## 6.2.3 Usage of room for counselling/ discussion with students **Institute Marks: 5.00**

| S. No. | Laboratories Description | Number of Rooms |
|---|---|---|
| 1 | For discussion/counselling | 1 |
| 2 | Automobile Practical's | 15 |

(Instruction: Assessment based on the information provided in the preceding table and the inspection there of.)

Usage of room for discussion/counselling with students

| S. no. | Room description | Classroom size($m^2$) | Shared/exclusive | Capacity | Others Facilities |
|---|---|---|---|---|---|
| 1. | E103 –Room for discussion/counselling | 69.28 | Shared with tutorial room | 66 | Projector/Pc |

The following table is required for the subsequent criteria.

| Laboratory Description In The Curriculum | Exclusive Use/ Shared | Space (Sq m) | Number Of Experiments | Quality Of Instruments | Laboratory Manuals |
|---|---|---|---|---|---|
| Workshop Practice | Shared By All Departments | 171 | 12 | All good quality equipments in working condition | Available |
| Computer aided drafting and modelling lab. | Shared | 120 | 10 | All good quality equipments in working condition | Available |
| Manufacturing technology Laboratory | Shared | 239.4 | 13 | All good quality equipments in working condition | Available |
| Fluid mechanics and machinery | Shared | 171 | 11 | All good quality equipments in working condition | Printed lab manual are available for students |
| Automotive Components Laboratory | Exclusive | 171 | 12 | All good quality equipments in working condition | Available |
| Engine Performance and Emission Testing Laboratory | Shared | 171 | 11 | All good quality equipments in working condition | Printed lab manual are available for students |
| Computer Aided Machine Drawing Laboratory | Shared | 69.38 | 10 | All good quality equipments in working condition | Available |

| Laboratory Description In The Curriculum | Exclusive Use/ Shared | Space (Sq m) | Number Of Experiments | Quality Of Instruments | Laboratory Manuals |
|---|---|---|---|---|---|
| Strength of Materials Lab | Shared | 69.38 | 10 | All good quality equipments in working condition | Printed lab manual are available for students |
| Automotive Electrical and Electronics Laboratory | Exclusive | 69.38 | 20 | All good quality equipments in working condition | Available |
| Automotive Fuels and Lubricants Laboratory | Exclusive | 69.38 | 15 | All good quality equipments in working condition | Available |
| Computer Aided Engine Design Laboratory | Shared | 69.38 | 10 | All good quality equipments in working condition | Available |
| Computer Aided Chassis Design Laboratory | Shared | 69.38 | 11 | All good quality equipments in working condition | Available |
| Two and Three Wheelers Laboratory | Exclusive | 239.4 | 12 | All good quality equipments in working condition | Available |
| Vehicle Maintenance and Re-conditioning Laboratory | Exclusive | 239.4 | 10 | All good quality equipments in working condition | Available |
| CAD/ CAM Lab | Shared | 69.38 | 11 | All good quality equipments in working condition | Available |

## 6.3 Laboratories in the Department to meet the Curriculum Requirements and the Pos

**Total Marks: 60.00**

### 6.3.1 Adequate, well-equipped laboratories to meet the curriculum requirements and the Pos (20)

**Institute Marks: 20.00**

(Instruction: Assessment based on the information provided in the preceding table.)

