**GOVERNMENT POLYTECHNIC, VAISHALI**

(Department of Mechanical Engineering)

**Lecture Plan**

|  |  |
| --- | --- |
| **Name of the Faculty** | MR. PRABHAT RANJAN BHARDWAJ |
| **Email id and Mobile no.** | babbu.bhardwaj@gmail.com, 9334906637 |
| **Semester /Branch** | 3rd/ Mechanical |
| **Subject Name/Subject (Code)** | Mechanical Engineering Drawing/ 1625302 |
| **Lectures/week** | 3 periods/week |
| **THEORY** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Units** | **Week** | **Lecture Day** | **Topics** | **Methods of Teaching** | **Remarks** |
| **Unit -1****Auxiliary Views** | 1 | 1 | Introduction of Auxiliary planes /views | PPT, PDF/Video |  |
| 2 | Study of auxiliary planes/ views | PPT, PDF/Video |
| 3 | Problems based on Auxiliary planes/views | PPT, PDF/Video |
| 2 | 1 | Projection of objects on auxiliary planes | PPT, PDF/Video |  |
| 2 |  Problem based on Projection of objects on auxiliary planes | PPT, PDF/Video |
| 3 | Completing the regular views with the help of given auxiliary views (Use first angle method of projection) | PPT, PDF/Video |
| 3 | 1 | Problems based on Completing the regular views with the help of given auxiliary views (Use first angle method of projection) | PPT, PDF/Video |  |
| 2 | **MCQ TEST BASED ON UNIT 1 (Auxiliary views) (TEST-1)** | Google Form |
| **Unit -2 Intersection of solids** | 3 | 3 |  Introduction to Intersection of solids Curves of intersection of the surfaces of the solids in the following cases | PPT, PDF/Video |  |
| 4 | 1 | Curves of intersection of the surfaces of the solids in the following cases 1. Prism with prism, Cylinder with cylinder
 | PPT, PDF/Video |
| **Units** | **Week** | **Lecture Day** | **Topics** | **Methods of Teaching** | **Remarks** |
| **Unit -2 Intersection of solids** | 4 | 2 | 1. Problem based on a) Prism with prism, Cylinder with cylinder
 | PPT, PDF/Video |  |
| 3 | Curves of intersection of the surfaces of the solids Prism with Cylinder When (I) the axes are at 90 degree and intersecting and problem solve | PPT, PDF/Video |
| 5 | 1 | Curves of intersection of the surfaces of the solids in the following cases (ii) The axes are at 90 degree and Offset  And problem solve  | PPT, PDF/Video |  |
| 2 | Intersection of solids: - a) Cylinder with ConeWhen axis of cylinder is parallel to both the reference planes and cone resting on base on HP and with axis intersecting and offset from axis of cylinder | PPT, PDF/Video |
| 3 | Intersection of solids: - a) Cylinder with ConeWhen axis of cylinder is parallel to both the reference planes and cone resting on base on HP and with axis, problem solving  | PPT, PDF/Video |
| 6 | 1 | **MCQ TEST BASED ON UNIT 2 Intersection of solids (TEST-2)** | Google Form |
|  | 6 | 2 | Introduction about development/ surface/ lateral surface | PPT, PDF/Video |  |
| 3 | Developments of Lateral surfaces of cube and problem solve | PPT, PDF/Video |
| 7 | 1 | Developments of Lateral surfaces of prism & its example solve | PPT, PDF/Video |  |
| **Unit - 3****Developments of Surfaces: -** | 2 | Developments of Lateral surfaces of cylinder & its example solve | PPT, PDF/Video |
|  | 3 | Developments of Lateral surfaces of, pyramids and its example solve | PPT, PDF/Video |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Units** | **Week** | **Lecture Day** | **Topics** | **Methods of Teaching** | **Remarks** |
| **Unit - 3****Developments of Surfaces: -** | 8 | 1 | Developments of Lateral surfaces of cone and their applications such as tray, funnel, Chimney, pipe bends etc. | PPT, PDF/Video |  |
| 2 | Developments of Lateral surfaces of cone and their applications such as tray, funnel, Chimney, pipe bends etc. and revision of all | PPT, PDF/Video |
| 3 | **MCQ TEST BASED ON UNIT 3 (Developments of surfaces) (TEST-3)** | Google Form |
|  | 9 | 1 | **Conventional Representation: -**1. Standard convention using SP – 46 (1988)
	1. Materials C.I., M.S, Brass, Bronze, Aluminum, wood, Glass, Concrete and Rubber
	2. Long and short break in pipe, rod and shaft.
 | PPT, PDF/Video |  |
| 2 | **Conventional Representation: -**C) Ball and Roller bearing, pipe joints, cocks, valves, internal / external threads.1. Various sections- Half, removed, revolved, offset, partial and aligned sections.
 | PPT, PDF/Video |
| 3 | **Conventional Representation: -**1. Knurling, serrated shafts, splined shafts, and chain wheels.
2. Springs with square and flat ends, Gears, sprocket wheel
 | Google Form |
|  | 10 | 1 | **Conventional Representation: -**1. Countersunk & counterbore.
2. Tapers
 | PPT, PDF/Video |  |
| **2** | **Limits, Fits and Tolerances: -**1. Characteristics of surface roughness- Indication of machining symbol showing direction of lay, roughness grades, machining allowances, manufacturing methods.

