

**Duration 60**

**IIPM SCHOOL OF ENGINEERIN AND TECHNOLOGY LESSON PLAN: 2020-21**

**INDUSTRIAL ENGINEERING & MANAGEMENT**

**Branch** **: Mechanical**

**Semester** **: 6th**

**Faculty name** **: Saritprava Sahoo**

**Objective** **:** Main objective of Mechanical Engineering is to produce goods and services for benefit to mankind. Such productions are done utilizing various resources like Men, Materials, machines and Money. Industrial engineering and quality control is the subject which allows optimized use of such resources and hence very important for a mechanical engineer.

**Learning Outcome :** Understanding effectiveness of

* *New plant set up and systematic arrangement of machinery and shop for smooth production.*
* *Improving productivity of the lands, buildings, people, material, machines, money, methods and management effectively.*
* *Stock management and maintenance to reduce plant ideal time.*
* *Use the charts to record the quality of products.*
* *Eliminate unproductive activities under the control of the management, supervisor, worker and the design of products and processes.*

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| **Sl. No** | **Chapter** | **Proposed Week for Teaching** | **Period No.** | **Subject Name** | **Important Teaching Points** | **Content Source** |
| 1 | **I** | 1st | 1 | **PLANT ENGINEERING** | * Introduction of Industrial Engineering & Management | Industrial Engineering & Management O.P.KHANNA |
| 2 | 2 | * Selection of Site of Industry. * Define plant layout. |
| 3 | 3 | * Describe the objective and * Principles of plant layout. |
| 4 | 4 | * Explain Process Layout, |
| 5 | 2nd | 1 | * Product Layout. |
| 6 | 2 | * Combination Layout. |
| 7 | 3 | * Techniques to improve layout. |
| 8 | 4 | * Principles of material   handling equipment. |
| 9 | 3rd | 1 | * Plant maintenance. Importance of plant   maintenance. |
| 10 | 2 | * Break down maintenance. * Preventive maintenance. * Scheduled maintenance. |
| 11 | **II** | 3 | **OPERATIONS RESEARCH** | * Introduction to Operations   Research and its applica ions. |
| 12 | 4 | * Define Linear Programming Problem |
| Industrial Engineering & Management O.P.KHANNA |
| 13 | 4th | 1 | * Solution of L.P.P. by   graphical method. |
| 14 | 2 | * Critical Path |
| 15 | 3 | * Evaluation of Project   completion time by Critical Path |
| 16 | 4 | * Method and PERT |
| 17 | 5th | 1 | * (Simple problems) |
| 18 | 2 | * Explain distinct features of PERT with respect to CPM. |
| 19 | 3 | * ASSIGNMENT |
| 20 | 4 | * CLASS TEST |

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| 21 | **III** | 6th | 1 | **INVENTORY CONTROL** | * Introduction of Inventory | Industrial Engineering & Management O.P.KHANNA |
| 22 | 2 | * Classification of Inventory |
| 23 | 3 | * Objective of inventory   control. |
| 24 | 4 | * Describe the functions of Inventories. |
| 25 |  | 7th | 1 | Benefits of inventory control. |
| 26 | 2 | Costs associated with inventory. |
| 27 | 3 | Terminology in inventory control |
| 28 | 4 | Explain and Derive economic  order quantity for Basic model. |
| 29 | 8th | 1 | Solve numerical |
| 30 | 2 | Define and Explain ABC analysis |
| 31 | 3 | * ASSIGNMENT |
| 32 | 4 | * CLASS TEST |
| 33 | **IV** | 9th | 1 | **INSPECTION AND QUALITY CONTROL** | * Define Inspection and Quality   control. |
| 34 | 2 | * Describe planning of inspection. |
| 35 | 3 | * Describe types of inspection. | Industrial Engineering & Management O.P.KHANNA |
| 36 | 4 | * Advantages and disadvantages of quality   control. |
| 37 | 10th | 1 | * Study of factors influencing the quality of manufacture. |
| 38 | 2 | * Explain the Concept of statistical quality control, Control charts (X, R, * P and C - charts). |
| 39 | 3 | * Methods of attributes. |
| 40 | 4 | * Concept of ISO 9001-2008. |
| 41 | 11th | 1 | * Quality management system, Registration /certification   procedure. |
| 42 |  | 2 | * Benefits of ISO to the   organization. |
| 43 | 3 | * JIT, Six sigma, |
| 44 | 4 | * 7S, Lean manufacturing |
| 45 | 12th | 1 | * Solve related problems. |
| 46 | 2 | * ASSIGNMENT |
| 47 | 3 | * CLASS TEST | Industrial Engineering & Management O.P.KHANNA |
| 48 | **V** | 4 | **PRODUCTION PLANNING AND CONTROL** | * Introduction |
| 49 | 13th | 1 | * Major functions of production * planning and control |
| 50 | 2 | * Methods of forecasting * Routing * Scheduling |
| 51 | 3 | * Dispatching * Controlling |
| 52 | 4 | * Types of production * Mass production |
| 53 | 14th | 1 | * Batch production * Job order production |
| 54 | 2 | * Principles of product and process planning. |
| 55 | 3 | * ASSIGNMENT |
| 56 | 4 | * CLASS TEST |

**Text book suggested** **:**

* Industrial Engineering & Management O.P.KHANNA Dhanpat Rai &Sons
* Industrial Engg & Production Management MARTAND TELSANG S.Chand

Signature of Faculty Member HOD Principal/ Director