SPECIALIZATION - OPERATIONS MANAGEMENT

MMBA22E35 **ADVANCED MATERIALS MANAGEMENT**

MMBA22E35	**CONTROL SYSTEMS**	**C**	**L**	**T/SLr**	**P/R**	**T/L/ ETP**
	Total Contact Hours – 30	3	3	0	0	T
	Prerequisite – Degree					
	Course Designed by – Faculty of Management Studies					

OBJECTIVES

The key objectives of this course is to acquaint students with the needed skills and knowledge of

1. Classification and codification of Inventory;
2. Effective and efficient purchase in order to reduce manufacturing and service cost of organizations;
3. Material planning techniques for production and budgeting for material requirements and
4. Lay out of storage facilities and flow of materials.

COURSE OUTCOMES (COs)

CO1	Understanding of the functions of inventory management and classification of materials and applying to industry.
CO2	Clear sight on the various specifications and categories of material management for Indian and global standards.
CO3	Executing material planning and adopting aggregate inventory management.
CO4	Clearly following purchasing procedures even at global level and managing stores effectively.
CO5	Adopting standard Practices and Procedures followed in transporting materials including insurance.

	Mapping of Course Outcomes with Program outcomes (Pos)					
	(3/2/1 indicates strength of correlation) 3-HIGH, 2 -Medium, 1-Low					
1	COs/POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
2	**CO1**	3	3	3		
	CO2	3		2	3	3
	CO3	3	3	3		2
	CO4	3			3	2
	CO5	3	3	3	3	2
3	Category	General (A)	Basic Sciences andMaths (B)	Professional Core (D)	Professional Elective (E)	Project / Seminar / Internship (H)
					✓	
4	Approval	Meeting of Academic Council, June 2022				

MMBA22E35 ADVANCED MATERIALS MANAGEMENT

UNIT – I INTRODUCTION 6 hours

Integrated Materials Management - Costs involved in materials management - Need for material management - Scope of material management - Functions of inventory management - Classification and Codification of inventory - Demand forecasting and its dovetailing with operations planning.

UNIT - II MATERIAL MANAGEMENT TECHNIQUES 6 hours

Specifications in material management - Categories of specification (Simple and Complex)- Development of Specification - Introduction to standard - Dimensions and levels of standards -Foreign standards used in India - Indian Standards - Variety reduction in product.

UNIT - III CONCEPTS OF INVENTORY MANAGEMENT 6 hours

Meaning, purpose and advantage of MRP - Data requirements and management – Bill of materials, Master Production Schedules - Process of MRP - Techniques of materials planning - Sales, Production, Material, Labour, Budget. Aggregate inventory management.

UNIT - IV IMPORTANCE OF PURCHASE and STORE MANAGEMENT 6 hours

Purchase Management - Purchase parameters - International purchasing: Procedure and Documents -EXIM policy - Exchange rate management - Stores management - Purpose, Location and Layout of stores - Stores systems and procedure - Store accounting and verification.

UNIT - V STANDARD PRACTICES AND PROCEDURES IN TRANSPORTATION 6 hours

Policies – Standards and Practices - Procedures – Transportation – Insurance.

TOTAL NO OF PERIODS: 30 HOURS

Reference Books:

1. Narasimhan L., McLeavey W. Dennis, Billington J. Peter,' Production Planning and Ivntory Contro', Prentice Hall of India, New Delhi, 1997.
2. Terasine, Richard,' Principles of Inventory and Material Management'.
3. Chitale, A.K., Gupta, R.C., 'Materials Management: Text and Cases', Prentice Hall of India, New Delhi, 2006.
4. Gopalakrishnan, P and Sundararajan, Maintenance Management, Prentice hall of India, New Delhi, 1996.
5. Techniques for Management, Sultan Chand and Kapoor, V.K., Operations Research- Sons, New Delhi, 2001.

FACULTY OF MANAGEMENT STUDIES

MBA- Two Year Full Time Program- Curriculum and Syllabus

Program Structure for MBA (Full Time)

MMBA22E36 MAINTENANCE MANAGEMENT

MMBA22E36	**CONTROL SYSTEMS**	**C**	**L**	**T/SLr**	**P/R**	**T/L/ ETP**
	Total Contact Hours – 30	3	3	0	0	T
	Prerequisite – Degree					
	Course Designed by – Faculty of Management Studies					

OBJECTIVES

The key objectives of this course is to acquaint students with the needed skills and knowledge of

1. Making assets reliable; assets maintained are more reliable rather than unmaintained assets;
2. Minimizing maintenance cost, Decreasing downtime and minimizing failure;
3. Enhancing productivity level and
4. Complying with rules and regulations.

