

**SCHEME -2013**  
**AUTOMOBILE ENGINEERING (U)**

**Combined I and II Semesters**

| Course No    | Name of subject                                               | Credits   | Weekly load, hours |          |          | C A Marks  | Exam Duration Hrs | U E Max Marks | Total Marks |
|--------------|---------------------------------------------------------------|-----------|--------------------|----------|----------|------------|-------------------|---------------|-------------|
|              |                                                               |           | L                  | T        | D/P      |            |                   |               |             |
| 13.101       | Engineering Mathematics - I (ABCEFHMNPRSTU)                   | 6         | 2                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.102       | Engineering Physics (ABCEFHMNPRSTU)                           | 6         | 2                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.103       | Engineering Chemistry (ABCEFHMNPRSTU)                         | 6         | 2                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.104       | Engineering Graphics (ABCEFHMNPRSTU)                          | 6         | 1                  | -        | 2        | 50         | 3                 | 100           | 150         |
| 13.105       | Engineering Mechanics (ABCEFHMNPRSTU)                         | 6         | 2                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.106       | Basic Civil Engineering (ABEFHMNPRSTU)                        | 6         | 2                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.107       | Engineering Thermodynamics (MPNSU)                            | 6         | 2                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.108       | Basic Electrical Engineering (ABCHMNPSTU)                     | 6         | 2                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.109       | Basic Electronics Engineering (BCEHMNPSTU)                    | 6         | 2                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.110       | Mechanical Engineering Workshop (ABCEFHMNPRSTU)               | 2         | -                  | -        | 1        | 25         | 3                 | 50            | 75          |
| 13.111       | Electrical & Electronics Engineering Workshop (ABCEFHMNPRSTU) | 2         | -                  | -        | 1        | 25         | 3                 | 50            | 75          |
| <b>Total</b> |                                                               | <b>58</b> | <b>17</b>          | <b>8</b> | <b>4</b> | <b>500</b> |                   | <b>1000</b>   | <b>1500</b> |

**Third Semester**

| Course No    | Name of subject                            | Credits   | Weekly load, hours |          |          | C A Marks  | Exam Duration Hrs | U E Max Marks | Total Marks |
|--------------|--------------------------------------------|-----------|--------------------|----------|----------|------------|-------------------|---------------|-------------|
|              |                                            |           | L                  | T        | D/P      |            |                   |               |             |
| 13.301       | Engineering Mathematics-II (ABCEFHMNPRSTU) | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.302       | Humanities (BEFMRSU)                       | 3         | 3                  | -        | -        | 50         | 3                 | 100           | 150         |
| 13.303       | Auto Chassis (U)                           | 5         | 3                  | 1        | 1        | 50         | 3                 | 100           | 150         |
| 13.304       | Mechanics of Solids (MPSU)                 | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.305       | Auto Chassis Lab (U)                       | 2         | -                  | -        | 2        | 50         | 3                 | 100           | 150         |
| 13.306       | Machines and Auto Component Drawing (P)    | 5         | 1                  | -        | 4        | 50         | 3                 | 100           | 150         |
| 13.307       | Thermal Engineering (MU)                   | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.308       | Heat Engines Lab (U)                       | 2         | -                  | -        | 2        | 50         | 3                 | 100           | 150         |
| <b>Total</b> |                                            | <b>29</b> | <b>16</b>          | <b>4</b> | <b>9</b> | <b>400</b> |                   | <b>800</b>    | <b>1200</b> |

#### Fourth Semester

| Course No    | Name of subject                                   | Credits   | Weekly load, hours |          |          | C A Marks  | Exam Duration Hrs | U E Max Marks | Total Marks |
|--------------|---------------------------------------------------|-----------|--------------------|----------|----------|------------|-------------------|---------------|-------------|
|              |                                                   |           | L                  | T        | D/P      |            |                   |               |             |
| 13.401       | Engineering Mathematics -III (BCHMNPSU)           | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.402       | Computer Programing and Numerical Methods (U)     | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.403       | Auto Power Plant (U)                              | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.404       | Metullargy and Material Science (MPU)             | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.405       | Production Process / Manufacturing Technology (U) | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.406       | Fluid Mechanics and Hydraulic Machines (U)        | 3         | -                  | -        | 3        | 50         | 3                 | 100           | 150         |
| 13.407       | Mechanics of Solids Lab (U)                       | 3         | -                  | -        | 3        | 50         | 3                 | 100           | 150         |
| 13.408       | Machine Shop I (U)                                | 3         | -                  | -        | 3        | 50         | 3                 | 100           | 150         |
| <b>Total</b> |                                                   | <b>29</b> | <b>15</b>          | <b>5</b> | <b>9</b> | <b>400</b> |                   | <b>800</b>    | <b>1200</b> |

