

| 5036 - AUTOMOBILE ENGINEERING |           |        |                        |                              |      |       |               |    |          |  |
|-------------------------------|-----------|--------|------------------------|------------------------------|------|-------|---------------|----|----------|--|
| Teaching Schedule Per Week    |           |        | Progressive Assessment | Examination Schedule (Marks) |      |       |               |    |          |  |
| Lectures                      | Practical | Credit |                        | Theory                       |      |       | Practical Ex. |    | Total    |  |
| 3                             | 2         | 5      | 50                     | 100                          |      |       | 25            |    | 175      |  |
| Pre-requisite                 |           | Source | Semester               | Theory                       | Test | Total | TW            | PR | Gr Total |  |
| 4041                          |           | AUT    |                        | 75                           | 25   | 100   | 25            | 50 | 175      |  |

Rationale:- Automobile Engg. is the back bone of Industrial development in any country. With the ongoing process of liberalisation and a flood of auto companies, a need to have trained technical manpower is imperative. With this view this course is kept at the Vth level and brings to the diploma student an awareness of technical working and features of Automobiles.

| COURSE CONTENTS   |  | hrs. | mks. |
|---|--|------|------|
| <b>1. INTRODUCTION TO AUTOMOBILE ENGG.</b>  |  | 2    | 4    |
| 1.1 History and operation.  |  |      |      |
| <b>2. AUTO CHASSIS</b>  |  | 10   | 20   |
| Types of chassis frames, Mono-coque construction, Selection of chassis, Types of suspensions: Independent, Single coil, Macpherspnstbut, Torsion, Leaf spring type, Wishbone type, Steering mechanism and power steering. |  |      |      |
| <b>3. AUTO ENGINES</b>  |  | 8    | 16   |
| Multi point fuel injection systems for petrol engines, Fuel injection timing for petrol and engines, Trouble shooting.  |  |      |      |
| <b>4. POWER TRANSMISSIONS</b>   |  | 6    | 18   |
| Types of gear boxes, Automatic transmission, Torque conversion, Fluid coupling, Over drive, Trouble shooting, Four wheel drive transmission   |  |      |      |
| <b>5. ELECTRICAL SYSTEEM</b>  |  | 8    | 16   |
| Battery, Starting and generating system, Ignition system, Lighting and electrical Instru-ment, Engine Management systems for Multipoint fuel Injection, Trouble shooting.   |  |      |      |
| <b>6. AUTO AIR CONDITIONING</b>   |  | 4    | 8    |
| Flow dig of A/c Circuit, Types of compressors, Types of Refrigerants including Eco friendly, Charging, Trouble shooting.  |  |      |      |
| <b>7. MOTOR VEHICLE ACT 1988 AS APPLICABLE IN INDIA</b>   |  | 4    | 8    |
| Articles 43, 44, 45, 46, 47, 56, 115, 130, 135, 136, 141  |  |      |      |
| <b>8. AUTO GARAGE TOOLS AND EQUIPMENT</b>   |  | 4    | 8    |
| Box and open edged spanner set, Torque wrench, Hydraulic jacks, Stroboscope, Various gauges and meters, Hydraulic Hoist, Special tools.   |  |      |      |
| Total   |  | 48   | 100  |

#### Practical

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|---|---|
| 1. Dismantling and Assembly of Petrol engine. | 2. Dismantling and Assembly of Diesel engine. |
| 3. Study of gearbox.                          | 4. Study of clutch.                           |
| 5. Study of differential.                     | 6. Study of suspension systems.               |
| 7. Study of steering system.                  | 8. Study of A/c circuit of a automobile.      |

#### Reference Books

1. Automotive Mechanisms, Joseph Heimer.
2. Automotive Maintenance and Repairs, Mir Publishers.
3. Motor Vehicle Technology, Newton and Steeds.
4. Electrical system, Judge.
5. Automobile Engg., Kirpal Singh.
6. Motor Vehicle Act.