

GANPAT UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY	
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Programme	Bachelor of Technology				Branch/Spec.	Mechanical Engineering			
Semester	VII				Version	1.0.0.0			
Effective from Academic Year			2025-26		Effective for the batch Admitted in			July 2022	
Course Code	2ME72OE2		Course Name		Industrial Engineering (Open Elective IV)				
Teaching Scheme					Examination Scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	0	0	0	2	Theory	40	60	100
Hours	2	0	0	0	2	Practical	0	0	0

Pre-requisites:

Basics of Mechanical Engineering, Industrial Machining process and Manufacturing Process

Course Outcomes:

CO1	Demonstrate location decision and site selection, Use of plant layout knowledge for betterment of plant
CO2	Use of Production planning and control
CO3	Solve forecasting problem by applying different techniques
CO4	Understand planning, scheduling and sequencing problems for shop floor
CO5	Apply work study techniques and understands its importance for better productivity

Theory syllabus

Unit	Content	Hrs
1	Location Selection and Plant Layout: Nature of Location Decision, Importance of Plant Location, Dynamic Nature of Plant Location, Choice of site for selection, Comparison of location, Principles of Plant layout and Types, factors affecting layout, methods, factors governing flow pattern, travel chart, analytical tools of plant layout, layout of manufacturing shop floor, repair shop, services sectors and process plant. Quantitative methods of Plant layout: CRAFT and CORELAP, Relationship diagrams.	5
2	Production Planning and Control: Types of Production systems and their Characteristics, functions and objectives of Production Planning and Control, Sales forecasting: Techniques and Applications, Steps of Production Planning and Control: Process planning, Leading, Scheduling, Dispatching and Expediting with illustrative examples, Introduction to line of balance, assembly line balancing, and progress control.	6
3	Productivity and Work Study: Definition of productivity, application and advantages of productivity improvement tools, role of ergonomics to improve the productivity , reasons for increase and decreases in productivity. Areas of application of work study in industry. Reaction of management and labour to work study.	4
4	Job Evaluation and Wage Plan: Objective, Methods of job evaluation, job evaluation procedure, merit rating (Performance appraisal), method of merit rating, wage and wage incentive plans.	4
5	Industrial Legislation: Need for Industrial legislation, Factories act 1948, Industrial dispute act 1947, The Indian trade unions act 1926, Industrial employment act 1946, Payment of wage act 1936, Workmen compensation act 1923, Payment of bonus act 1965, Employees provident fund scheme 1952.	5
6	Inspection and Statistical Quality Control: Inspection – functions, types, objectives and benefits, quality control principles, Concepts of quality circles, Total quality management, Quality assurance, Quality audit, Basic Concept ISO 9000, ISO 14000 and QS 9000, Six sigma: Concept, Principle, Methodology, Scope, Advantage and limitations. SQC Concept, variable and attributes, normal distribution curves and its property charts for variable and attributes and their applications and interpretation (analysis) process capability. Acceptance sampling, sampling plans, OC curves and AOO curves.	6

Practical Content

None

Text Books

1	Manufacturing Organisation and Management, Harold Amrine, John Ritchey, Moodie, Kmec, 6th Ed., Pearson
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2	Production System, Planning, Analysis and Control – By J.L. Riggs 3rd ed. Wiley														
3	Production and Operations Management – By R. Panneerselvam, PHI Private Ltd.,														
Reference Books															
1	Industrial Engineering and Production Management Martand Telsang S Chand & company														
2	Industrial Engineering and Production Management by Banga and Sharma, Khanna Publishers														
3	Industrial Engineering and Management by Dr. B. Kumar Khanna Publishers														
ICT/MOOCs references															
1	http://www.nptel.ac.in/														
Mapping of CO with PO and PSO:															
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	2	3	1	0	1	0	0	0	0	0	1	3	2	1
CO2	2	2	2	2	0	1	0	0	0	0	0	2	0	1	2
CO3	2	3	2	2	0	1	1	0	0	0	0	2	0	2	1
CO4	2	3	2	2	0	2	1	0	0	0	0	2	1	0	1
CO5	3	3	3	3	0	2	1	0	0	0	0	2	2	1	3