COURSE OUTCOMES (COs)

CO1	Understanding and creating proper maintenance system and control.
CO2	Classifying and applying maintenance method as per the suitability.
CO3	Forecasting Maintenance challenges and managing them.
CO4	Budgeting and controlling maintenance expenditure effectively.
CO5	Understanding and ensuring quality improvement in maintenance at international standards.

	Mapping of Course Outcomes with Program outcomes (Pos)						
	(3/2/1 indicates strength of correlation) 3-HIGH, 2 -Medium, 1-Low						
1	COs/POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	
2	**CO1**	3	3	3		2	
	CO2	3	3	1	1	2	
	CO3	2	3				
	CO4	3	3	3		2	
	CO5	3	3	3	3	2	
3	Category	General (A)	Basic Sciences andMaths (B)		Professional Core (D)	Professional Elective (E)	Project / Seminar / Internship (H)
						✓	
4	Approval	Meeting of Academic Council, June 2022					

MMBA22E36 MAINTENANCE MANAGEMENT

UNIT – I MPORTANCE OF MAINTENANCE MANAGEMENT 6 hours

Maintenance Management and Tero technology: Overview, Maintenance Objectives and Strategies, Preparation of Maintenance Planning and Scheduling, Planned Maintenance Management System and Control.

UNIT – II MAINTENANCE 6 hours

Maintenance Systems - Design and its selection - Break down maintenance - Planned and unplanned maintenance - Routine maintenance - Remedial maintenance - Predictive maintenance - Preventative maintenance - Corrective Maintenance.

UNIT - III VARIOUS ISSUES IN MAINTENANCE MANAGEMENT 6 hours

Spares key issues in maintenance management - Reliability, Availability and Maintainability Concepts, Safety and Environmental aspects in Maintenance Management, Parts Management -Human Resource management for maintenance.

UNIT – IV VARIOUS CONCEPTS OF MAINTENACE BUDGET 6 hours

Maintenance budget - Budgetary control - Scheduling maintenance costs - Control of maintenance expenditure - Maintenance effectiveness - Monitoring of maintenance performance - Replacement technique.

UNIT – V QUALITY IMPROVEMENT IN MAINTENANCE 6 hours

Maintenance quality improvement - ISO 9000 and its relation to maintenance - Techniques for continuous improvement in maintenance - Reliability enhancement programme - FMCEA, RCM and POM.

TOTAL NO OF PERIODS: 30 HOURS

Reference Books:

1. Chanter Barrie and Swollow Peter, Building Maintenance Management', Blackwell science.
2. Levitt Joel,' Complter Guide to Predictive and Preventive Maintenance', Industrial Press
3. Gopalakrishnan, P and Sundararajan, Maintenance Management, Prentice hall of India, New Delhi, 1996.
4. Narayan V., 'Effective Maintenance Management: Risk and reliability strategies for optimizing performance', Industrial Press, 2004.
5. Sharma, J.K., Operations Research- Theory and Applications, Macmillan India, 2003.

FACULTY OF MANAGEMENT STUDIES

MBA- Two Year Full Time Program- Curriculum and Syllabus

Program Structure for MBA (Full Time)

MMBA22E37 PRODUCTION PLANNING AND CONTROL

MMBA22E37	CONTROL SYSTEMS	C	L	T/SLr	P/R	T/L/ ETP
	Total Contact Hours – 30	3	3	0	0	T
	Prerequisite – Degree					
	Course Designed by – Faculty of Management Studies					

OBJECTIVES

The key objectives of this course is to acquaint students with the needed skills and knowledge to

1. Optimize resources and the scheduling of resources to meet production demand;
2. Ensure an efficient schedule;
3. Have resources ready when needed and
4. Develop a broad conceptual framework based on the research which has been done in the recent past and to bridge the gap between the theoretical solutions on one hand.

COURSE OUTCOMES (COs)

CO1	Coordinating with other departments and performing aggregated production planning and control.
CO2	Deciding the production process based on the product manufactured.
CO3	Capable of process planning for related operations.
CO4	Scheduling jobs using simulation techniques.
CO5	Using statistics for forecasting the production and to control.

