## 1. Learning Outcomes:

| Learning Outcome Component | Learning Outcome (Learner will be able to) |
|---|---|
| Business Environment and Domain Knowledge (BEDK) | • *Analyze* contemporary production and operation management practices for a given industry. |
| Critical thinking, Business Analysis, Problem Solving and Innovative Solutions (CBPI) | • *Conduct* facility planning by making location and layout decisions for a small manufacturing or service facility.<br>• *Analyse* and *select* the most appropriate methods and tools for the solution of problems related to production planning, shop floor scheduling and inventory control. |
| Global Exposure and Cross-Cultural Understanding (GECCU) | • *Analyze* the current global production and operations management practices and *deduce* the applicability of these practices to local manufacturing units.<br>• *Compare* and *contrast* operations management practices among different cultures. |
| Social Responsiveness and Ethics (SRE) | • *Critically evaluate* the relationship between production systems and human safety. |
| Effective Communication (EC) | • *Explain* the various parts of the operations and production management processes and their interaction with a given business function. |
| Leadership and Teamwork (LT) | • *Collaborate* with team members to construct network models and techniques for a given project management problem. |

**LO – PO Mapping: Correlation Levels:**

**1 = Slight (Low); 2 = Moderate (Medium); 3 = Substantial (High), "-"= no correlation**

| Sub. Code: 4529202 | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 |
|---|---|---|---|---|---|---|---|---|---|
| LO1: Analyze contemporary productionand operation management practices for a givenindustry. | 3 | 2 | 3 | 1 | 2 | - | - | - | 1 |
| LO2: Conduct facility planning by making location and layoutdecisions for a small manufacturing or service facility. | 3 | 3 | 2 | 2 | 2 | - | - | 2 | 2 |
| LO3: Analyse and select the most appropriate methods and tools for the solution of problems related to production planning, shop floor scheduling and inventory control. | 3 | 1 | 3 | - | - | - | - | - | 2 |
| LO4: Analyze the current global production and | 3 | 2 | 3 | 2 | 3 | 1 | - | 2 | 2 |

2. **Course Duration:** The course duration is of **40 sessions of 60 minutes** each.
3. **Course Contents:**

| Module No: | Module Content | No. of Sessions | 70 Marks (External Evaluation) |
|---|---|---|---|
| I | **Introduction of Production & Operation Management:**<br>**Introduction to POM**:<br>• Nature and Scope of Production/Operations Management; strategic importance; POM Relationship with other Systems in the Organisation.<br>• Various types of manufacturing and service systems; systems approach to POM; etc.<br>• Different types of processes with its merits and demerits; process classification based on order.<br>• Product design and process selection for manufacturing and services; process performance and evaluation etc.<br>• Facility location & layout: location Strategy and its Importance; Factors influencing Plant Location; Location Selection Models; Layout Planning; Layout Types; Design of Product and Process Layouts; Job Design; Work Measurement.<br>• Evolution and future of POM; Importance of IT in POM. | 10 | 17 |
| II | **Production Planning and Control**:<br>• Material Requirement Planning; Production Inventory Systems: Forecasting for Inventory and Production Control: Inventory Management (theory and numerical)<br>• Aggregate Planning: Objective, strategies and cost of APP, master production schedule, Rough cut capacity planning etc. (theoretical concept only)<br>• Capacity Planning: Measurement of capacity planning, process of capacity planning<br>• Job Shop Planning: Scheduling and Control: Sequencing (n-jobs on m machine) (theory and numerical); Queuing systems (Waiting Line Analysis) (theory and numerical); Just-in-Time Production: Line Balancing; Planning for High Volume Standardized Products.<br>• Procedures and Documentation in Production Planning and Control; Application of Computers; ERP. | 10 | 18 |
| III | **Inventory Management**:<br>• Meaning of Inventory, reasons for keeping inventory, meaning of inventory management/control, objectives, benefits and techniques of inventory control, introduction to inventory model. ~~Basic Economic Order Quantity (EOQ) Model; Quantity Discount Models; Spare Parts Inventory; Material Resources Planning; Manufacturing Resource Planning; Purchasing Objectives~~<br>**Supply chain management**: | 10 | 18 |

