**GOVERNMENT POLYTECHNIC,VAISHALI**

**LECTURE PLAN**

**AUTOMOBILE ENGINEERING (MECH. ENGG) Subject Code:- 1625505**

**Subject's Teacher: - Dr. Thakur Sanjay Kumar**

| S.No | Topic to be Covered | Lecture No. | Books |
|---|---|---|---|
| 1. | Classification of automobiles | L1 | T1,T7 |
| 2. | Vehicle layout & types | L2,L3 | T1, T7 |
| 3. | Body construction - Types & Nomenclature of car body. Introduction to aerodynamic body shapes | L4, L5 | T2, T3,T7 |
| 4. | Automobile market in India of "on road vehicles", major manufacturers, their products & their collaborations | L6 | T2, T4,T7 |
| 5. | Clutch- necessity, construction & working of coil spring & diaphragm spring type clutch. | L7, L8 | T1, T7 |
| 6. | Gear Box- tractive effort and tractive resistance, types of G.B construction & working of constant mesh G.B | L9,L10 | T5, T7 |
| 7. | Synchromesh G.B., Epicyclic G.B. | L11,L12 | T5,T7 |
| 8. | Torque converter, Overdrive, Transfer case | L13,L14 | T5, T7 |
| 9. | Final drive- necessity, construction & working of propeller shaft & differential. | L15,L16 | T4, T7 |
| 10. | Axle- Type of rear axles, front axles & their applications. | L17,L18 | T7, T8 |
| 11. | Steering system- Requirement of steering system. Construction and working of steering linkage | L19,L20 | T7,T8 |
| 12. | Steering gear box- construction & working of rack and pinion & re-circulating ball type gearbox. | L21,L22 | T7, T9 |
| 13. | Introduction to Power steering, Steering geometry- camber, caster, toe-in, toe-out, Kingpin inclination & their effects. | L23, L24 | T1,T7 |
| 14. | Brake system- construction & working of hydraulic & Pneumatic brakes | L25 | T2,T4,T7 |
| 15. | Comparison of disc & drum brake. | L26 | T2,T6,T7 |
| 16. | Necessity & classification of suspension system, Working & construction of Leaf spring, rigid axle suspension. | L27 | T3, T5,T7 |
| 17. | Introduction to air suspension | L28 | T6,T7, T8 |
| 18. | Construction & working of McPherson & wishbone, trailing link, suspensions. | L29 | T5,T7 |
| 19. | Construction & working of telescopic shock absorbers. | L30,L31 | T5,T7 |
| 20. | Construction & working of spoked wheel, disc wheel & light alloy cast Wheel, Types of rims, their construction & working | L32 | T7, T9 |
| 21. | Construction, working & comparison of radial, cross-ply and tubed, tubeless tyre & tyre specifications, Factors affecting tyre life | L33 | T7,t8 |
| 22. | Wheel Alignment and Balancing | L34 | T2,T7 |
| 23. | Battery- working, construction & rating of battery. | L35, L36 | T4,T7 |
| 24. | Ignition system- construction & working of electronic and CDI ignition system. | L37, L38 | T5,T7 |
| 25. | Starting system- construction & working of starting motor. | L39, L40 | T3,T7 |
| 26. | Charging system- construction & working of alternator | L41, L42 | T1,T7 |
| 27. | Wiring system-harnessing & colour codes. | L43 | T2,T7,T8 |
| 28. | Lighting system-head light, tail light, indicator light & their circuits. | L44, L45 | T6,T7 |
| 29. | Gauges- construction & working of Fuel level gauge, oil gauge and water temperature gauge. | L46, L47 | T3,T7 |
| 30. | Use of microprocessor in automobile control systems | L48 | T5,T7, T9 |

T1 = Automobile Engineering, K. K. Jain and R.B. Asthana, Tata Mcgraw hill
T2 = Automobile Mechanics William Crouse Tata Mcgraw hill
T3 = Automobile Mechanics SRINIVASAN Tata Mcgraw hill
T4 = Automotive Technology H.M.Sethi Tata Mcgraw hill
T5 = Automobile Engineering G.B.S. Narang Khanna Publication
T6 = Auto Mechanics Harold T. Glenn Bennett & Mckknight
T7= Automobile Engineering Vol. I and Vol. II, Kirpal Singh, Standard Publication
T8 = Automotive Mechanics Joseph Hitner –
T9 = Automobile Engg. Kaushik Berman, Foundation Publishing