	Mapping of Course Outcomes with Program outcomes (Pos)						
	(3/2/1 indicates strength of correlation) 3-HIGH, 2 -Medium, 1-Low						
1	COs/POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	
2	**CO1**	3	3	2		3	
	CO2	2	3	2	1	1	
	CO3	2	3	3		3	
	CO4	2	3	2		2	
	CO5	3	3	3	2	2	
3	Category	General (A)	Basic Sciences andMaths (B)		Professional Core (D)	Professional Elective (E)	Project / Seminar / Internship (H)
						✓	
4	Approval	Meeting of Academic Council, June 2022					

MMBA22E37 PRODUCTION PLANNING AND CONTROL

UNIT – I INTRODUCTION TO PRODUCTION PLANNING AND CONTROL 6 hours

Introduction to PPC – Meaning, Objectives, Levels of production planning, Production interlink with other functions of management, Organizational set up of production planning department, Application of tools for aggregate production planning and control.

UNIT – II CONCEPTS OF PRODUCTION PROCESS 6 **hours**

Factors influence PPC system in the organization - Project and Job production, Batch production, Mass and flow production, Continuous or process production - Application of integrated tools for resource planning and Control.

UNIT – III PROCESS PLANNING 6 hours

Process Planning - Introduction, Inputs to process planning, Steps in process planning, Process planning in different situations, Cost benefit analysis, Just in time, Material Requirement Planning (MRP).

UNIT – IV SCHEDULING AND SIMULATION IN PRODUCTION 6 hours

Scheduling - Single machine sequencing with independent jobs - Parallel machine models - Flow shop scheduling - Job shop scheduling - Simulation studies of the dynamic job shop.

UNIT – V PRODUCTION FORECASTING 6 hours

Forecasting for production Objectives, Forecasting methods, Statistical approach for making forecast, measuring seasonal variations. Production Control - Meaning, Objectives, Necessity of production control, Techniques of production control.

TOTAL NO OF PERIODS: 30 HOURS

Reference Books:

1. Narasimhan Sim, et.al, ' Production Planning and Inventory Control', Prentice Hall 2nd Ed., New Jersy, 1995.
2. Knight, W.A. and Gdlagher, C.C., 'Group Technology Production Methods in Manufacture', 1996.
3. Chanter Barrie and Swollow Peter, Building Maintenancece Management', Blackwell science.
4. Techniques for Management, Sultan Chand and Kapoor, V.K., Operations Research- Sons, New Delhi, 200.
5. Gopalakrishnan, P and Sundararajan, Maintenance Management, Prentice hall of India, New Delhi, 1996.

MMBA22E38 PURCHASE and INVENTORY MANAGEMENT

MMBA22E38	**CONTROL SYSTEMS**	**C**	**L**	**T/SLr**	**P/R**	**T/L/ ETP**
	Total Contact Hours – 30	3	3	0	0	T
	Prerequisite – Degree					
	Course Designed by – Faculty of Management Studies					

OBJECTIVES

The key objectives of this course is to acquaint students with the needed skills and knowledge of

1. Ensuring the quality of goods at reasonable process;
2. Furnishing data for short and long-term planning with a controlled inventory;
3. Supplying the required material continuously and
4. Maintaining a systematic record of inventory.

COURSE OUTCOMES (COs)

CO1	Forecasting, purchasing and managing inventory under static situation,
CO2	Applying dynamic inventory models and making purchase decisions.
CO3	Review of purchases made and maintaining good buyer-seller relationship.
CO4	Evaluating vendors and rating them.
CO5	Managing of stores and control of stock.

	Mapping of Course Outcomes with Program outcomes (Pos)						
	(3/2/1 indicates strength of correlation) 3-HIGH, 2 -Medium, 1-Low						
1	COs/POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	
2	**CO1**	3	3	2		1	
	CO2	3	3	2		1	
	CO3	3	3	3	1	2	
	CO4	2	3	3		3	
	CO5	3	3	2		2	
3	Category	General (A)	Basic Sciences andMaths (B)		Professional Core (D)	Professional Elective (E)	Project / Seminar / Internship (H)
						✓	
4	Approval	Meeting of Academic Council, June 2022					

MMBA22E38 PURCHASE and INVENTORY MANAGEMENT

UNIT – I INTRODUCTION 6 hours

Introduction to inventory control - Inventory as Money - Static inventory problems under risk - Static inventory problems under uncertainty - Cost concepts - Activity based costing - Inventory management - Risk management – Packaging - Warehousing.

UNIT – II DYNAMIC INVENTORY MODELS 6 hours

Dynamic inventory models - Models with fixed and variable lead time - Under certainty - Under risk- Under uncertainty. Simulation: Inventory queue of slow moving spare parts - Multi product inventory systems - Purchasing and supply network strategy.

UNIT – III MATERIAL MANAGEMENT PERFORMANCE 6 hours

Demand management - Forecasting material purchasing procedures - Forecasting methods - Forms and records for purchasing - Review and Selection of sources of supplies- Purchasing personnel management - Changing role of purchasing - Legal aspects of purchasing - Purchasing budget - Material management performance – Buyer-seller relations.