| S.No. | Laboratories description in the curriculum | Programme Outcomes | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| 1 | Workshop Practice | ■ | ■ | ■ | | | | | ■ | | | | |
| 2 | Computer aided drafting and modeling Lab | ■ | | ■ | ■ | ■ | | | ■ | | ■ | | ■ |
| 3 | Manufacturing technology Lab | | ■ | | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | |
| 4 | Fluid mechanics and machinery Lab | ■ | ■ | | ■ | | | | ■ | | | | |
| 5 | Automotive Components Lab | | | ■ | ■ | ■ | | | ■ | | | | ■ |
| 6 | Engine Performance and Emission Testing Lab | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | ■ |
| 7 | Computer Aided Machine Drawing Lab | | ■ | ■ | ■ | ■ | | | ■ | | ■ | | ■ |
| 8 | Strength of Materials Lab | ■ | ■ | ■ | ■ | | | | ■ | | | | |
| 9 | Automotive Electrical and Electronics Lab | ■ | ■ | ■ | | | | | ■ | ■ | | | ■ |
| 10 | Automotive Fuels and Lubricants Lab | ■ | ■ | ■ | | | ■ | ■ | ■ | | | | ■ |
| 11 | Computer Aided Engine Design Lab | ■ | ■ | ■ | ■ | | | | ■ | | ■ | ■ | ■ |
| 12 | Computer Aided Chassis Design Lab | ■ | ■ | ■ | ■ | | | | ■ | | ■ | ■ | ■ |
| 13 | Two and Three Wheelers Lab | | | | | ■ | ■ | ■ | ■ | | | | ■ |
| 14 | Vehicle Maintenance and Re-conditioning Lab | | | | | ■ | | ■ | ■ | | | ■ | ■ |
| 15 | CAD/CAM Lab | | ■ | ■ | ■ | | | | ■ | | ■ | | ■ |

**Programme Outcomes**

The programme outcomes are in align with the NBA graduate attributes

The programme is preparing the graduates

PO1: To apply knowledge of mathematics, science and engineering in the field of automobile engineering

PO2: To design and conduct experiments, as well as to analyze and interpret data related to automobile engineering

PO3: To design a system, component, or process to meet desired the automotive needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability & sustainability

PO4: To identify, formulate, and solve complex automobile engineering problems.

PO5: To use the techniques, skills, and modern engineering tools necessary for automobile engineering practice.

PO6: To apply knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering Practice

PO7: To understand the impact of engineering solutions in a global, economic, environmental, and societal context

PO8: To demonstrate professional and ethical responsibility

PO9: To work in teams and apply interpersonal skills in engineering contexts

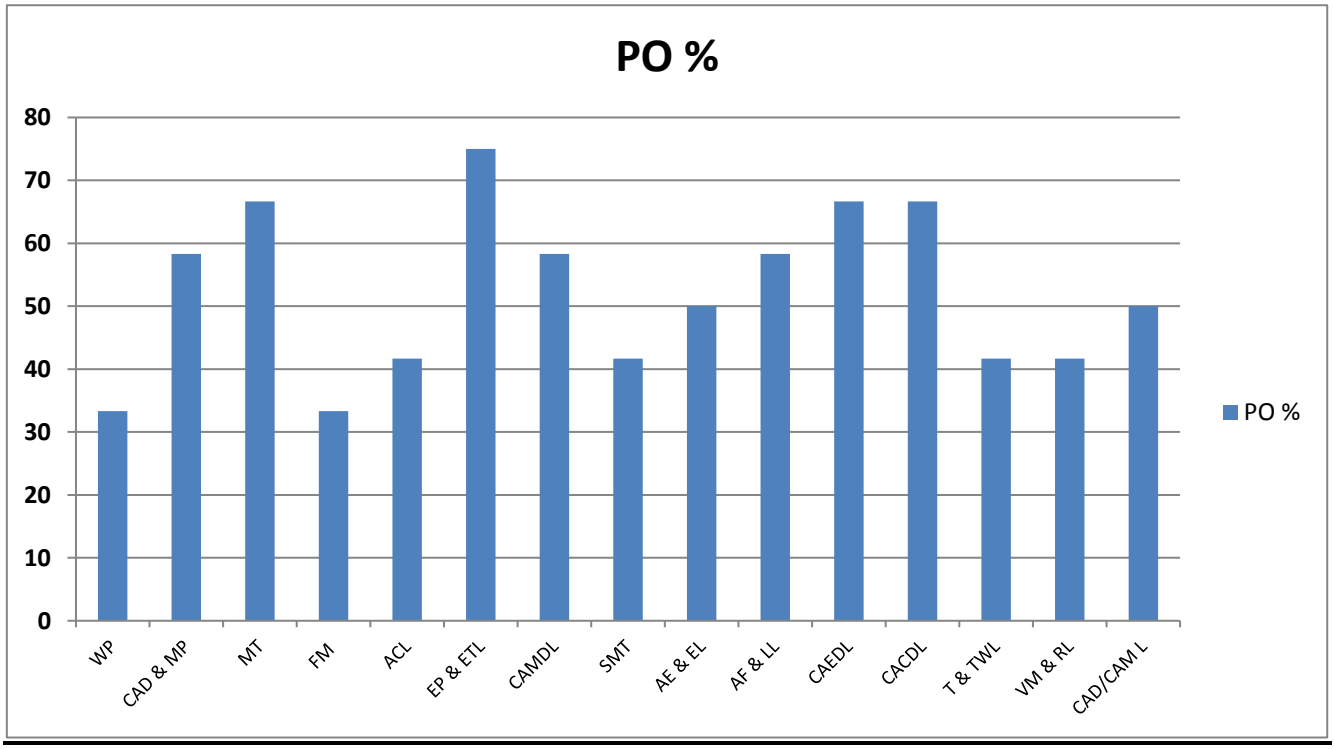
PO10: To communicate effectively with a wide range of both engineering and non-engineering personnel

