Curriculum Structure for Master of Technology (Manufacturing Technology)
Part-I AY 2022-23 (Batch 2022-23-24)
SEMESTER I

Course Code	Course Title	L	T	P	C	Evaluation Scheme					
						Component	Exam	Marks	WT (%)	Mini. Passing %	
PMT101 (PC|SM)	Casting, Welding and Forming Technology	3	1	-	4	Theory & Practical	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT102 (PC|SM)	Advanced Materials and Processing	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT103 (PC|SM)	Industrial Robotics and Expert Systems	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT104 (PC|SM)	Product Data and Lifecycle Management	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT105 (PC|SM)	Production and Operations Management	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT106 (NC|SLA)	Domain Specific MOOC-I	-	-	-	-	Practical	FA	100	100%	50%	Satisfactory/ Non-Satisfactory
Total		***15***	***05***	***00***	***20***		***Total Credit: 20***				

L: Lecture; T: Tutorial; P: Lab Practical; J: Project or activity based learning; FA: Formative Assessment (Theory and/or Practical); SA: Summative Assessment-End Semester Examination; PC: Program Core Course; PE: Program Elective; UC: University Core; NC: Non- Credit Course; UMNCC: University Mandatory Non- Credit Course, UE-University Elective, FA-Formative Assessment, SA-Summative Assessment

Curriculum Structure for Master of Technology (Manufacturing Technology)
Part-I AY 2022-23 (Batch 2022-23-24)
SEMESTER II

Course Code	Course Title	L	T	P	C	Evaluation Scheme					
						Component	Exam	Marks	WT (%)	Mini. Passing %	
PMT201 (PC|SM)	Principles of Metal Cutting	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT202 (PC|SM)	Manufacturing System Design	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT203 (PC|SM)	Advanced Manufacturing Techniques	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT251 (PE|SM)	*Program Elective I* Modeling and Simulation	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT252 (PE|SM)	*Program Elective I* Manufacturing Management	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PCM001 (UC|SM)	Research Methodology	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT204 (NC|SLA)	Domain Specific MOOC-II	-	-	-	-	Practical	FA	100	100%	50%	Satisfactory or Non-Satisfactory
Total		***15***	***05***	***00***	***20***		***Total Credit: 20***				

L: Lecture; T: Tutorial; P: Lab Practical; J: Project or activity based learning; FA: Formative Assessment (Theory and/or Practical); SA: Summative Assessment-End Semester Examination; PC: Program Core Course; PE: Program Elective; UC: University Core; NC: Non- Credit Course; UMNCC: University Mandatory Non- Credit Course, UE-University Elective, FA-Formative Assessment, SA-Summative Assessment

Curriculum Structure for Master of Technology (Manufacturing Technology)
Part-II AY 2023-24 (Batch 2022-23-24)
SEMESTER III

Course Code	Course Title	L	T	P	C	Evaluation Scheme					
						Component	Exam	Marks	WT (%)	Mini. Passing %	
PMT301 (PC|SM)	Finite Element Analysis	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT302 (PC|SM)	Optimization Techniques	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT351 (PE|SM)	*Program Elective II* Computer Aided Design and Simulation	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT352 (PE|SM)	*Program Elective II* Additive Manufacturing	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT303 (PC|SM)	Project Phase I	-	-	-	8	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
Total		***09***	***03***	***00***	***20***		***Total Credit: 20***				

Curriculum Structure for Master of Technology (Manufacturing Technology)
Part-II AY 2023-24 (Batch 2022-23-24)
SEMESTER IV

Course Code	Course Title	L	T	P	C	Evaluation Scheme					
						Component	Exam	Marks	WT (%)	Mini. Passing %	
PMT451 (PE|SM)	*Program Elective III* Automatic Control Systems	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT452 (PE|SM)	*Program Elective III* Supply Chain Management	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	
PMT402 (PC|SM)	Project Phase II	-	-	-	16	Practical	FA	50	50%	50%	50%
							SA	100	50%	50%	
Total		***03***	***01***	***00***	***20***		***Total Credit: 20***				