UNIT – IV VENDOR EVALUATION and VENDOR RATING 6 hours

Distribution management - Value analysis – Standardization - Variety reduction - MAPI formulas - Quality management: Just in time Production, MRP, MPS - Vendor Evaluation and Vendor Rating.

UNIT – V STORES and STOCK CONTROL 6 hours

Stores and Control - Store keeping, Procedures and records - Relations with accounting and inventory control, ABC systems of stock control - Diminishing population cycle counting method- Materials movement and handling protecting inventory - Weather disasters, Fire, Theft: Assessment and remediation

TOTAL NO OF PERIODS: 30 HOURS

Reference Books:

1. Starr and Miller, Inventory Control Theory and Practice, Prentice Hall of India, New Delhi, 1989
2. Ahuja, K.K., Materials Management, CBS Pub., New Delhi, 1992
3. Mullar Max,' Essentials of Material Management, Ama.com, 2006
4. Narasimhan Sim, et.al, ' Production Planning and Inventory Control', Prentice Hall 2nd Ed., New Jersy, 1995
5. Levitt Joel,' Completer Guide to Predictive and Preventive Maintenance', Industrial Press.

MMBA22E39 LEAN and SIX SIGMA MANAGEMENT

MMBA22E39	**CONTROL SYSTEMS**	**C**	**L**	**T/SLr**	**P/R**	**T/L/ ETP**
	Total Contact Hours – 30	3	3	0	0	T
	Prerequisite - Degree					
	Course Designed by – Faculty of Management Studies					

OBJECTIVES

The key objectives of this course is to acquaint students with the needed

1. Ability to use a structured approach to process improvement;
2. Skill to predict, prevent and control defects in a process and understanding the elements of waste;
3. Skills to achieve sustainable quality improvement through process improvement and
4. Understanding of variation in processes.

COURSE OUTCOMES (COs)

CO1	Six sigma and lean management application for improving quality and reducing cost.
CO2	Familiarizing of different tools and techniques used for six sigma.
CO3	Leading six sigma approaches systematically.
CO4	Meeting the challenges while implementing six sigma and making it successful.
CO5	Evaluating the applied tools for continuous improvement of quality.

	(3/2/1 indicates strength of correlation) 3-HIGH, 2 -Medium, 1-Low						
1	COs/POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	
2	**CO1**	3	3	3		3	
	CO2		3	1		2	
	CO3	3	3	3		1	
	CO4	2	3	3		2	
	CO5	3	3	3	1	2	
3	Category	General (A)	Basic Sciences andMaths (B)		Professional Core (D)	Professional Elective (E)	Project / Seminar / Internship (H)
						✓	
4	Approval	Meeting of Academic Council, June 2022					

MMBA22E39 LEAN and SIX SIGMA MANAGEMENT

UNIT - I LEAN and SIX-SIGMA 6 hours

Historical overview – Definition of quality – What is six sigma - TQM and Six sigma - Lean manufacturing and six sigma - Six sigma and cultural changes – Six sigma capability – Implications of quality levels, Cost of poor quality (COPQ), Cost of doing nothing.

UNIT - II TOOLS AND TECHNIQUES 6 hours

Tools and Techniques – IPO diagram, SIPOC diagram, Flow diagram, CTQ tree, Project charter – Tools for measurement – Check sheets, Histograms, Run charts, Scatter diagrams, Cause and effect diagram, Pareto charts, Control charts, Flow process charts, Process capability measurement.

UNIT - III SIX SIGMA METHODOLOGIES 6 hours

Design for Six Sigma (DFSS), Design for Six Sigma method - Failure Mode Effect Analysis (FMEA), FMEA process - Risk Priority Number (RPN) - Six Sigma and Leadership.

UNIT – IV SIX SIGMA IMPLEMENTATION AND CHALLENGES 6 hours

Tools for implementation – Supplier Input Process Output Customer (SIPOC) – Quality Function Deployment or House of Quality (QFD) – Leadership training, Close communication system, – Project management and team – Customer quality index – Challenges – CPQ vs. six sigma, structure the deployment of six sigma

UNIT – V EVALUATION AND CONTINUOUS IMPROVEMENT METHODS 6 hours

Evaluation strategy – Economics of six sigma quality, Return on six Sigma (ROSS),– Continuous improvement – Lean manufacturing – Value, Customer focus, Perfection, Focus on waste, Overproduction – Waiting, Inventory in process (IIP), Processing waste, Transportation, Motion, Making defective products, Underutilizing people – Kaizen.