PO11: To follow management and financial principles and apply them in execution of projects

PO12: To lay a foundation for continued learning beyond graduation

Based on the Preceding Data in 6.3.1, the contribution of the well equipped Lab

| Sino | Laboratory Description | POs attained (12) | % of Points afford |
|---|---|---|---|
| 1 | Workshop Practice | 4 | 33.33 |
| 2 | Computer aided drafting and modelling lab. | 7 | 58.33 |
| 3 | Manufacturing technology Laboratory | 8 | 66.67 |
| 4 | Fluid mechanics and machinery | 4 | 33.33 |
| 5 | Automotive Components Laboratory | 5 | 41.67 |
| 6 | Engine Performance and Emission Testing Laboratory | 9 | 75.00 |
| 7 | Computer Aided Machine Drawing Laboratory | 7 | 58.33 |
| 8 | Strength of Materials Lab | 5 | 41.67 |
| 9 | Automotive Electrical and Electronics Laboratory | 6 | 50.00 |
| 10 | Automotive Fuels and Lubricants Laboratory | 7 | 58.33 |
| 11 | Computer Aided Engine Design Lab | 8 | 66.67 |
| 12 | Computer Aided Chassis Design Lab | 8 | 66.67 |
| 13 | Two and Three Wheelers Lab | 5 | 41.67 |
| 14 | Vehicle Maintenance and Reconditioning Lab | 5 | 41.67 |
| 15 | CAD/CAM Lab | 6 | 50.00 |




Graph of Every Individual Lab With Respect To Well Equipped Lab Points Obtained In %

## 6.3.2Availabilityof computing facilities in the department **Institute Marks: 15.00**

| S. No. | Description | Number of computers |
|---|---|---|
| 1 | Automobile Department | 28 |

(Instruction: Assessment based on the information provided in the preceding table.)

Availability of computing facilities in the department

| S. No. | Laboratories Description in the curriculum | Number of experiments | Number of computers |
|---|---|---|---|
| 1. | Computer aided drafting and modelling lab. | 10 | 24 |
| 2. | Computer Aided Machine Drawing Laboratory | 10 | |
| 3. | Computer Aided Engine Design Laboratory | 10 | |
| 4. | Computer Aided Chassis Design Laboratory | 11 | |
| 5. | CAD and CAM Laboratory | 11 | |
| 6. | Engine Performance and Emission Testing Laboratory | 11 | 01 |
| 7. | Strength of Materials Lab | 10 | 01 |
| 8. | Two and Three Wheelers Laboratory | 12 | 01 |
| 9. | Vehicle Maintenance and Reconditioning Laboratory | 11 | 01 |

Total = 28

## 6.3.3Availabilityof laboratories with technical support within and beyond working hours (15)

| S. No. | Description | Technical Support Within Working Hour | Technical Support Beyond Working Hour |
|---|---|---|---|
| 1 | No of Automobile Department Laboratories | 15 | 3 |

**6.3.3 Availability of laboratories with technical support within and beyond working hours (15)** **Institute Marks: 15.00**

(Instruction: Assessment based on the information provided in the preceding table.)