L: Lecture; T: Tutorial; P: Lab Practical; J: Project or activity based learning; FA: Formative Assessment (Theory and/or Practical); SA: Summative Assessment-End Semester Examination; PC: Program Core Course; PE: Program Elective; UC: University Core; NC: Non- Credit Course; UMNCC: University Mandatory Non- Credit Course, UE-University Elective, FA-Formative Assessment, SA-Summative Assessment

SEMESTER - I

Course Code	Course Title	L	T	P	C	Evaluation Scheme					
						Component	Exam	Marks	WT (%)	Mini. Passing %	
PMT 101 (PC|SM)	Casting, Welding and Forming Technology	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	

CLO-01 Apply the process to achieve the required shape and size along with required properties.
CLO-02 Elaborate the process capabilities and application of casting processes.
CLO-03 Select an appropriate welding process for a given application and hence develop a welding procedure for a given job.
CLO-04 Illustrate capabilities and hence application of metal forming processes and sheet metal work.

Module 01

Introduction

Classification of Casting Processes.

Solidification: Solidification of Pure Metals and Alloys, Nucleation and Growth in Alloys, Solidification of Actual Castings, Progressive and Directional Solidification, Centerline Feeding Resistance, Rate of Solidification, Fluidity- Measurement of Fluidity, Effects of Various Parameters on Fluidity.

Module 2

Risering and Gating System: Riser Design, Risering Curves, NRL Method of Riser Design, Feeding Distance, Risering of Complex Casting, Risering of Alloys Other than Steel, Recent Developments in Riser Design by the Application of Geometrical Programming; Gating System Design and their Characteristics

Pattern and Casting Design: Pattern Design, Recent Developments in Pattern Design, Materials and Construction.

Module 3

Design of Weld Joints: Introduction to Design; Engineering Properties of Steels; Type of Welds and Weld Joints.

Description of Welds: Terminology, Definitions and Weld Symbols; Edge Preparation; Sizing of Welds in Structure; Design for Static Loading, Weld Calculations in Lap, Butt and Fillet Welds.

Arc Welding Processes: Consumable Electrode Welding Processes. Manual Metal Arc (MMA) Welding; Gas Metal Arc Welding; Pulsed MIG Welding; Submerged Arc Welding, Significance of Flux-Metal Combination; **Electroslag Welding**: Gas Tungsten Arc Welding; Plasma Arc Welding; Transferred and Non-Transferred Plasma Arc Welding.

Module 4

Friction Welding and Friction Stir Welding: Friction Welding Process Variables, Welding of Similar and Dissimilar Materials, Friction Welding of Materials With Inter Layer, Processes Parameters, Tool Geometry, Welding of Aluminium Alloys, Friction Stir Welding of Aluminium Alloys and Magnesium Alloys, Microstructure Analysis.

Advanced Welding Processes: Details of Electron Beam Welding (EBW), Laser Beam Welding (LBW), Ultrasonic Welding (USW). Testing and Inspection of Weld Joints.

Module 5

Mechanics of Forming Processes:
Rolling: Determination of Rolling Pressure, Roll Separating Force, Driving Torque and Power, and Power Loss in Bearings
Drawing: Determination of Force and Power, Determination of Maximum Allowable Reduction; Deep Drawing Force Analysis, Analysis of Tube Drawing Process
Extrusion: Determination of Work Load from Stress Analysis and Energy Consideration, Power Loss, Hydrostatic Extrusion.

Module 6

Forging: Determination of Forces in Strip Forging and Disc Forging
Bending: Determination of Work Load and Spring Back
Punching and Blanking: Mode of Metal Deformation and Failure, Two-Dimensional Deformation Model and Fracture Analysis, Determination of Working Force.
Advanced Metal Forming Processes: High Energy Rate Forming (HERF), Electro-Magnetic Forming, Explosive Forming, Electro-Hydraulic Forming, Stretch Forming, And Contour Roll Forming.

Term Work:
1. Assignments on each unit
2. One Case Study Presentation on Metal Deformation and Failure of punching die.