  | PPT, PDF/Video |
| **3** | 1. Introduction to ISO system of tolerencing, dimensional tolerances, elements of interchangeable system, hole & shaft-based system, limits, fits & allowances. Selection of fit.
 | PPT, PDF/Video |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Units** | **Week** | **Lecture Day** | **Topics** | **Methods of Teaching** | **Remarks** |
|  | 11 | 1 | 1. Geometrical tolerances, tolerances of form and position and its geometric representation.
2. General welding symbols, sectional representation and symbols used in Engineering practices
 | PPT, PDF/Video |  |
| 2 | **MCQ TEST BASED ON Limits, Fits and Tolerances & Conventional Representation (TEST-4)** | Google Form |
| 3 | **Details to Assembly**: - introduction  | PPT, PDF/Video |
| 12 | 1 | Assembly of Couplings – Universal couplings  | PPT, PDF/Video |  |
| 2 |  Assembly of Couplings Oldham’s Coupling | PPT, PDF/Video |
| 3 | Assembly of Bearing – Foot Step Bearing & Pedestal Bearing | PPT, PDF/Video |
|  | 13 | 1 | Assembly of Lathe tool Post | PPT, PDF/Video |  |
| 2 | Assembly of Machine vice & Pipe Vice | PPT, PDF/Video |
| 3 | Assembly of Screw Jack, Steam Stop Valve | PPT, PDF/Video |
|  | 14 | 1 | **MCQ TEST BASED ON ASSEMBLY (TEST-5)** | Google Form |  |
|  | 2 | Assembly to Details: - Introduction – Pedestal Bearing | PPT, PDF/Video |
| 3 | Assembly to Details - Lathe Tail Stock | PPT, PDF/Video |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Units** | **Week** | **Lecture Day** | **Topics** | **Methods of Teaching** | **Remarks** |
|  | 15 | 1 | Assembly to Details - Drilling Jig | PPT, PDF/Video |  |
| 2 | Assembly to Details - Piston & connecting rod | PPT, PDF/Video |
| 3 | Assembly to Details - Gland and Stuffing box Assembly | PPT, PDF/Video |
|  | 16 | 1 | Assembly to Details - Valve – Not more than eight parts | PPT, PDF/Video |  |
| 2 | Assembly to Details - Fast & loose pulley | PPT, PDF/Video |
| 3 | **MCQ TEST BASED ON Assembly to Details - (TEST-6)** | Google Form |
| **TOTAL**  | **48 periods** |  |  |  |