**LESSON PLAN: ME-302-P AUTOMOBILE ENGINEERING LAB**

**Name of the Faculty:** Dinesh Kumar

**Discipline:** Mechanical Engineering

**Semester:** 7th Semester

**Subject:** Automobile Engineering Lab (AE Lab), ME-302-P

**Lesson Plan Duration:** 15 weeks (from January, 2019 to May, 2019)

**Work Load (Lecture) per week (in hours) per group:** Practical-02 hours/group

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| Week  | Practical Day | Topic |
| 1st | 1 | To study and prepare report on the constructional details, working principles and operation of the following Automotive Engine Systems & Sub Systems.(a) Multi-cylinder : Diesel and Petrol Engines.(b) Engine cooling & lubricating Systems.(c) Engine starting Systems.(d) Contact Point & Electronic Ignition Systems. |
| 2nd | 2 | To study and prepare report on the constructional details, working principles and operation of the following Fuels supply systems:(a) Carburetors (b) Diesel Fuel Injection Systems (c) Gasoline Fuel Injection Systems. |
| 3rd  | 3 | To study and prepare report on the constructional details, working principles and operation of the following Automotive Clutches.(a) Coil-Spring Clutch (b) Diaphragm – Spring Clutch.(c) Double Disk Clutch. |
| 4th | 4 | To study and prepare report on the constructional details, working principles and operation of the following Automotive Transmission systems.(a) Synchromesh – Four speed Range.(b) Transaxle with Dual Speed Range.(c) Four Wheel Drive and Transfer Case.(d) Steering Column and Floor – Shift levers. |
| 5th | 5 | To study and prepare report on the constructional details, working principles and operation of the following Automotive Drive Lines & Differentials. (a) Rear Wheel Drive Line.(b) Front Wheel Drive Line.(c) Differentials, Drive Axles and Four Wheel Drive Line. |
| 6th | 6 | To study and prepare report on the constructional details, working principles and operation of the following Automotive Suspension Systems.(a) Front Suspension System.(b) Rear Suspension System. |
| 7th | 7 | To study and prepare report on the constructional details, working principles and operation of the following Automotive Steering Systems.(a) Manual Steering Systems, e.g. Pitman –arm steering, Rack & Pinion steering.(b) Power steering Systems, e.g. Rack and Pinion Power Steering System.(c) Steering Wheels and Columns e.g. Tilt & Telescopic steering Wheels, Collapsible Steering Columns. |
| 8th | 8 | To study and prepare report on the constructional details, working principles and operation of the following Automotive Tyres & wheels.(a) Various Types of Bias & Radial Tyres.(b) Various Types of wheels. |
| 9th | 9 | To study and prepare report on the constructional details, working principles and operation of the Automotive Brake systems.(a) Hydraulic & Pneumatic Brake systems.(b) Drum Brake System.(c) Disk Brake System.(d) Antilock Brake System.(e) System Packing & Other Brakes. |
| 10th | 10 | To study and prepare report on the constructional details, working principles and operation of Automotive Emission / Pollution control systems. |
| 11th | 11 | Modeling of any two automotive systems on 3D CAD using educational softwares (eg. 3D modeling package/Pro Engineering/I-Deas/ Solid edge etc.)  |