Availability of laboratories with technical support within and beyond working hours

| S. No. | Laboratories description in the curriculum | Technical support | | Number of experiments | Condition of instruments | Laboratory manuals |
|---|---|---|---|---|---|---|
| | | Within working Hour | Beyond Working Hour | | | |
| 1. | Workshop Practice | Available | - | 12 | Good | Available |
| 2. | Computer aided drafting and modelling lab. | Available | - | 10 | Good | Available |
| 3. | Manufacturing technology Laboratory | Available | Available | 13 | Good | Available |
| 4. | Fluid mechanics and machinery | Available | - | 11 | Good | Available |
| 5. | Automotive Components Laboratory | Available | - | 12 | Good | Available |
| 6. | Engine Performance and Emission Testing | Available | Available | 10 | Good | Available |
| 7. | Computer Aided Machine Drawing Laboratory | Available | - | 12 | Good | Available |
| 8. | Strength of Materials Lab | Available | - | 11 | Good | Available |
| 9. | Automotive Electrical and Electronics | Available | - | 21 | Good | Available |
| 10. | Automotive Fuels and Lubricants Laboratory | Available | - | 15 | Good | Available |
| 11. | Computer Aided Engine Design Laboratory | Available | - | 10 | Good | Available |
| 12. | Computer Aided Chassis Design Laboratory | Available | - | 11 | Good | Available |
| 13. | Two and Three Wheelers Laboratory | Available | - | 10 | Good | Available |
| 14. | Vehicle Maintenance and Re-conditioning | Available | - | 11 | Good | Available |
| 15. | CAD and CAM Laboratory | Available | Available | 11 | Good | Available |

**6.3.4 Equipment to run experiments and their maintenance, number of students per experimental setup, size of the laboratories, over all ambience, etc (10)** **Institute Marks: 10.00**

(Instruction: Assessment based on the information provided in the preceding table.)

Equipment to run experiments and the maintenance, number of students per experiment set up, size of the laboratories, over all ambience, etc.,

| S. No | Laboratories description in the Curriculum (CSA-Sqm) | Experiment | Equipment | No. of students/exp. setup |
|---|---|---|---|---|
| 1. | Computer aided drafting and Modelling lab. (120) | 10 | 24 computers with 15 licensed software | 1 student/computer |
| 2. | Manufacturing technology Laboratory (239.4) | Facing, plain turning and step turning | 5 no. - Centre Lathe with accessories | 2 Students/ Lathe |
| | | Taper turning using compound rest | | |
| | | Taper turning using taper turning attachment | | |
| | | Single start V thread, cutting and knurling | | |
| | | Boring and internal thread cutting. | | |
| | | Machining a V- block (in a Shaper | 2 no. - Shaping Machine | 2 students/machine |
| | | Machining hexagonal shape (in a Shaper) | | |
| | | Machining internal key-way (in a slotter) | 1 no. - Slotting Machine | 2 students |
| | | Drilling 4 or 6 holes at a given pitch circle on a plate | 2 no. - Radial Drilling Machine | 2 students/machine |
| | | Drilling, reaming and tapping | 2 no.- Upright Drilling Machine | 2 students/machine |
| | | Plain Milling Exercise | 2 no. – milling machine | 2 students/machine |
| | | Gear Milling Exercise | | |
| | | Cylindrical Grinding Exercise | 1 no. – cylindrical grinding machine | 2 students |
| 3. | Fluid mechanics and machinery (171) | Orifice and Venturi meter | 1 no – Orifice meter setup | 3 students/ setup |
| | | | 1 no – Venturi meter setup | |
| | | Rate the flow using rota meter | 1 no. – Rota meter setup | 3 students |
| | | Friction factor of given set of pipes | 1 no. - Pipe flow analysis setup | 3 students |
| | | the characteristic curves of centrifugal pump/ Submergible pump | 1 no. - Centrifugal pump/submergible pump setup | 3 students |

