**GOVERNMENT POLYTECHNIC, VAISHALI**

(Department of Mechanical Engineering)

**Lecture Plan**

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| **Name of the Faculty** | MR. PRABHAT RANJAN BHARDWAJ |
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| **Semester /Branch** | 3rd/ Mechanical |
| **Subject Name/Subject (Code)** | Mechanical Engineering Drawing/ 1625302 |
| **Lectures/week** | 3 periods/week |
| **THEORY** | |

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| **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 Cone  When 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 Cone  When 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 |

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| **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 |

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| **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 |

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| **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** |  |  |  |