

PRODUCTION PLANNING AND CONTROL

Course Code	20ME4601B	Year	III	Semester	II
Course Category	Professional Elective-2	Branch	ME	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Nil
Continuous Internal Evaluation	30	Semester End Evaluation	70	Total Marks	100

Course outcomes At the end of the course, the student will be able to

CO	Statement	Skill	BTL	Units
CO1	Explain basics concepts of Production planning functions, forecasting techniques, Inventory management, Routing, scheduling, Line balancing, aggregate planning, dispatching and follow-up	Understand, Communication	L2	1,2,3,4,5
CO2	Demonstrate dispatching and Follow-up techniques	Understand, Communication	L2	5
CO3	Apply forecasting Techniques, Inventory control Techniques, scheduling techniques	Apply, Communication	L3	1,2,3
CO4	Apply aggregate planning Line balancing techniques in production Planning	Apply, Communication	L3	4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3-High, 2: Medium, 1: Low)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	<u>3</u>		<u>3</u>	<u>1</u>		<u>1</u>					<u>1</u>		<u>2</u>	<u>3</u>
CO2	<u>3</u>		<u>3</u>	<u>1</u>		<u>1</u>					<u>1</u>		<u>2</u>	<u>3</u>
CO3	<u>3</u>		<u>3</u>	<u>1</u>		<u>1</u>					<u>1</u>		<u>2</u>	<u>3</u>
CO4	<u>3</u>		<u>3</u>	<u>1</u>		<u>1</u>					<u>1</u>		<u>2</u>	<u>3</u>

Syllabus		
UNIT	Contents	Mapped CO
I	INTRODUCTION: Objectives of production planning and control, definitions, functions of production planning and control organization of production planning and control department, internal organization of department. FORECASTING: Importance - Forecasting Techniques- qualitative methods: Jury/Expert Method, Survey method, Sales force composite method, Delphi method and quantitative methods: Simple average, moving average, smoothing coefficient, Least Square method.	CO1 CO3
II	INVENTORY MANAGEMENT: Functions of inventories – relevant inventory costs – ABC analysis – VED analysis – EOQ model – Inventory control systems – P-Systems and Q-Systems INVENTORY CONTROL TECHNIQUES: Introduction to MRP-I, MRP-II & ERP, JIT inventory, Kanban system	CO1 CO3
III	ROUTING: Definition – Routing procedure –Route sheets – Bill of material – Factors affecting routing procedure. SCHEDULING: Definition – Activities-Difference with loading, Scheduling types: Forward, Backward scheduling, Job shop scheduling – Arrival pattern, processing pattern, number of workers available,	CO1 CO3

	machine varieties available, Priority rules for job sequencing FIFO, FILO, SPT, SOT, EDD, STR, CR. Johnson's job sequencing rules- n jobs on 2machines, n jobs on 3 machines.	
IV	AGGREGATE PLANNING: Introduction, Inputs to aggregate planning, strategies- Line strategy, chase strategy, capacity options, demand options, Costs in Aggregate Planning. LINE BALANCING: Introduction, objectives, terms related to line balancing, procedures, simple problems	CO1 CO4
V	DISPATCHING: Centralized and Decentralized Dispatching- Activities of dispatcher – Dispatching procedure FOLLOW-UP – definition – Reason for existence of functions – types of follow up - Application of computers in production planning and control.	CO1 CO2

Learning Recourse(s)**Text Book(s)**

1. Samson Eilon, "Elements of Production Planning and Control", Universal Book Corpn.1984
2. James.B.Dilworth,"Operations management – Design, Planning and Control for manufacturing and services" McGraw Hill International edition 1992.

Reference books

1. MartandTelsang, "Industrial Engineering and Production Management", First edition, S. Chand and Company, 2000.
2. Elwood S.Buffa, and Rakesh K.Sarin, "Modern Production / Operations Management", 8th Edition, John Wiley and Sons, 2000.
3. KanishkaBedi, "Production and Operations management", 2nd Edition, Oxford university press, 2007.
4. Melynk, Denzler, "Operations management – A value driven approach" Irwin McGraw hill.
5. Norman Gaither, G. Frazier, "Operations Management", 9th edition, Thomson learning IE, 2007

E- Resources & other digital material

1. <https://www.tandfonline.com/toc/tppc20/current>
2. <https://www.managementstudyguide.com/production-planning-and-control.htm>
3. <https://nptel.ac.in/courses/112/107/112107143/>