| | | | | |
|---|---|---|---|---|
| | | The characteristic curves of reciprocating Pump | 1 no. - Reciprocating pump setup | 3 students |
| | | The characteristic curves of Gear pump. | 1 no. - Gear pump setup | 3 students |
| | | The characteristic curves of Pelton wheel. | 1 no. - Pelton wheel setup | 3 students |
| | | The characteristics curve of Francis Turbine. | 1 no. - Francis turbine setup | 3 students |
| | | the characteristic curves of Kaplan turbine | 1 no. - Kaplan turbine setup | 3 students |
| | | Flow visualization experiment | 1 no. - Flow visualization experiment | 3 students |
| 4. | Automotive Components Laboratory (171) | Dismantling and study of multi-cylinder Petrol engine | 1 no. - Multi cylinder petrol engine | 2 students |
| | | Assembling of Multi-cylinder Petrol Engine | 1 no. - Multi cylinder petrol engine | 2 students |
| | | Dismantling and study of Multi-cylinder Diesel Engine | 1 no. - Multi Cylinder Diesel Engine | 2 students |
| | | Assembling of Multi-cylinder Diesel Engine | 1 no. - Multi Cylinder Diesel Engine | 2 students |
| | | Study of petrol engine fuel system | 1 no. - petrol engine fuel system | 2 students |
| | | Study of diesel engine fuel system | 1 no. - Heavy duty vehicle chassis frame | 2 students |
| | | Study and measurement of light and heavy commercial | 1 no. - Light duty vehicle chassis frame | 2 students/each no. |
| | | Vehicle Frame | | 2 students/each no. |
| | | Study, dismantling and assembling of front and rear Axles | 2 no. - Front axle | 2 students/each no. |
| | | | 2 no. – Rear axle | 2 students/each no. |
| | | Study, dismantling and assembling of differential | 2 no. - Differential | 2 students/each no. |
| | | Study, dismantling and assembling of Clutch | 2 no. - Clutch and Gear box | 2 students/each no |
| | | Study, dismantling and assembling of Clutch | 2 no. - Clutch and Gear box | 2 students/each no. |
| | | Study of steering system | 4 no. - Steering systems with different gearboxes | 4 students/each gearboxes |

| | | | | |
|---|---|---|---|---|
| 5. | Engine Performance and Emission Testing Laboratory (171) | Study of hydraulic, electrical and eddy current | 1 no. - Hydraulic dynamometer | 2 students |
| | | dynamometers | 1 no. - Eddy current dynamometer | 2 students |
| | | | 1 no. - Electrical dynamometer | 2 students |
| | | Valve timing and port timing diagram | 1 no. - Single cylinder Two stroke cut section engine | 2 students |
| | | | 1 no. - Single cylinder four stroke cut section engine | 2 students |
| | | Performance and emission test on two wheeler SI engine | 1 no. - Two-wheeler engine test rig | 2 students |
| | | Performance and emission test on automotive multi-cylinder SI engine | 1 no. - Automotive multi cylinder SI engine test rig with heat balance arrangement | 2 students |
| | | Performance and emission test on automotive multi-cylinder CI engine | 1 no. - Automotive multi cylinder CI engine test rig with heat balance arrangement | 2 students |
| | | Retardation test on I.C. Engines | 1 no. - Automotive multi cylinder SI engine test rig with heat balance arrangement | 2 students |
| | | Heat balance test on automotive multi-cylinder SI engine | 1 no. - Emission measuring instruments for petrol engine | 2 students |
| | | Heat balance test on automotive multi-cylinder CI engine | 1 no. - Emission measuring instruments for diesel engine | 2 students |
| | | Morse test on multi-cylinder SI engine | 1 no. - Automotive multi cylinder SI engine test rig | 2 students |
| | | P-θ and P-V diagrams for IC engine with piezo electric pick up, charge amplifier, angle encoder and PC | 1 set - Piezo-electric pick up, Charge Amplifier, Angle Encoder and PC | 2 students |

