

# SARVAJANIK UNIVERSITY

## S. R. LUTHRA INSTITUTE OF MANAGEMENT

<b>Subject:</b>	Production and Operations Management (POM)	<b>Subject Code:</b>	MGMB12207
<b>Subject class:</b>	Foundation Course	<b>Semester:</b>	II
<b>Credits:</b>	04	<b>Contact Hours:</b>	40

### Course Overview:

This course emphasizes the concepts and practices of production and operations management in contemporary organizations. It is designed to highlight the practical and applied techniques of facility location and layout, aggregate production planning, materials requirement planning, scheduling, inventory management. It deals with methods for quality control which can improve the organization's quality and productivity. It helps students to understand how production managers design, use, manage and improve systems and processes to create value to their customers effectively and efficiently.

### Learning Outcomes:

Learning Outcomes are explicit statements of what a learner is expected to know / do / value at the completion of a unit of study. Learning Outcomes state both – the substance of learning and how will the learning be attained. They help learners understand the importance of the information and what they will gain from their engagement with the learning activity. The Learning Outcomes to be attained through this course are:

<b>LO1</b>	<i>Analyse</i> contemporary production and operation management practices for a given industry
<b>LO2</b>	<i>Compare and contrast</i> facility planning by making location and layout decisions for a manufacturing or service facility.
<b>LO3</b>	<i>Analyze</i> and select the most appropriate methods and tools for the solution of problems related to production planning, shop floor scheduling, inventory control and project management.
<b>LO4</b>	<i>Evaluate</i> quality control measures and safety measures for production and operations systems
<b>LO5</b>	<i>Justify</i> the application of concepts of production and operations management in various industries



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### Mapping Learning Outcomes to Program Outcomes:

Outcome mapping (LOs to POs) facilitates students to explore how they can meet Program Outcomes at the course level. The Outcome mapping for the course is as under:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
<b>LO1</b>	3	3	-	1	-	-	1	1
<b>LO2</b>	2	2	-	3	-	1	2	1
<b>LO3</b>	1	3	-	-	-	-	2	1
<b>LO4</b>	1	3	-	2	-	2	-	1
<b>LO5</b>	-	2	3	1	3	-	3	3

(3 – High correlation, 2 – Medium correlation, 1 – Low correlation, ---- - No correlation)

### Course Content:

Module	Module Contents	Learning Outcomes	Contact Hours	Marks
I	<p><b>Introduction of Production &amp; Operation Management:</b></p> <ul style="list-style-type: none"> <li>• System and function view of organizations, scope</li> <li>• Products and services, Transformation process</li> <li>• Process design-different types of process with its merits and demerits, process performance and evaluation etc.</li> <li>• Product design; types of products designs with merits and demerits</li> </ul> <p><b>Facility location:</b></p> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Operations strategies for multiple facilities</li> <li>• Factors affecting facility location planning for domestic and foreign operations</li> </ul>	1, 2	10	12



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	<ul style="list-style-type: none"> <li>• Factor and location rating</li> <li>• Break even analysis</li> <li>• Simple Median Model</li> <li>• Centre of Gravity model</li> <li>• Ardalan Heuristic for location planning of service facility</li> </ul>			
II	<p><b>Plant Layout:</b></p> <ul style="list-style-type: none"> <li>• Objectives</li> <li>• Different types of layout.</li> <li>• Assembly line balancing</li> </ul> <p><b>Aggregate Production Planning (APP):</b></p> <ul style="list-style-type: none"> <li>• Objectives</li> <li>• Strategies and cost of APP</li> <li>• Master production schedule</li> <li>• Rough cut capacity planning</li> </ul> <p><b>Material Requirement Planning (MRP):</b></p> <ul style="list-style-type: none"> <li>• Objectives and examples</li> </ul> <p><b>Inventory Management:</b></p> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Uses of Inventory</li> <li>• Role of other functional departments</li> <li>• Types of costs</li> <li>• Examples</li> </ul>	2, 3	12	14
III	<p><b>Operations scheduling:</b></p> <ul style="list-style-type: none"> <li>• Definition, Objectives, Types</li> <li>• Sequencing (n-jobs on m machine)</li> <li>• Assignment Problems</li> </ul> <p><b>Queuing systems/Waiting Line analysis:</b></p>	3, 5	10	12



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	<ul style="list-style-type: none"> <li>• M/M/1 model</li> </ul> <p><b>Project management:</b></p> <ul style="list-style-type: none"> <li>• Project scheduling by using network PERT/CPM</li> <li>• Crashing of project</li> </ul>			
IV	<p><b>Quality management:</b></p> <ul style="list-style-type: none"> <li>• Definition, experts' views on quality</li> <li>• Dimensions of quality</li> <li>• Cost of quality</li> <li>• Statistical process control, control charts</li> <li>• Total quality management (TQM), Six sigma, ISO 9000 and other ISO series (Overview)</li> <li>• Just in Time production system <b>Industrial safety</b></li> </ul>	4, 5	8	12

### Grading:

Component	Weightage
<b>Semester End Exam (SE) - Summative</b>	50 marks
<b>Continuous Evaluation (CE) - Formative</b>	40 marks
<b>Mid – semester Exam (M) - Formative</b>	30 marks

#### *Semester End Exam:*

The 2-hour Semester end exam shall be of 50 marks and shall include all topics, discussions and lectures covered during the semester.

#### *Continuous Evaluation:*

Continuous evaluation shall assess the student throughout the semester. The subject faculty shall assess the students through various tools such as quizzes, case discussions, class room activities, seminars, paper presentations, role plays, class participation, etc.



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### *Mid-Semester Exam:*

The 1-hour Mid – Semester Exam shall be of 30 marks and shall be conducted half-way through the semester.

### **Course Materials:**

### *Reference Books:*

<b>Sr. No.</b>	<b>Title of the Book</b>	<b>Authors</b>	<b>Publication and Edition</b>
1	Kanishka Bedi	Production and Operation Management	Oxford, Latest
2	Roberta S. Russell, Bernard W. Taylor	Operations and Supply Chain Management	Wiley, Latest
3	Chase R. B., Jacobs, F. R., Aquilano, N. J. and Agarwal N. K.,	Operations Management for Competitive Advantage	TMH, Latest
4	Arun Kumar, N. MeenakshiP.	Production and Operation Management	Cengage, Latest
5	Heizer, Jay and Render, Barry	Operations Management	Pearson, Latest
6	Elwood S. Buffa and Rakesh K.Sarin	Modern Production and Operations Management	Wiley, Latest
7	David A. Collier, James R. Evans and KunalGanguly	Operation Management	Cengage, Latest
8	S. A. Chunawala, Dr. R. Patel	Production and Operations Management	Himalaya, Latest
9	Martin K. Starr	Production and Operation	Cengage, Latest

### *Newspapers / Magazines / Journals:*



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1. International Journal of Production Economics
2. Journal of Production Research and Management
3. Journal of Operations Management
4. International Journal of Advanced Operations Management
5. International Journal of Operations & Production Management

