**USHA RAMA COLLEGE OF ENGINEERING AND TECHNOLOGY**

*Department of Mechanical Engineering*

**LESSON PLAN::C0301**

|  |  |
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| **Academic Year** : 2016-17 | **Sem**  : I |
| **Course**: **DYNAMICS OF MACHINERY** |
| **Class** : III B.TECH  | **Section** : ME A&B |
| **Date of commencement of Class work** :13/06/2016 | **Date of end of Class work** : 08/10/2016 |
| **Prepared By**: D.Murali krishna,  Associate Professor | **Approved By**: HOD |

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| **Lecture****No** | **Date (As per Academic calendar)** | **Topics to be covered** | **Actual****Date of completion** | **Remarks** |
| 1 | **13.6.16** | **UNIT-II FRICTION :** Friction of inclined plane |  |  |
| 2 | **14.6.16** | Friction of screw and nuts strength |  |  |
| 3 | **15.6.16** | Problems on above topics |  |  |
| 4 | **16.6.16** | Friction of pivot bearing |  |  |
| 5 | **17.6.16** | Problems on above topics |  |  |
| 6 | **18.6.16** | Friction of collar bearing |  |  |
| 7 | **20.6.16** | Problems on above topics |  |  |
| 8 | **21.6.16** | friction circle and friction axis: lubricated surfaces |  |  |
| 9 | **22.6.16** | friction circle and friction axis: boundary friction, film lubrication |  |  |
| 10 | **23.6.16** | Problems on above topics |  |  |
| 11 | **24.6.16** | Friction clutches- single disc or plate clutch multiple disc clutch |  |  |
| 12 | **25.6.16** | Problems on above topics |  |  |
| 13 | **27.6.16** | cone clutch, centrifugal clutch |  |  |
| 14 | **28.6.16** | Problems on above topics |  |  |
| 15 | **29.6.16** | Simple block brakes |  |  |
| 16 | **30.6.16** | Internal expanding brake  |  |  |
| 17 | **01.7.16** | band brake of vehicle |  |  |
| 18 | **02.7.16** | Problems on above topics |  |  |
| 19 | **04.07.16** | Problems on above topics |  |  |
| 20 | **05.7.16** | General description and operation of dynamometers |  |  |
| 21 | **07.7.16** | Prony brake dynamometer |  |  |
| 22 | **08.7.16** | Rope brake dynamometer |  |  |
| 23 | **09.7.16** | Epicyclic-train brake dynamometer |  |  |
| 24 | **11.7.16** | Bevis Gibson and belt transmission |  |  |
| 25 | **12.7.16** | Problems on above topics |  |  |
| 26 | **13.7.16** | **UNIT – I****PRECESSION:** Introductiondesign of Engineering Materialsdesign of Engineering Materials in the design of  |  |  |
| 27 | **14.7.16** | Gyroscopes |  |  |
| 28 | **15.7.16** | precessional angular motion, Gyroscopic couple |  |  |
| 29 | **16.7.16** | Effect of Gyroscopic couple on an aeroplane |  |  |
| 30 | **18.7.16** | Problems on above topics  |  |  |
| 31 | **19.7.16** | Effect of Gyroscopic couple on a naval ship during steering numbers |  |  |
| 32 | **20.7.16** | Effect of Gyroscopic couple on a naval ship during pitching |  |  |
| 33 | **21.7.16** | Effect of Gyroscopic couple on a naval ship during rolling |  |  |
| 34 | **22.7.16** | Problems on above topics |  |  |
| 35 | **23.7.16** | Problems on above topics |  |  |
| 36 | **25.7.16** | stability of a four wheel drive moving in a curved path |  |  |
| 37 | **26.7.16** | Problems on above topics |  |  |
| 38 | **27.7.16** | stability of a two wheel vechicle taking a turn |  |  |
| 39 | **28.7.16** | **UNIT-III****TURNING MOMENT DIAGRAMS:**Dynamic force analysis of slider crank mechanism |  |  |
| 40 | **29.7.16** | inertia torque, angular velocity and acceleration of connecting rod |  |  |
| 41 | **30.7.16** |  crank effort and turning moment diagrams |  |  |
| 42 | **01.8.16** | fluctuation of energy |  |  |
| 43 | **02.8.16** | fly wheels and their design |  |  |
| 44 | **03.8.16** | Problems on above topics |  |  |
| 45 | **04.08.16** | static force analysis of planar mechanisms |  |  |