References:

1. R.W. Heine, C.R. Loper, and P.C. Rosenthal, Principles of Metal Casting, TMH, New Delhi.
2. P. L. Jain, Principles of Foundry Technology, TMH, New Delhi.
3. A. Ghosh and A. K. Mallik, Manufacturing Science, 2nd Ed., East-West Press Private Limited, 2010.
4. V. M. Radhakrishnan, Welding Technology and Design, New Age International Pvt. Ltd., 2008.
5. R. S. Parmar, Welding Engineering and Technology, Khanna Publishers, 2005.

Formative Assessment 50 Marks (For Passing, Min 50%)		Summative Assessment 100 Marks (For Passing, Min 50%)	
Assignments	30 Marks	ESE (Theory Paper)	100 Marks
Case Study	20 Marks		

SEMESTER - I

Course Code	Course Title	L	T	P	C	Evaluation Scheme					
						Component	Exam	Marks	WT (%)	Mini. Passing %	
PMT102 (PC|SM)	Advanced Materials and Processing	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	

CLO 1: Explain[2] various modern and smart materials and study their applications
CLO 2: Explain[2] various nanomaterials and study their properties and applications
CLO 3: Explain[2] advanced ceramics and study their properties and applications
CLO 4: Classify[3] different modern composite materials and study their processing methods
CLO5: Classify different polymerization processes and comprehend various plastics conversion techniques.
CLO6: Explain[2] powder metallurgy processes with suitable applications

Module 01

Modern Materials

Inter-metallics, smart materials, shape memory alloys, Metallic glass-quassi crystals, Dielectrics, semiconductors, conductors & super conducting materials. Magnetic & photoelectric materials, optical materials, Bio materials, micro electronic materials & nano-materials.

Module 02

Nanomaterials

properties and applications of organic, inorganic, hybrid nanomaterials – core-shells, nanoshells, self-assembled nanostructures, superlattices, nanoceramics metallic, polymeric and ceramic nanocomposites, nanoporous materials, nanofluids, nanolayers and carbon-based nano materials - Occurrence, production, purification, properties and applications of fullerene, carbon nanotube, graphene, carbon onion, nanodiamond and films

Module 03

Advanced Ceramics

Transparent ceramics, coatings and films: preparation and applications porous ceramics and ceramic membrane: fabrication techniques and applications in separation technology, Ceramics matrix composite. applications of advanced ceramic materials

Module 04

Composite Materials & Processing

Composites: Fibers-glass, boron, carbon, organic, ceramic and metallic fibers-matrix materials polymers, metals and ceramics. Applications of MMC's. Processing of polymer matrix composites: open mould process, bag moulding, compression moulding with BMC and SM- filament winding, pultrusion- centrifugal casting, injection moulding, applications of PMC's. Processing of metal matrix polymers: solid state fabrication techniques- diffusion bonding, powder metallurgy techniques, plasma spray, chemical and physical vapor deposition of matrix on fibers, Liquid state fabrication methods, Infiltration, squeeze casting.

Module 05

Polymeric Materials & Processing

Thermoplastic and thermosetting plastics, industrial polymerization method, processing of plastic materials, processes used for thermoplastic materials, injection moulding, extrusion, blow moulding and thermo forming, properties and applications, Processes used thermosetting materials, compression moulding, transfer moulding and injection moulding,

Module 06

Powder Metallurgy and processing

Process details and special characteristics of powder metallurgy process. Compaction techniques like CIP & HIP (Cold Iso-static and Hot Iso-static pressing) Applications of Powder Metallurgy. High temperature alloys, Classification of Titanium alloys, properties and applications.