#### Fifth Semester

| Course No    | Name of subject                      | Credits   | Weekly load, hours |          |          | C A Marks  | Exam Duration Hrs | U E Max Marks | Total Marks |
|--------------|--------------------------------------|-----------|--------------------|----------|----------|------------|-------------------|---------------|-------------|
|              |                                      |           | L                  | T        | D/P      |            |                   |               |             |
| 13.501       | Engineering Mathematics - IV (CMPSU) | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.502       | Electrical Technology (U)            | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.503       | Automotive Transmission (U)          | 4         | 4                  | -        | -        | 50         | 3                 | 100           | 150         |
| 13.504       | Mechanics of Machinery (U)           | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.505       | Auto Electrical / Electronics (U)    | 3         | 3                  | -        | -        | 50         | 3                 | 100           | 150         |
| 13.506       | Elective I                           | 4         | 4                  | -        | -        | 50         | 3                 | 100           | 150         |
| 13.507       | Fluid Mechanics & Machines Lab. (PU) | 3         | -                  | -        | 3        | 50         | 3                 | 100           | 150         |
| 13.508       | Machine shop II (U)                  | 3         | -                  | -        | 3        | 50         | 3                 | 100           | 150         |
| <b>Total</b> |                                      | <b>29</b> | <b>20</b>          | <b>3</b> | <b>6</b> | <b>400</b> |                   | <b>800</b>    | <b>1200</b> |

### Sixth Semester

| Course No    | Name of subject                                 | Credits   | Weekly load, hours |          |          | C A Marks  | Exam Duration Hrs | U E Max Marks | Total Marks |
|--------------|-------------------------------------------------|-----------|--------------------|----------|----------|------------|-------------------|---------------|-------------|
|              |                                                 |           | L                  | T        | D/P      |            |                   |               |             |
| 13.601       | Vehicle Maintenance (U)                         | 4         | 4                  | -        | -        | 50         | 3                 | 100           | 150         |
| 13.602       | Machine Design (U)                              | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.603       | Computer Aided Design (MPU)                     | 3         | 2                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.604       | Heat and Mass Transfer (MSU)                    | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.605       | Vehicle Dynamics (U)                            | 4         | 4                  | -        | -        | 50         | 3                 | 100           | 150         |
| 13.606       | Elective II                                     | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.607       | Computer Aided Modelling and Analysis Lab (MPU) | 3         | -                  | -        | 3        | 50         | 3                 | 100           | 150         |
| 13.608       | Electrical and Electronics Lab (U)              | 3         | -                  | -        | 3        | 50         | 3                 | 100           | 150         |
| <b>Total</b> |                                                 | <b>29</b> | <b>19</b>          | <b>4</b> | <b>6</b> | <b>400</b> |                   | <b>800</b>    | <b>1200</b> |

### Seventh Semester

| Course No    | Name of subject                                      | Credits   | Weekly load, hours |          |          | C A Marks  | Exam Duration Hrs | U E Max Marks | Total Marks |
|--------------|------------------------------------------------------|-----------|--------------------|----------|----------|------------|-------------------|---------------|-------------|
|              |                                                      |           | L                  | T        | D/P      |            |                   |               |             |
| 13.701       | Principles of Management and Decision Modeling (MPU) | 3         | 2                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.702       | Mechatronics (MPSU)                                  | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.703       | Automotive Air Conditioning Systems (U)              | 4         | 4                  | -        | -        | 50         | 3                 | 100           | 150         |
| 13.704       | Engine and Drive Line Design (U)                     | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.705       | Modern Automotive Technology (U)                     | 4         | 4                  | -        | -        | 50         | 3                 | 100           | 150         |
| 13.706       | Elective III                                         | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.707       | Vehicle Reconditioning lab (U)                       | 2         | -                  | -        | 2        | 50         | 3                 | 100           | 150         |
| 13.708       | Mechatronics Lab (U)                                 | 2         | -                  | -        | 2        | 50         | 3                 | 100           | 150         |
| 13.709       | Project and Project Seminar (MPSU)                   | 2         | -                  | -        | 2        | 100        |                   |               | 100         |
| <b>Total</b> |                                                      | <b>29</b> | <b>19</b>          | <b>4</b> | <b>6</b> | <b>500</b> |                   | <b>800</b>    | <b>1300</b> |

### Eighth Semester

| Course No    | Name of subject                               | Credits   | Weekly load, hours |          |          | C A Marks  | Exam Duration Hrs | U E Max Marks | Total Marks |
|--------------|-----------------------------------------------|-----------|--------------------|----------|----------|------------|-------------------|---------------|-------------|
|              |                                               |           | L                  | T        | D/P      |            |                   |               |             |
| 13.801       | Automotive Pollution and Control (U)          | 3         | 3                  | -        | -        | 50         | 3                 | 100           | 150         |
| 13.802       | Industrial Engineering (MPU)                  | 3         | 2                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.803       | Theory of Advanced I.C. Engines (U)           | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.804       | Computer Integrated Manufacturing (MU)        | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.805       | Elective IV                                   | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.806       | Elective V                                    | 4         | 3                  | 1        | -        | 50         | 3                 | 100           | 150         |
| 13.807       | Seminar (MPUS)                                | 2         | -                  | -        | 2        | 100        |                   |               | 100         |
| 13.808       | Project , Viva-Voce & Industrial Visit (MPSU) | 5         | -                  | -        | 5        | 100        | -                 | 100           | 200         |
| <b>Total</b> |                                               | <b>29</b> | <b>17</b>          | <b>5</b> | <b>7</b> | <b>500</b> |                   | <b>700</b>    | <b>1200</b> |

