GANDHI ACADEMY OF TECHNOLOGY AND ENGINEERING

**LESSON PLAN**

**Session (2023-2024)**

|  |  |  |
| --- | --- | --- |
| **Discipline:**  Mechanical Engineering | **Semester:**  6TH , Summer | **Name of the Teaching Faculty:**  Mr. SUDHANSU KUMAR PATNAIK |
| **Subject:** | **No. of Days/Week:** 04 | Class Test: 20 |
| Industrial Engineering |  | End Semester Examination: 80 |
| and Management, |  |  |
| Theory-01 |  |  |

|  |  |  |
| --- | --- | --- |
| **Week** | **Class Day** | **Theory Topics** |
| 1st | 1st | **PLANT ENGINEERING:**  Plant and plant location Selection of Site of Industry. Factors governing plant location. |
| 2nd | Plant layout and their types,  The objective and principles of plant layout. |
| 3rd | Process Layout with relative advantages and dis  advantages. |
| 4th | Product Layout with relative advantages and dis  advantages. |
| 2nd | 1st | Combination Layout.  Techniques to improve layout. |
| 2nd | Principles of material handling equipment |
| 3rd | Plant maintenance and its Importance |
| 4th | 1. Break down maintenance. 2. Scheduled maintenance. |
| 3rd | 1st | 1. Preventive maintenance. 2. Predictive Maintenance |
|  | 2nd | *Doubt Clearing Class* |
|  | 3rd | *Assignment Evaluation* |
|  | 4th | **INVENTORY CONTROL:**  Inventory Control and their types,  Objective and functions of inventory control. |
| 4th | 1st | Benefits of inventory control. Costs associated with inventory. |

|  |  |  |
| --- | --- | --- |
|  | 2nd | Terminology in inventory control, Concept of Economic  order quantity (EOQ Model) |
|  | 3rd | ABC analysis |
|  | 4th | Solve numerical on EOQ |
| 5th | 1st | Concept of ABC analysis. |
|  | 2nd | *Doubt Clearing class* |
|  | 3rd | *Assignment Evaluation / Class Test* |
|  | 4th | **OPERATIONS RESEARCH:**  Operations Research, methods of operation research and  its applications. |
| 6th | 1st | Linear Programming Problem with its application |
|  | 2nd | Solving L.P.P. by graphical method. |
|  | 3rd | Solving L.P.P. by graphical method. |
|  | 4th | Solving L.P.P. by graphical method. |
| 7th | 1st | **NETWORK ANALYSIS:**  Network analysis and its related terms such as event, activity, critical activity, non-critical activity, dummy  activity and critical path |
|  | 2nd | EST, EFT, LST, LFT, float, total project duration |
|  | 3rd | Evaluation of Project completion time by Critical Path  Method (Simple problems) |
|  | 4th | Evaluation of Project completion time by PERT (Simple  problems) |
| 8th | 1st | Distinguish between PERT with respect to CPM. |
|  | 2nd | Solve related problems |
|  | 3rd | Solve related problems |
|  | 4th | *Doubt Clearing Class* |
| 9th | 1st | *Assignment Evaluation / Quiz Test* |
|  | 2nd | **PRODUCTION PLANNING AND CONTROL**  Production planning and control  Major functions of production planning and control |
|  | 3rd | Principles of product and process planning |
|  | 4th | Methods of forecasting |
| 10th | 1st | Concept of Routing, Scheduling |
|  | 2nd | Dispatching and controlling |
|  | 3rd | Types of production like  Mass, Batch and Job order production |
|  | 4th | *Doubt Clearing Class* |
| 11th | 1st | *Class Test* |
|  | 2nd | **INSPECTION AND QUALITY CONTROL:**  Inspection and Quality control. |

|  |  |  |
| --- | --- | --- |
|  |  | Planning of inspection. |
|  | 3rd | Types of inspection. |
|  | 4th | Quality Control and discuss the factors influencing the quality of manufacture. |
| 12th | 1st | Advantages and disadvantages of quality control. |
|  | 2nd | Concept of statistical quality control, Control charts |
|  | 3rd | Methods of attributes |
|  | 4th | Control charts (X and R charts). |
| 13th | 1st | Control charts (C and P charts). |
|  | 2nd | Solving Related Problems |
|  | 3rd | Solving Related Problems |
|  | 4th | Quality management system, Registration /certification  procedure. |
| 14th | 1st | Concept of ISO 9001-2008 Benefits of ISO to the organization. |
|  | 2nd | Concept of JIT |
|  | 3rd | Concept of Six sigma,7S and Lean manufacturing |
|  | 4th | *Assignment Evaluation / Quiz Test* |
| 15th | 1st | *Practice Test* |
|  | 2nd | *Revision* |
|  | 3rd | *Revision* |
|  | 4th | *Discussion of previous year question paper* |