

GUJARAT TECHNOLOGICAL UNIVERSITY

INDUSTRIAL ENGINEERING

B. E. SEMESTER: VII

Subject Name: **Operations Planning & Control**

Subject Code: **171501**

| Teaching Scheme | | | | Evaluation Scheme | | | |
|-----------------|----------|-----------|-------|---------------------|-----------|---------------------------|----------------------|
| Theory | Tutorial | Practical | Total | University Exam (E) | | Mid Sem Exam (Theory) (M) | Practical (Internal) |
| | | | | Theory | Practical | | |
| 4 | 0 | 2 | 6 | 70 | 30 | 30 | 20 |

| Sr. No | Course Content | Total Hrs. |
|--------|---|------------|
| 1. | Production forecasting: Use of forecast, types of forecasts, statistical forecasting, time series analysis models, effects of trend, seasonal and irregular movements in the model, uncertainty of forecast, monitoring forecast, need for planning and market research. | 8 |
| 2. | Process planning: Prerequisites of process planning, steps in process planning, break even analysis- analysis- new designs, product mix machine or process selection and make & buy decisions, study of route sheet preparation, economics order quantity of manufacture. | 10 |
| 3. | Production planning: Benefits and basic functions for production planning, project planning various production planning, types of production and their basic characteristics, identification of different production activities, capacity level of each activity, determination of standard hours available, master schedule, | 10 |
| 4. | Aggregate planning: Pure and mixed strategies, Choice of APP, Examples | 8 |
| 5. | Master Production Schedule: Concept, Strategies, Chase sales, Lot-for-lot | 4 |
| 6. | Materials Requirement Planning: Inputs to MRP, Structure of MRP, Examples of MRP | 8 |

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|----|---|---|
| 7. | routing and scheduling in job, lot and mass production, jobs sequencing and machine loading line of balance technique. | 6 |
| 8. | Production control: Functions of production control, effects of production control, dispatching and follow up in job, lot and mass production, evaluating a production control system, designing the production control organization. | 6 |
| 9. | Line balancing: Operation sequencing and assembly line balancing, minimum number of theoretical workstations, efficiency of assembly line using heuristic approach. | 4 |

Term Work :

The T.W. will be based on the above syllabus.

Pract/Oral :

It will be based on T.W. & above syllabus

Industrial visits to be organized to understand the above topics practically, and assessment of the study during visit will carry weightage in Theory and Practical exams.

Reference Books:

1. Operations planning and control, Martin K. Starr, CCengage publication
2. Principles & design of production planning & control by sheele, westermann & wimmest
3. .Elements of P.P.C. by Eilon (macmillan)
4. Industrial organization & management by Bethel, atwater, smith and stackman
5. Operation Management by Barry shore (Tata-Mcgraw hill)
6. Modern production management by Buffa (John willey)
7. Production management by H.N. Broom (D.B.Taraporevala & sons)
8. Production and inventory control, By Narsimhan, Billington