core

Preamble: Total quality management (TQM) is a philosophy, methodology and system of tools aimed to create and maintain mechanism of organization's continuous improvement. It involves all departments and employees into improvement of processes and products. It helps to reduce costs and to meet and exceed needs and expectations of customers and other stakeholders of an organization. TQM encompasses the concepts of business and social excellence that is sustainable approach to organization's competition, efficiency improvement, leadership, and partnership.

Objectives:

1. The course provides an overview and role of TQM, philosophical approaches to TQM, tools of TQM, overview of other developments in TQM and application of TQM.

2. To familiarize the students to the philosophy and role of TQM in revitalizing the organization

3. To introduce the main principles of business and social excellence, to generate knowledge and skills of students to use models and quality management methodology for the implementation of total quality management in any sphere of business and public sector.

Pre-requisites:

NA

Course Outcome:

1. To apply quality philosophies and tools to facilitate continuous improvement and ensure customer delight.
2. To learn the quality philosophies and tools in the managerial perspective.
3. To be able to use quality management methods analysing and solving problems of organization.
4. To know prerequisites of evolution of total quality management and significance of quality gurus' works to the management of modern organizations.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Introduction	Quality – vision, mission, and policy statements. Customer Focus – customer perception of quality, Translating needs into requirements, customer retention. Dimensions of product and service quality. Cost of quality.	8
2	Principles and	Overview of the contributions of Deming, Juran Crosby, Masaaki	8

Module No	Module Name	Content	No. of Hours
	Philosophies of Quality Management	Imai, Feigenbaum, Ishikawa, Taguchi techniques – introduction, loss function, parameter and tolerance design, signal to noise ratio. Concepts of Quality circle, Japanese 5S principles and 8D methodology.	
3	Statistical Process Control	Meaning and significance of statistical process control (SPC) – construction of control charts for variables and attributed. Process capability – meaning, significance and measurement. Reliability concepts – definitions, reliability in series and parallel, product life characteristics curve. Total productive maintenance (TMP), Terotechnology. Business process Improvement (BPI) – principles, applications, reengineering process, benefits and limitations.	8
4	Tools and Techniques for Quality Management	Quality functions development (QFD) – Benefits, Voice of customer, information organization, House of quality (HOQ), building a HOQ, QFD process. Failure mode effect analysis (FMEA) – requirements of reliability, failure rate, FMEA stages, design, process, and documentation. Seven Tools (old & new). Bench marking and POKA YOKE.	8
5	Quality Systems Organizing and Implementation	Introduction to IS/ISO 9004:2000 – quality management systems – guidelines for performance improvements. Quality Audits. TQM culture, Leadership – quality council, employee involvement, motivation, empowerment, recognition and reward - TQM framework, benefits, awareness and obstacles	8
6	Six Sigma	Leadership requirements for TQM.	5
Total			**45**

Suggested List of Tutorials (10 Hours):

NIL

Skill Set Acquired:

1. To realize the importance of significance of quality
2. Manage quality improvement teams.
3. Identify requirements of quality improvement programmes.

Textbooks:

1. Dale H. Besterfield et al, Total Quality Management, Third edition, Pearson Education (First Indian Reprints 2004).

2. Shridhara Bhat K, Total Quality Management – Text and Cases, Himalaya Publishing House, First Edition 2002.

Reference-Books:

1. Total Quality Management, 4th edition, Besterfield, Pearson, 2015.

2. Total Quality management, Suganthi L, PrenticeHall, 2004.

3. Total Quality management, 2nd edition, Charntimath,Pearson, 2011.

4. A Handbook of Management Techniques, Armstrong, M., Kogan Page Ltd., 2001

5. Total Quality Control, Feigenbaum, McGraw Hill, 2000

6. Oakland G. F. Total Quality Management, Oxford, 2003. (Text)

7. Indian standard – quality management systems – Guidelines for performance improvement (Fifth Revision), Bureau of Indian standards, New Delhi.

E- Resources:

1. https://www.coursera.org/lecture/supply-chain-management/total-quality-management-wLrvy
2. https://www.openlearning.com/courses/total-quality-management/?cl=1
3. https://alison.com/course/understanding-cost-of-quality-and-tqm-tools
4. https://www.emeraldgrouppublishing.com/journal/tqm
5. https://www.tandfonline.com/toc/ctqm20/current

MOOCs:

1. https://nptel.ac.in/courses/110/104/110104080/
2. https://nptel.ac.in/courses/110/104/110104085/
3. https://nptel.ac.in/noc/courses/noc18/SEM2/noc18-mg39/

Course Name: Port and Terminal Management

Course Code: MSO41

Category: Specialisation Elective

Preamble:

Comprehensive understanding of ports' organization, function, operations, and management. Knowledge of port planning. Development of an understanding of port competition and pricing. Fundamental knowledge of modern logistics with the emphasis placed on the position of ports in the logistics and supply chain.

Objectives:

1. To enlighten the students about the major functions in the port and terminal management
2. To expose the students on the trends in port and terminal management

Pre-requisites:

NA

Course Outcome:

1. The students would be aware about skills pertaining to port and terminal management.
2. The students should be able to understand the principles and applications for port and terminal management.

