Elective Course 9: Production Planning & Control

Course Type:	PS: Program Specialisation	Course Credits:	2
Course Code:	O3SE517	Course Duration:	30 Hours

Course Objectives:

- To introduce foundational concepts and methodologies in production planning and control.
- To equip students with skills in scheduling, capacity planning, and workflow management.
- To develop analytical abilities for optimizing production processes and resource allocation.
- To enable application of technology-driven solutions and software for efficient production control.
- To cultivate strategic insights into addressing contemporary challenges in production management.

Course Outcomes:

- CO1: Remember / Recall fundamental concepts of PPC
- CO2: Understand role of PPC in business management
- CO3: Apply the principles of PPC in manufacturing
- CO4: Analyse the pros and cons while decision making in manufacturing
- CO5: Evaluate risk, material and capacity while decision making
- CO6**:** Create effective processes for performance improvement and sustainable business

Unit / Module	Content	CO Mapping	Hours Assigned
1	Production / Operations Planning and Control (PPC): Nature, Objectives, Factors Determining Production Planning, Production Planning and Systems, Production Controls, Benefits of Production Control, Factors Determining Production Control, Role and Scope of PPC	CO1, CO2	3

2	Production / Operations Planning and Control (PPC): Functions of PPC, Benefits of PPC, Limitations of PPC, Measuring Effectiveness of PPC, PPC in Different Production Systems and Make or Buy Analysis	CO1, CO2	3
3	Aggregate Planning and Master Production Scheduling: Nature and Objectives, Operations Planning and Scheduling Systems, Aggregate Capacity Planning, Steps in Aggregate Planning, Capacity Requirement Planning, Capacity Planning Decisions	CO3, CO4	3
4	Aggregate Planning and Master Production Scheduling: Determination of Capacity, Factors Affecting Determination of Plant Capacity, Interrelationship between Capacity and Other Factors (Location, Layout, Process Design, Equipment Selection), Aggregate Capacity Planning Strategies	CO3, CO4	3
5	Master Production Scheduling (MPS): Objectives, Functions of MPS, Time Fences in MPS, Procedure for Developing MPS and Symptoms of Poorly Designed MPS	CO3, CO4	3
6	Resource Requirement Planning: Introduction, Resource Requirement Planning System, General Overview of MRP, Issues in MRP,	CO2, CO3	3

	Potential Benefits of MRP		
7	Shop Floor Planning and Control: Introduction, Objectives of Production Activity and Control, Scheduling Techniques, Stages in Scheduling and Line of Balance Technique	CO3, CO4	3
8	InventoryManagement: Inventory Cost, Inventory Management and Control, Inventory Control Techniques and Measurement of Effectiveness of Inventory Management	CO4, CO5	3
9	ERP: Key Functions and Features, Production Planning, Capacity Planning, MRP and Scheduling	CO4, CO5	3
10	ERP: Production Control: Inventory, Work Order Management, Resource Allocation, Production Monitoring, Routing and Process Management, Process Management, Reporting and Analytics, Benefits of ERP Module for PPC	CO4, CO5	3

Textbooks:

1. "Elements of Production, Planning and Control" by Samuel Eilon, Published by Macmillian
2. "Operations Management" by Joseph Monks, Published by McGraw Hill Ryerson
3. “Fundamentals of Production Planning and Control” by Stephen N. Chapman, Published by Pearson

Reference Books:

1. " Production Planning and Control – Text and Cases" by Mukhopadhyay S. K. Published by PHI Learning