### 13. 506 Elective I

|           |                                            |
|-----------|--------------------------------------------|
| 13.506.1  | Professional Ethics and Human Values (MPU) |
| 13.506.2  | Advanced Welding Technology (MPU)          |
| 13.506.3  | Foundry Technology (MPU)                   |
| 13.506.4  | Advanced Fluid Mechanics (MPU)             |
| 13.506.5  | Composite Materials Technology (MPU)       |
| 13.506.6  | Non Destructive Testing (MPU)              |
| 13.506.7  | Powder Metallurgy (MPU)                    |
| 13.506.8  | Automotive Fuels & Alternate Fuels (U)     |
| 13.506.9  | Vehicle Transport & Fleet Management (U)   |
| 13.506.10 | Two And Three Wheeled Vehicles (U)         |

### 13.606 Elective II

|           |                                                 |
|-----------|-------------------------------------------------|
| 13.606.1  | Artificial Intelligence Systems (MPU)           |
| 13.606.2  | Mechanical Working Methods (MPU)                |
| 13.606.3  | System Modeling & Simulation (MPU)              |
| 13.606.4  | Materials Handling (MPU)                        |
| 13.606.5  | Total Quality Management (MPU)                  |
| 13.606.6  | Advanced Manufacturing Processes (MPU)          |
| 13.606.7  | Material Characterisation (MPU)                 |
| 13.606.8  | Micromachining Methods (MPU)                    |
| 13.606.9  | Vehicle Body Engineering (U)                    |
| 13.606.10 | Production Process of Automotive Components (U) |
| 13.606.11 | Automotive Safety (U)                           |

**13.706 Elective III**

|           |                                             |
|-----------|---------------------------------------------|
| 13.706.1  | Plant Engineering & Maintenance (MPU)       |
| 13.706.2  | Fracture Mechanics (MPU)                    |
| 13.706.3  | Entrepreneurship Development (MPU)          |
| 13.706.4  | Finite Element Methods (MPU)                |
| 13.706.5  | Metal Forming (MPU)                         |
| 13.706.6  | Non-Conventional Machining Techniques (MPU) |
| 13.706.7  | Experimental Methods In Engineering (MPU)   |
| 13.706.8  | Mechanical Vibration & Noise Control (MPU)  |
| 13.706.9  | Failure Analysis (MPU)                      |
| 13.706.10 | Industrial Automation (MPU)                 |
| 13.706.11 | Vehicle Performance And Testing (U)         |
| 13.706.12 | Automotive Aerodynamics (U)                 |
| 13.706.13 | Tractors & Farm Equipments (U)              |
| 13.706.14 | Theory of Machining (U)                     |

**13. 805 Elective IV**

|           |                                                |
|-----------|------------------------------------------------|
| 13.805.1  | Experimental Stress Analysis Techniques (MPU)  |
| 13.805.2  | Aerospace Engineering (MPU)                    |
| 13.805.3  | Facilities Planning (MPU)                      |
| 13.805.4  | Design of Jigs And Fixtures (MPU)              |
| 13.805.5  | Controls In Machine Tools (MPU)                |
| 13.805.6  | Design of Pressure Vessels & Piping (MPU)      |
| 13.805.7  | Tribology (MPU)                                |
| 13.805.8  | Cryogenic Engineering (MPU)                    |
| 13.805.9  | Research Methodology (MPU)                     |
| 13.805.10 | Nanotechnology (MPU)                           |
| 13.805.11 | Computer Simulation of IC Engine Processes (U) |
| 13.805.12 | Embedded System In Automobiles (U)             |
| 13.805.13 | Computer Aided Vehicle Design (U)              |

**13. 806 Elective V**

|           |                                          |
|-----------|------------------------------------------|
| 13.806.1  | Industrial Quality Control (MPU)         |
| 13.806.2  | Creativity & Product Development (MPU)   |
| 13.806.3  | Advanced Kinematics of Machines (MPU)    |
| 13.806.4  | Financial Management (MPU)               |
| 13.806.5  | Flexible Manufacturing Methods (MPU)     |
| 13.806.6  | Computational Fluid Dynamics (MPU)       |
| 13.806.7  | Management Information Systems (MPU)     |
| 13.806.8  | Production & Operations Management (MPU) |
| 13.806.9  | Project Management (MPU)                 |
| 13.806.10 | Robotics (MPU)                           |
| 13.806.11 | Off- Road Vehicles (U)                   |
| 13.806.12 | Noise Vibration and Harness (U)          |
| 13.806.13 | Vehicle Instruments and Testing(U)       |