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| **Discipline:-MECHANICAL ENGG.** | **SEM:-4TH** | **Name of Teaching Faculty:- Saurav Ranjan Pradhan** |
| **SUB:-Theory of Machines** | **No of Days /per week class allotted:-4** | **Semester From Date:-02.01.19 To Date:-15.04.19 No of Weeks-13** |
| **Week** | **Class Day** | **Theory Topics** |
| **1ST** | 1st | Introduction, Link, kinematic chain |
| 2nd | Mechanism, machine |
| 3rd | Four bar link mechanism |
| 4th | Inversion |
| **2ND** | 1st | Lower pair and higher pair, Cam and followers |
| 2nd | Chapter-1 Discussion & Assignment Questions |
| 3rd | Friction, Related Problem |
| 4th | Friction between nut and screw for square thread |
| **3RD** | 1st |  Screw jack |
| 2nd | Bearing and its classification, Description of roller, needle roller & ball bearings |
| 3rd | Torque transmission in flat pivot bearings, Related Problem |
| 4th | Torque transmission in conical pivot bearings, Related Problem |
| 4TH | 1st | Flat collar bearing of single and multiple types, Related Problem |
| 2nd | Torque transmission for single and multiple clutches, Related Problem |
| 3rd | Working of simple frictional brakes |
| 4th | Working of Absorption type of dynamometer |
| 5TH | 1st | Chapter-2 Discussion & Assignment Questions |
| 2nd | Concept of power transmission, Type of drives, belt, gear and chain drive |
| 3rd | Computation of velocity ratio |
| 4th |  Length of belts (open) , Related Problem |
| 6TH | 1st |  Length of belts (cross), Related Problem |
| 2nd | Ratio of belt tensions, Related Problem |
| 3rd | Centrifugal tension, Related Problem |
| 4th | Initial tension, Related Problem |
| 7TH | 1st | V-belts and V-belts pulleys, crowning of pulleys |
| 2nd | Gear drives and its terminology |
| 3rd | Gear trains, Working principle of simple gear trains |
| 4th | Working principle of compound gear trains |
| 8TH | 1st | Working principle of reverted gear trains |
| 2nd | Working principle of epicyclic gear trains |
| 3rd | Chapter-3 Discussion & Assignment Questions |
| 4th | Function of governor, Classification of governor |
| 9TH | 1st | Working of Watt governors, Related Problem |
| 2nd | Working of Porter governors, Related Problem |
| 3rd | Working of Proel governors, Related Problem |
| 4th | Working of Hartnell governors, Related Problem |
| 10TH | 1st | Sensitivity, stability and isochronism |
| 2nd | Function of flywheel, Comparison between flywheel & governor |
| 3rd | Fluctuation of energy and coefficient of fluctuation of speed |
| 4th | Chapter-4 Discussion & Assignment Questions |
| 11TH | 1st | Concept of static and dynamic balancing |
| 2nd | Static balancing of rotating parts |
| 3rd | Principles of balancing of reciprocating parts |
| 4th | Causes and effect of unbalance, Difference between static and dynamic balancing |
| 12TH | 1st | Chapter-5 Discussion & Assignment Questions |
| 2nd |  Vibration and related terms (Amplitude, time period and frequency, cycle)  |
| 3rd | Classification of vibration |
| 4th | Basic concept of natural vibration |
| 13TH | 1st | Basic concept of forced vibration |
| 2nd | Basic concept of damped vibration |
| 3rd | Causes & remedies of vibration |
| 4th | Chapter-6 Discussion & Assignment Questions |
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| **Faculty Signature HOD Academic Co-ordinator** |
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|  **PRINCIPAL**  |
| **Govt. Polytechnic, Puri** |