| | | | | |
|---|---|---|---|---|
| 6. | Computer Aided Machine Drawing Laboratory (69.38) | Drawing of automobile components and Assembly drawing | 30 no. of computer nodes, 15 licensed AutoCAD software, 5nos. PRO-E software | 1 student per computer |
| 7. | Strength of Materials Lab (69.38) | Tension test on a mild steel rod | 1 no. universal tensile testing machine with double shear attachment | 2 - students |
| | | Double shear test on mild steel and aluminium rods | | |
| | | Torsion test on mild steel rod | 1 no. - Torsion Testing Machine (60 NM Capacity) | 2 - students |
| | | Impact test on metal specimen | Impact Testing Machine (300 J Capacity) | 4 - students |
| | | Hardness test on metals Brinnell Hardness Number | 1 no. - Brinnell Hardness Testing Machine | 2 - students |
| | | Hardness test on metals Rockwell Hardness Number | 1 no. - Rockwell Hardness Testing Machine | 2 - students |
| | | Deflection test on beams | 1 no. - Deflection test set up | 4 - students |
| | | Compression test on helical springs | Spring Testing Machine for tensile and compressive loads (2500 N) | 4 - students |
| | | Strain Measurement using Rosette strain gauge | 1 no. - Rosette strain gauge | 2 - students |
| | | Effect of hardening- Improvement in hardness and impact resistance of steels | 1 no. - Spring Testing Machine for tensile and compressive loads (2500 N) | 4 - students |
| | | Tempering- Improvement Mechanical properties Comparison<br>(i) Unhardened specimen<br>(ii) Quenched Specimen and<br>(iii) Quenched and tempered specimen. | 1 no. - Muffle Furnace (800 C), 1 no. - Metallurgical Microscopes | 2 - students |
| | | Microscopic Examination of<br>(i) Hardened samples<br>(ii) Hardened and tempered samples | | 2 - students |

| | | | | |
|---|---|---|---|---|
| 8. | Automotive Electrical and Electronics Laboratory (69.38) | Testing of batteries and battery maintenance | 1 no. - Battery, hydrometer, voltage tester | 2 - students |
| | | Testing of starting motors and generators | 1 no. - Starter motor, cut-out | 2 – students |
| | | Testing of regulators and cut – outs | 1 no. - regulator, cut-out | 2 – students |
| | | Diagnosis of ignition system faults | 1 no. - Distributor, ignition coil, spark plug | 2 – students |
| | | Study of Automobile electrical wiring | 1 no. - Auto electrical wiring system | 2 – students |
| | | Study of rectifiers and filters | 1 no. Rectifiers, filters | 2 – students |
| | | Study of logic gates, adder and flip-flops | 1 no. - Amplifier | 2 – students |
| | | Study of SCR and IC timer | 1 no. - IC timer | 2 – students |
| | | Interfacing Sensors like RTD, LVDT, Load Cell etc | 1 no. - IC timer, amplifier | 2 – students |
| | | Interfacing ADC for Data Acquisition | Data logger - 1 No | 10 students/trainer kit |
| | | Interfacing DAC for Control Application | | |
| | | Interfacing A/D converter and simple data acquisition | 8085 trainer kit - 10 No s | |
| | | Micro controller programming and interfacing | ADC interface board - 2 No s | |
| | | Interfacing Actuators | DAC interface board - 2 No s | |
| | | EPROM Programming | Sensors like RTD, Load cell, LVDT - 2 No s<br><br>Actuators like stepper motor - 2 No s | |

| | | | | |
|---|---|---|---|---|
| 9. | Automotive Fuels and Lubricants Laboratory (69.38) | Testing of fuels - Ultimate analysis, proximate analysis | 1no.-Ultimate analysis apparatus | 1student per apparatus |
| | | | 1no.-proximate Analysis apparatus | |
| | | ASTM distillation test of liquid fuels | ASTM distillation test Apparatus | 1student per apparatus |
| | | Aniline Point test of diesel | Aniline point Apparatus | 1student per apparatus |
| | | Calorific value of liquid fuel | Bomb Calorimeters | 1student per apparatus |
| | | Calorific value of gaseous fuel | Gas Calorimeters | 1student per apparatus |
| | | Reid vapour pressure test. | Reid vapour pressure test Apparatus | 1student per apparatus |
| | | Flash and Fire points of petrol and diesel | Abels flash and fire point apparatus | 1student per apparatus |
| | | Copper strip Corrosion Test | Copper Strip Corrosion Test Apparatus | 1 student per apparatus |
| | | Cloud & Pour point Test | Cloud and Pour point Apparatus | 1 student per apparatus |
| | | Temperature dependence of viscosity of lubricants & Fuels by Redwood Viscometer | Redwood Viscometer | 1 student per apparatus |
| | | Viscosity Index of lubricants &Fuels by Say bolt Viscometer | Say bolt Viscometer | 1 student per apparatus |
| | | Ash content and Carbon Residue Test | Ash content Test Apparatus | 1 student per apparatus |
| | | Drop point of grease and mechanical penetration in grease | Drop point and penetration Apparatus for grease | 1 student per apparatus |