Term Work:

1. Assignments on each unit
2. One Case Study Presentation based on Modern and Composite materials and its applications.

References :

1. Mechanics of Composite Materials - Autar K.- Kaw CRC Press New York. – 1st edition, 1997.
2. Composite Material Science and Engineering - Krishan K - Chawla Springer – 1999.
3. Composite Materials Handbook - Mein Schwartz - Mc Graw Hill Book Company - 1984.
4. Mechanics of Composite Materials - Rober M. Joness – McGraw Hill Kogakusha Ltd. – 2008
5. Fiber Reinforced Composites - P.C. Mallik Marcel Decker- 2nd edition, New York -1993.
6. ASM Handbook on Powder Metallurgy, Vol 17, ASM publications

Formative Assessment 50 Marks (For Passing, Min 50%)		Summative Assessment 100 Marks (For Passing, Min 50%)	
Assignments	30 Marks	ESE (Theory Paper)	100 Marks
Case Study	20 Marks		

SEMESTER - I

Course Code	Course Title	L	T	P	C	Evaluation Scheme					
						Component	Exam	Marks	WT (%)	Mini. Passing %	
PMT103 (PC|SM)	Industrial Robotics and Expert Systems	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	

CLO 1 : Select[3] various components and its functionality, required for building a robotic system.
CLO 2 : Select[3] robotic End Effectors, Sensors for a robotic application.
CLO 3 : Design[5] robotic programming for an application, include factors required for AI & expert system.

Module 01

Fundamentals of Robot Technology

Robot Anatomy, Work Volume, Robot Drive Systems, Control Systems, Precision of Movement, End Effectors, Robotic Sensors, Robot Programming & Work Cell Control, Applications.

Control Systems and Components

Controllers, Control System Analysis, Robot Sensors and Actuators, Velocity Sensors, Actuators, Power Transmission Systems, Modeling and Control of a Single Joint Robot.

Module 02

Robot Motion Analysis and Control

Manipulator Kinematics, Homogeneous Transformations and Robotic Kinematics, Manipulator Path Control, Robot Dynamics, Configuration of a Robot Controller.

Robot End Effectors

Types of End Effectors, Grippers, Tools as End Effectors, Robot-End Effector Interface, Gripper Selection and Design.

Sensors in Robotics

Transducers and Sensors, Sensors in Robotics, Tactile Sensors, Proximity and Range Sensors, Miscellaneous Sensors and Sensor Based Systems, Use of Sensors in Robotics.

Module 03

Robot Programming and Languages

Methods of Robot Programming, Lead through Programming Methods, Robot Program as a Path in Space, Motion Interpolation, Wait, Signal and Delay Commands, Branching, Capabilities and Limitations of Lead through Methods.

Robot Languages

The Textual Robot Languages, Generation of Robot Programming Language, Robot Language Structure, Constants, Variables and other Data Objects, Motion Commands, End Effector and Sensor Commands, Computation and Operations, Program Control and Subroutines. Communications and Data Processing, Monitor Mode Commands.

Module 04

Artificial Intelligence

Goals of AI research, AI Techniques, LISP Programming, AI and Robotics, LISP in the Factory, Robotic Paradigms.

Module 05

Robot Applications in Manufacturing

Material Transfer and Machine Loading - Unloading;

Processing Operations

(Spot Welding, Continuous Arc Welding, Spray Coating, Other Processing Operations using Robots);

Assembly and Inspection

(Assembly and Robotic Assembly Automation, Parts Presentation Methods, Assembly Operations, Compliance and Remote Centre Compliance (RCC) Device, Assembly System Configurations, Adaptable Programmable Assembly System, Designing for Robotic Assembly, Inspection Automation).

Module 06

Robotics Technology of the Future

Robotic Intelligence, Advanced Sensor Capabilities, Telepresence and Related Technologies, Mechanical Design Features, Mobility, Locomotion and Nevigation, The Universal Hand, Systems Integration and Networking. Future Manufacturing Applications and Service Industry Applications of Robots.