| | | | |
|---|---|---|---|
| | • Introduction to Supply Chain Management, Inbound Logistics: Buyer-Vendor Co-ordination, Procurement, Vendor development, Reduced Sourcing and Supplier Partnership - Benefits, Risks and Critical Success Factors, Multi-level supply control. Outbound Logistics: Customer service, Physical Distribution and Logistics, Channel Design Issues, Warehousing and Distribution Centres, Inventory Management, Transportation Infrastructure, Facility Location, Materials Handling. Strategic considerations in Supply Chain: Porter's Industry Analysis and Value-Chain Models, Concept of Total Cost, Supply Stream Strategies, Classification and Development Guidelines, Effectiveness of Supply Chain Management.<br>**Project management:**<br>• Importance of PM in POM; basic concepts; project scheduling by using network PERT/CPM, (theory and numerical) | | |
| **IV** | **Quality management**:<br>• Definition, experts' views on quality.<br>• Dimensions of quality.<br>• Cost of quality and quality cost audit.<br>• Statistical process control, control charts (theory and numerical), Total quality management (TQM), Six Sigma, ISO 9000 and other ISO series.<br>• Lean and Just in Time production system (theoretical concept only)<br>• Industrial safety | 10 | 17 |
| **V** | **Practical**<br>• Students should visit manufacturing / service organizations and<br>o Identify the production planning and control systems, procedures and techniques. For service organizations, they can learn about how services are produced and how existing capacity is matched with demand.<br>o Identify operations scheduling in any system and suggest more efficient ways of doing work.<br>o Understand the significance of existing plant or service layouts.<br>o Identify materials and inventory management practices in organized and unorganized sectors.<br>o Simulate a production capability / facility with the optimum use and application of concepts. | --- | (30 Marks CEC) |

4. **Pedagogy:**
   - ICT enabled Classroom teaching
   - Case study
   - Practical / live assignment
   - Interactive class room discussions

**5. Evaluation:**

Students shall be evaluated on the following components:

| | | |
|---|---|---|
| **A** | **Internal Evaluation** | **(Internal Assessment- 50 Marks)** |
| | • Continuous Evaluation Component | 30 marks |
| | • Class Presence & Participation | 10 marks |
| | • Quiz | 10 marks |
| **B** | **Mid-Semester examination** | **(Internal Assessment-30 Marks)** |
| **C** | **End –Semester Examination** | **(External Assessment-70 Marks)** |

**6. Reference Books:**

| No. | Author | Name of the Book | Publisher | Year of Publication / Edition |
|---|---|---|---|---|
| 1 | Chase R. B., Jacobs, F. R., Aquilano, N. J. and Agarwal N. K., | Operations Management for Competitive Advantage | TMH | Latest |
| 2 | Kanishka Bedi | Production and Operation Management | Oxford | Latest |
| 4 | Roberta S. Russell, Bernard W. Taylor | Operations and Supply Chain Management | Wiley | Latest |
| 5 | Arun Kumar, N.MeenakshiP. | Production and Operation Management | Cengage | Latest |
| 6 | Heizer, Jay and Render, Barry | Operations Management | Pearson | Latest |
| 7 | Elwood S. Buffa and Rakesh K.Sarin | Modern Production and Operations Management | Wiley | Latest |
| 8 | David A. Collier, James R. Evans and Kunal Ganguly | Operation Management | Cengage | Latest |
| 9 | S. A. Chunawala, Dr. R. Patel | Production and Operations Management | Himalaya | Latest |
| 10 | Martin K. Starr | Production and Operation | Cengage | Latest |

Note: Wherever the standard books are not available for the topic appropriate print and online resources, journals and books published by different authors may be prescribed.

**7. List of Journals / Periodicals / Magazines / Newspapers / Web resources, etc.**

1. International Journal of Production Economics
2. Journal of Production Research and Management
3. Journal of Operation Management

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**Syllabus for Master of Business Administration (Part-Time), 2nd ~~3rd~~ Semester Subject Name: Production and Operations Management (POM) Subject Code: 5529905**

**With effect from academic year 2022-23**