| | | | | |
|---|---|---|---|---|
| 10. | Computer Aided Engine Design Lab (69.38) | Design and drawing of piston | Computer nodes–15Nos. | 2–students per computer |
| | | Design of connecting rod small end and big end, shank design, design of big end cap, bolts and drawing of the connecting rod assembly. | | |
| | | Design of crankshaft, balancing weight calculations | | |
| | | Development of short and long crank arms, front end and rear end details, drawing of the crankshaft assembly | | |
| | | Design and drawing of flywheel | | |
| | | Ring gear design, drawing of The flywheel including the development of ring gear teeth. | | |
| | | Design and drawing of the inlet and exhaust valves | | |
| | | Design of cam and camshaft, Cam profile generation, drawing of cam and camshaft | | |
| | | Design of combustion chamber | | |

| | | | | |
|---|---|---|---|---|
| 11. | Computer Aided Chassis Design Lab (69.38) | Complete design of clutch components | Computer nodes-15Nos<br><br>Software like AutoCADorPro-E-15licenses | 2–students per computer |
| | | Assembly drawing of clutch using drafting software. | | |
| | | Gear train calculations | | |
| | | Layout of gear box. | | |
| | | Calculation of bearing loads | | |
| | | Selection of bearings. | | |
| | | Assembly drawing of gear box using drafting software | | |
| | | Design of propeller shaft. | | |
| | | Design details of final drive gearing. | | |
| | | Design details of full floating, semi-floating and three quarter float in gear shafts and rear axle housings | | |
| | | Design aspects of final drive | | |

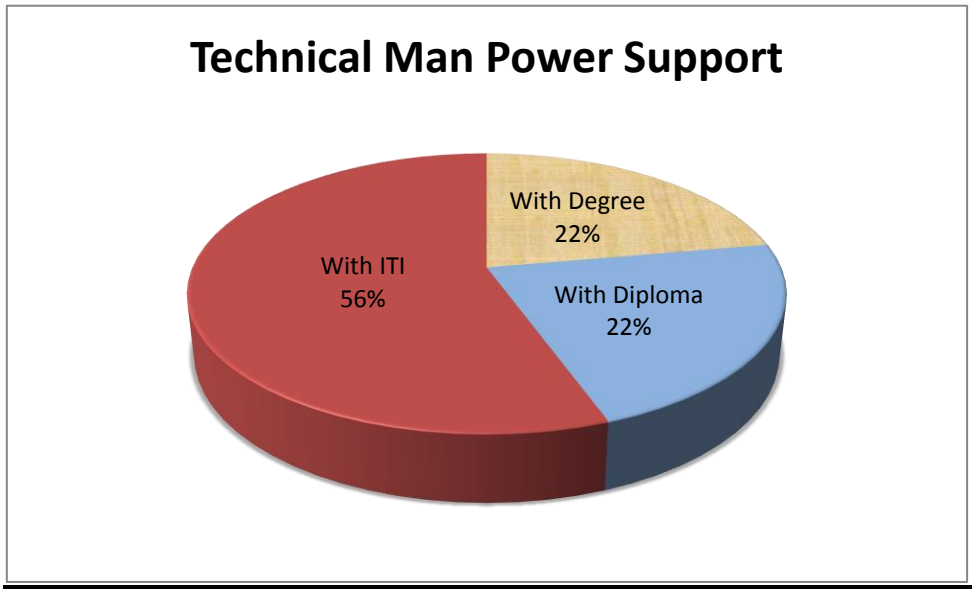
| | | | | |
|---|---|---|---|---|
| 12. | Two And Three Wheelers Lab (239.4) | Performance test of a two wheeler using chassis dynamometer | 1 no. –Two wheeler chassis dynamometer | 2 students per equipment |
| | | Performance test on shock absorber | 1 no. -Shock absorber test rig | 2 students per equipment |
| | | Performance test on coil spring | 1 no. –Coil spring test rig | 2 students per equipment |
| | | Two wheeler chain test | 1no.-chaintension | 2studentsper equipment |
| | | Brake and Clutch adjustment as per specification | 2no.-Two-wheeler clutch | 2studentsper equipment |
| | | Dismantling and assembling of two wheeler gear box and findinggearratios | 2nos.-Two-wheeler gearbox | 2studentsper equipment |
| | | Dismantling and assembling of three wheeler gear box and finding gear ratios | 2nos.-Three-wheeler gearbox | 2studentsper equipment |
| | | Three wheeler brake and clutch play adjustment | 2nos.-Three-wheeler brake | 2studentsper equipment |
| | | Dismantling and assembling of three wheeler steering system | 2 nos.-Three-wheeler steering assembly | 2 students per equipment |
| | | Study of three wheeler chassis frame and power transmission system | - | 2 students |