Term Work :

1. Assignments on each unit
2. One Case Study Presentation on Robotics Technology &/or its applications.

References :

1. K.S.Fu, R.C. Gonzalez and C.S.G. Lee, “Robotics Control, Sensing, Vision and Intelligence”, Mc Graw Hill, 1987.
2. Yoram Koren,” Robotics for Engineers’ Mc Graw-Hill, 1987.
3. Kozyrey, Yu. “Industrial Robots”, MIR Publishers Moscow, 1985.
4. Richard. D, Klafter, Thomas, A, Chmielewski, Michael Negin, “Robotics Engineering – An Integrated Approach”, Prentice-Hall of India Pvt. Ltd., 1984.
5. Deb, S.R.” Robotics Technology and Flexible Automation”, Tata Mc Graw-Hill, 1994.
6. Mikell, P. Groover, Mitchell Weis, Roger, N. Nagel, Nicholas G. Odrey,” Industrial Robotics Technology, Programming and Applications”, Mc Graw-Hill, Int. 1986.
7. Timothy Jordanides et al ,”Expert Systems and Robotics “, Springer –Verlag, New York, May 1991.

Formative Assessment (Choice Based) 50 Marks (For Passing, Min 50%)		**Summative Assessment 100 Marks (For Passing, Min 50%)**	
Assignments	30 Marks	ESE (Theory Paper)	100 Marks
Case Study	20 Marks		
OR			
Paper Publish	40 Marks		
Case Study	10 Marks		

SEMESTER - I

Course Code	Course Title	L	T	P	C	Evaluation Scheme					
						Component	Exam	Marks	WT (%)	Mini. Passing %	
PMT 104 (PC|SM)	Product Data & Lifecycle Management	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	

CLO 1 : Suggest[4] business processes to be analyzed PLM and its data management..
CLO 2 : Suggest[4] suitable technique to be implemented for PLM assessment.
CLO 3 : Prepare[5] plan for Project Management and Change Management for execution of an industrial project.
CLO 4: Select[6] appropriate lifecycle management strategies to develop new engineering design
CLO 5: Select[6] integrated software for monitoring and management.

Module 01

PLM Introduction, Business Processes

Overview, Need, Benefits, Concept of Product Life Cycle. Components / Elements of PLM, Emergence of PLM, Significance of PLM, Customer Involvement. Product Data and Product Workflow, Company's PLM vision, The PLM Strategy, Principles for PLM strategy, Preparing for the PLM strategy, Developing a PLM strategy, Strategy identification and selection, Change Management for PLM.

Module 02

Product Development Process and Methodology.

Integrated Product development process - Conceive – Specification, Concept design, Design - Detailed design, Validation and analysis (simulation), Tool design, Realize - Plan manufacturing , Manufacture, Build/Assemble , Test (quality check) , Service - Sell and Deliver, Use, Maintain and Support, Dispose. Bottom-up design, Top-down design, Front loading design workflow, Design in context, Modular design. Concurrent engineering - work structuring and team deployment - Product and process systemization - problem, identification and solving methodologies.

Module 03

Product Modelling

Product Modelling - Definition of concepts – Fundamental issues - Role of Process chains and product models -Types of product models – model standardization efforts-types of process chains –Industrial demands.

Module 04

PLM Types and Analysis Tools

Design for manufacturing - machining - casting and metal forming - optimum design - Design for assembly and disassembly - probabilistic design concepts - FMEA QFD-Taguchi Method for design of experiments -Design for product life cycle. Estimation of Manufacturing costs, reducing the component costs and assembly costs, Minimize system complexity.

Module 05

Product Data Management Technology.

Product Data Management –An Introduction to Concepts, Benefits and Terminology, CIM Data. PDM functions, definition and architectures of PDM systems, product data interchange, portal integration, PDM acquisition and implementation.

Module 06

Recent Advances

Intelligent Information Systems - Knowledge based product and process models - Applications of soft computing in product development process - Advanced database design for integrated manufacturing.