| 46 | **05.08.16** | Problems on above topics |  |  |
| 47 | **06.8.16** | dynamic force analysis of planar mechanisms |  |  |
|  | **08.8.16 To13.8.16** | **MID EXAMINATIONS-I** |  |  |
| 48 | **16.8.16** | **UNIT-IV GOVERNERS:**Watt governer |  |  |
| 49 | **17.8.16** | porter and proell governors |  |  |
| 50 | **18.8.16** | Problems on above topics |  |  |
| 51 | **19.8.16** | Problems on above topics |  |  |
| 52 | **20.8.16** | spring loaded governors Hartnell  |  |  |
| 53 | **22.8.16** | Hartung with auxiliary springs, |  |  |
| 54 | **23.08.16** | Problems on above topics |  |  |
| 55 | **24.08.16** | sensitiveness, isochronism and hunting |  |  |
| 57 | **26.8.16** | Problems on above topics |  |  |
| 58 | **27.8.16** | **UNIT-V BALANCING:**Balancing of rotating masses single and multiple - single and different planes |  |  |
| 59 | **29.8.16** | Problems on above topics |  |  |
| 60 | **30.08.16** | Problems on above topics |  |  |
| 61 | **31.08.16** | Primary, secondary, and higher balancing of reciprocating masses |  |  |
| 62 |  **01.9.16** | Problems on above topics |  |  |
| 63 | **02.9.16** | Problems on above topics |  |  |
| 64 | **03.9.16** | Problems on above topics |  |  |
| 65 | **06.09.16** | unbalanced forces and couples - examination of "V" multi cylinder in line |  |  |
| 66 | **07.9.16** | Problems on above topics |  |  |
| 67 | **8.9.16** | radial engines for primary and secondary balancing |  |  |
| 68 | **09.9.16** | Problems on above topics |  |  |
| 69 | **10.9.16** | locomotive balancing |  |  |
| 70 | **13.9.16** | Problems on above topics |  |  |
| 71 | **14.9.16** | hammer blow |  |  |
| 72 | **15.9.16** | swaying couple |  |  |
| 73 | **16.9.16** | variation of tractive effort |  |  |
| 74 | **17.9.16** | Problems on above topics |  |  |
| 75 | **19.9.16** | **UNIT – VI****VIBRATIONS**:Free Vibration of spring mass system - oscillation of pendulums  |  |  |
| 76 | **20.9.16** | centers of oscillation and suspension |  |  |
| 77 | **21.9.16** | Problems on above topics |  |  |
| 78 | **22.9.16** | Problems on above topics |  |  |
| 79 | **23.9.16** |  transverse loads, vibrations of beams with concentrated and distributed loads. |  |  |
| 80 | **24.9.16** | Problems on above topics |  |  |
| 81 | **26.9.16** | Problems on above topics |  |  |
| 82 | **27.9.16** | Dunkerly's methods |  |  |
| 83 | **28.9.16** | Raleigh's method, |  |  |
| 84 | **01.10.16** |  whirling of shafts, critical speeds |  |  |
| 85 | **03.10.16** |  torsional vibrations |  |  |
| 86 | **04.10.16** | two and three rotor systems |  |  |
| 87 | **05.10.16** | Simple problems on forced damped vibration |  |  |
| 88 | **06.10.16** | vibration isolation and transmissibility  |  |  |
| 89 | **07.10.16** | Problems on above topics |  |  |
| 90 | **08.10.16** | Problems on above topics |  |  |
|  | **10.10.16 To 15.10.16** |  **Mid Exams-II** |  |  |

**TEXT BOOKS:**

1. Theory of Machines / S.S Ratan/ Mc. Graw Hill Publ
2. Mechanism and machine theory by Ashok G

**REFERENCES:**

1. Theory of machines / Khurmi / S.Chand
2. Mechanism and Machine Theory / JS Rao and RV Dukkipati / New

**List the Course Outcomes (Cos):**

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| Sub code | Sub Name | COs | Expected level of attainmentOn 5 scale |
|  | **DYNAMICS OF MACHINERY** | 1. Analyze stabilization of sea vehicles, aircrafts and automobile vehicles.2. Compute frictional losses, torque transmission of mechanical systsms 3. Analyze dynamic force analysis of slider crank mechanism and design of flywheel. 4 Understand balancing of reciprocating and rotary masses | 3.53.53.5 3.5 |

**Signature of faculty Head of the Department**