Course Scheme:

Contact Hours		Credits Assigned	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	Module Name	Content	No. of Hours
1	Introduction to Port and Terminal	Role of ports in international trade and transport - Economic impact of ports on the regional economy - Multiplier effect - Location characteristics of ports - Different types of ports (natural, manmade, river, estuary).	8
2	Port Operations	Design features of facilities in ports for handling various cargoes - Organization structure in Ports - Delivery of port services and the relationship between various departments - Marine Department – Traffic Department – other departments.	8
3	Port Marketing and Services	Marketing of Port services - Pricing of Port services - Components of port tariff - Concept of hinterland – Identifying the needs of ship owners and operators, ship agents, forwarders, truckers, rail and barge operators - Concept of Total Logistics cost.	8
4	Port Performance	Measurement of port performance - vessel turn round time, cargo volume, speed of cargo handling - Information flow requirements of the port, statutory bodies, and port users - Port community	5

Module No	Module Name	Content	No. of Hours
		computer systems and EDI applications.	
5	Port Security and Issues	Environmental issues connected with Ports & Terminals - Health and safety issues - Port security issues - International Ships and Port facility security (ISPS) code	8
6	Port management	Role of national, regional, and local governments in owning / operating / managing ports.	8
Total			**45**

Suggested List of Tutorials : NIL

Skill Set Acquired:

The course provides knowledge and analysis of the principles and evolution of container terminal management, port indicators and supply chain management.

Textbooks:

1. Maria G. Burns, Port Management and Operations, CRC Press, 2014.

2. Patrick Alderton, Port Management and Operations, Third Edition, Lloyd's Practical Shipping Guides, 2008

3. H. Ligteringen, H. Velsink, Ports and Terminals, VSSD Publishers, 2012.

4. Coyle et.al, Management of Transportation, 7th Edition, Cengage Learning, 2011

Reference-Books:

1. Alderton P., Port Management and Operations, Informa, 2008, ISBN: 978 1 84311 750 6
2. Astle W.E., The Safe Port, Fairplay Publications Ltd, 1987, IS BN: 0 905045 91 2
3. Branch A. E., Elements of Port Operation and Management, Springer, 1986, ISBN: 97804 1225 2600
4. Branch A. E., Elements of Shipping, Routledge, 2007, ISBN: 0415 3628 65

E- Resources:

1. http://www.iaphworldports.org (IAPH)
2. http://espo.be (European Sea Port Organization)
3. www.worldbank.org (see under Ports and Waterborne Transport)
4. Port security Handbook 2004 – Lloyds Register

MOOCs:

1. Port And Terminal Management https://www.ics.org.uk/media/406289/ptm%20syllabus%202016%20r1.pdf

https://www.ioscm.com/courses/ports-shipping-courses/

Course Name: Containerization and Allied Business

Course Code: MSO42

Category: Specialisation Elective

Preamble:

The concept of containerization is a world-renowned mode of transport system and is being practiced globally. The subject exposes the student to the latest trend in shipping business and its allied subjects thereby giving him the opportunity to get an employment in a Container operating ship owner's office or his agent office.

Objectives:

1. To provide an overview of the various elements of containerization and allied businesses
2. To realize the potential of containerization and allied businesses

Pre-requisites:

NA

Course Outcome:

1. The students will learn the practices and ways to promote containerization and allied businesses.
2. The learners will have a complete idea about the different concepts, trends and strategies used for containerization and allied businesses.

Course Scheme:

Contact Hours		**Credits Assigned**	
Theory	Tutorial	Theory	Tutorial
3	0	3	0

Detailed Syllabus

Module No	**Module Name**	**Content**	**No. of Hours**
1	Basic Concept of Containerization	Introduction to Liner Shipping industry - Unitization concept and methods - Malcolm Mclean and the birth of containerization - Generations of container ships and their specification - Container types, their specifications and cargoes carried in them	8
2	Freighting and Size of Container	Container shipping business - FCL and LCL sea freight products - Freighting of FCL and LCL cargo - Slot utilization strategies - Estimation of optimum container fleet size - Multiport LCL consolidation	8
3	Characteristics and Physical Operations	Containerisation: Concept, Classification, Benefits and Constraints, Container terminal business, World's leading container terminals and location characteristics - container terminal infrastructure - container terminal productivity and profitability-Inland container Depots (ICD)Roles and functions - Container Freight Stations (CFS),Clearance at ICD, CONCOD,ICD's under CONCOD, Charting: Kinds of Charter, Charter Party and Arbitration.	5

Module No	Module Name	Content	No. of Hours
4	Container Types and Business	Container manufacturing trends - Container leasing business - Types of container leasing and their terms - maintenance and repair of containers - tracking of container movements - Container interchange.	8
5	Multimodal Transport	Alternate uses of containers -marketing of used containers - carriage of shipper own containers - multimodal transport options for containers -Insurance for containers -strategies for managing container imbalance	8
6	Console Techniques	Consolidation - Reason for consolidation - Facilities to shippers by consolidation - Consolidation technique - Calculation and planning - Broken space and freighting - Units packets and its benefits - re-working of Console at Hub port - Direct box - Role of Measurement and Weight of cargo.	8
Total			**45**

Skill Set Acquired:

Students will be acquainted with the awareness on the need for distribution and the possibilities of multi modal transportation.

Textbooks:

1. Marc Levinson, The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger, Princeton University Press, 2008.

2. Dr. K. V. Hariharan, Containerisation, Multimodal Transport & Infrastructure Development in India, Sixth Edition, Shroff Publishers and Distributors, 2015.

3. Lee, C.-Y., Meng, Q. (Eds.), Handbook of Ocean Container Transport Logistics Making Global Supply Chains Effective, Springer, 2015

4. Coyle et.al, Management of Transportation, 7th Edition, Cengage Learning, 2011

Reference-Books:

1. Christopher M, (2011), Logistics and supply chain management: creating value-added networks, 4th edition, FT Press.

E- Resources:

1. http://scm.gsom.spbu.ru/Containerization
2. https://www.researchgate.net/publication/282845140_Global_Container_Supply_Chain_Compendium

MOOCs:

1. https://www.coursera.org/learn/containerized-apps-on-aws