Term Work :

1. Specific Problem Solving Test.
2. One Case Study Presentation on PLM.

References:

1. Grieves, Michael. Product Lifecycle Management, McGraw-Hill, 2006. ISBN 0071452303
2. Product Life Cycle Management - by Antti Saaksvuori, Anselmi Immonen, Springer, 1st Edition (Nov.5, 2003)
3. Stark, John. Product Lifecycle Management: Paradigm for 21st Century Product Realisation, Springer-Verlag, 2004. ISBN 1852338105
4. Product Design & Process Engineering, McGraw Hill – Kogalkusha Ltd., Tokyo, 1974.
5. Burden, Rodger PDM: Product Data Management, Resource Pub, 2003. ISBN 0970035225

Formative Assessment 50 Marks (For Passing, Min 50%)		Summative Assessment 100 Marks (For Passing, Min 50%)	
Specific Problem Solving Test.	20 Marks	ESE (Theory Paper)	100 Marks
Case Study	30 Marks		

SEMESTER - I

Course Code	Course Title	L	T	P	C	Evaluation Scheme					
						Component	Exam	Marks	WT (%)	Mini. Passing %	
PMT 105 (PC|SM)	Production and Operations Management	3	1	-	4	Theory & Tutorial	FA	50	50%	50%	50%
							SA	100	50%	50%	

CLO 1 : Select appropriate production and operation strategies based on situation.
CLO 2 : Estimate the demand using appropriate forecasting techniques.
CLO 3 : Recommend the aggregate production planning strategies capacity based on the demand pattern and the capacity
CLO 4 : Apply techniques of Production Planning and control and lean tools for various manufacturing and services operations

Module 1

Introduction: Relation between production and operations and other functions, products and services, impact of information technology on productions and operations management, Business strategy- competitive priorities, developing operations strategy, productivity and competitiveness.
Product and Service Design: Traditional and concurrent product design, design for manufacture, service, assembly, Design of services, types of services, Quality of design, costs of quality

Module 2

Forecasting Models: Classification, simple and weighted moving average method, exponential smoothening methods: additive model, trends and seasonality model, mixed model, Regression (linear and multiple) models, causal model, measures of forecasting accuracy, reliability of forecasts

Module 3

Aggregate Production Planning: Production planning strategies, aggregate production planning model, chase demand and level workforce strategies, and techniques- trial and error, linear programming, transportation model, dynamic programming, Master production schedule, Materials requirement planning - structure and application; Capacity planning- measures and methods to generate capacity, Aggregate planning for services- yield management

Module 4

Operations Scheduling: Approaches to scheduling – infinite and finite loading, forward or backward scheduling, Assignment model for assigning jobs to work centers, dispatching rules for scheduling n jobs on one machine, composite rules, scheduling with Johnson's rule – n jobs-2 stations with same and different sequence, 2 jobs-n stations (graphical method), preparation of Gantt's chart, job shop scheduling, open shop scheduling, dynamic scheduling in flexible manufacturing systems, employee scheduling for service.

Module 5

Independent Demand Inventory Management: Classification, EOQ models, order timing decisions, Safety Stock and reorder level decisions. Order quantity and reorder point, Continuous review systems, periodic review systems, selective inventory control - ABC analysis, Multi-item and Coordinated Replenishment Models- Spare parts and maintenance inventory models.

Module 6

Inventory models with probabilistic demands: Single period discrete probabilistic demand model, multiple period probabilistic models

Theory of constraints: Optimized Production Technology, Drum-rope-buffer models, Constant-WIP (CONWIP) models, Planning and Control of JIT Systems.

Term Work :

Assignments on each units.

References :

1. Amol Gore, Robert Pannizolo, Operations Management, Cengage Learning
2. James. L. Riggs, Production Systems- Planning, Analysis & Control, John Wiley & Sons
3. S.N. Chary, Production & Operations Management, McGraw Hill Publication
4. Lockyer, Production Management, ELBS

Formative Assessment 50 Marks (For Passing, Min 50%)		Summative Assessment 100 Marks (For Passing, Min 50%)	
Assignments / Numerical	30 Marks	ESE (Theory Paper)	100 Marks
Case Study	20 Marks		

SEMESTER - I

Course Code	Course Title	L	T	P	C	Evaluation Scheme					
						Component	Exam	Marks	WT (%)	Mini. Passing %	
PMT 106 (PC|SM)	Domain Specific MOOC-I	-	-	-	-	Practical	FA	100	100%	50%	Satisfactory / Not-Satisfactory

Expected the learning of specific course through Online / Offline / Workshop / Training, etc. through available resources.