TOTAL NO OF PERIODS: 30 HOURS

Reference Books:

1. Michael L.George, David Rownalds, Bill Kastle, What is Lean Six Sigma, Mc Graw -Hill 2003.
2. Thomas Pyzdek, The Six Sigma Handbook, McGraw-Hill, 2000.
3. Fred Soleimannejed , Six Sigma, Basic Steps and Implementation, Author House, 2004
4. Forrest W. Breyfogle, III, James M. Cupello, Becki Meadows, Managing Six Sigma:A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success, John Wiley and Sons, 2000.

FACULTY OF MANAGEMENT STUDIES

MBA- Two Year Full Time Program- Curriculum and Syllabus

Program Structure for MBA (Full Time)

MMBA22E40 TOTAL QUALITY MANAGEMENT

MMBA22E40	**CONTROL SYSTEMS**	**C**	**L**	**T/SLr**	**P/R**	**T/L/ ETP**
	Total Contact Hours – 30	3	3	0	0	T
	Prerequisite – Degree					
	Course Designed by – Faculty of Management Studies					

OBJECTIVES

The key objectives of this course is to acquaint students with the needed skills and knowledge of

1. The basic concept of Total Quality (TQ) and Quality culture;
2. The customers' expectations and planning of TQM accordingly;
3. International Quality Certification Systems – ISO 9000 and other standards and
4. Quality of services in contemporary environment.

COURSE OUTCOMES (COs)

CO1	Being part of quality improvement in every step.
CO2	Familiarisation and application of the concepts on total quality management.
CO3	Implementing the total quality management tools in Industry.
CO4	Ensuring quality control by adopting quality control circle.
CO5	Acquiring knowledge on modern trends and concepts such and re-engineering.

	Mapping of Course Outcomes with Program outcomes (Pos)						
	(3/2/1 indicates strength of correlation) 3-HIGH, 2 -Medium, 1-Low						
1	COs/POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	
2	**CO1**	3	3		1		
	CO2	2	3	3			
	CO3	3	2	1	2	2	
	CO4			2	3	3	
	CO5	3	3	3	2	2	
3	Category	General (A)	Basic Sciences andMaths (B)		Professional Core (D)	Professional Elective (E)	Project / Seminar / Internship (H)
						✓	
4	Approval	Meeting of Academic Council, June 2022					

MMBA22E40 TOTAL QUALITY MANAGEMENT

UNIT– I QUALITY POLICY, PLANNING AND MANAGEMENT 6 hours

Evolution of quality as a strategy - Definitions of quality, Quality Philosophies of Deming, Crosby and Miller, Service Vs product Quality, Customer focus, Quality and Business performance leadership for quality management, Quality planning,, Vision, Mission statements and Quality policy.

UNIT – II BASIC CONCEPTS F TOTAL QUALITY MANAGEMENT 6 hours

Total Quality management - TQM models, Continuous improvement strategies, Deming wheel, Internal-external customer concept, Customer retention, Team work and team building, Empowerment, TQM culture, Quality Circle, 5S principle, Top management commitment.

UNIT – III QUALITY MANAGEMENT TOOLS 6 hours

Quality management tools - Principles and applications of quality function deployment, Failure Mode and Effect Analysis (FMEA), Taguichi Techniques, Basic tools - Statistical techniques and graphical tools and diagrams.

UNIT - IV VARIOUS CONCEPTS OF QC TECHNIQUES 6 hours

Modern QC techniques - Japanese production related techniques: Just in time (JIT) – Quality circles – Total productive maintenance (TPM) – Kaizen – Kanban – 5S concepts – Toyota production systems – Concepts on quality management systems (QMS – ISO 9000 – 2000) – Environmental Management Systems (EMS – ISO – 14000).

UNIT- V MODERN TREND AND CONCEPT IN MANUFACTURING MANAGEMENT 6 hours

Modern Trend and Concept in Manufacturing Management: Business processes reengineering (BPR) – Lean / flexible–manufacturing systems – Six sigma concepts. Quality Leadership - Quality Tools -Quality function deployment.

TOTAL NO OF PERIODS: 30 HOURS

References Books:

1. Jill A. Swift, Joel E.Ross and Vincent K.Omachonu, *Peinciples of Total Quality*, St.Lucie Press, US, 1998.
2. Samuel K.Ho, *TQM*, An integrated approach, kogan page India Pvt Ltd, 2002
3. Dale H.N Besterfield et al, *Total Quality management*, Pearson Education Asia, 2001
4. RoseJ.E. *Total Quality Management* Kogan page India Pvt Ltd, 1993.
5. Mullar Max,' *Essentials of Matrial Management*, Amacom