| | | | | |
|---|---|---|---|---|
| 13. | Vehicle Maintenance And Reconditioning Lab (239.4) | Study and layout of an automobile repair, service and maintenance shop | Service manuals of petrol, diesel engines | 3students |
| | | Study and preparation of Different statements/records required for their pair and maintenance works. | | 3students |
| | | Cylinder re boring–checking the cylinder bore, Setting the tool and re boring | Cylinder re boring machine | 3students |
| | | Valve grinding, valve lapping -Setting the valve angle, grinding and lapping and checking for valve leakage | Valve lapping machine<br><br>Valve grinding machine | 3students |
| | | Calibration of fuel injection pump | Fuel injection Calibration test bench with nozzle tester | 3students |
| | | Minor and major tune up of gasoline and diesel engines | Engine analyzer, cylinder compression pressure gauge | 3 students |
| | | Study and checking of wheel alignment-testing of camber, caster | Tyre remover, wheel aligned apparatus, tachometer | 3 students |
| | | Testing king pin inclination, toe-in and toe-out | Cam angle and rpm tester | 3 students |
| | | Brake adjustment and Brake bleeding. | Brake System set up | 3 students |
| | | Simple tinkering, soldering works of body panels, study of door lock and window glass rising mechanisms | Under purchase | 3 students |
| | | Battery testing and maintenance | HRD tester, clamp on meter, hydrometer | 3 students |

| | | | | |
|---|---|---|---|---|
| 14. | Cad/ Cam Lab (69.38) | 3D Geometric Modelling | Hard wares<br><br>Computer server 1No.<br><br>Computer systems (Pentium IV with 256MBRam) networked to the server 15Nos.<br><br>A3sizeplotter 2Nos.<br><br>Laser Printer 2Nos.<br><br>Trainer CNC lathes 2Nos.<br><br>Trainer CNC milling 2Nos | 2 students per system |
| | | Manual CNC Part Programming | Soft wares<br><br>CAD/CAM Software – 15 licenses<br><br>(Pro –E or IDEAS or Uni-graphics or CATIA)<br><br>CAM Software – 15 licenses | |
| | | Computer Aided Part Programming | (CNC programming and tool path simulation for FANUC, Si numeric and Heiden controller) | |

## 6.4 Technical Manpower Support in the Department (15)

| S.NO | Total No Of Technical Manpower | No of Technical manpower with degree | No of Technical manpower with Diploma | No of Technical manpower with ITI |
|---|---|---|---|---|
| 1 | 9 | 2 | 2 | 5 |



6.4.1 Availability of adequate and qualified technical supporting staff for programme-specific laboratories (10) Institute Marks: 10.00

(Instruction: Assessment based on the information provided in the preceding table.)

Availabilityofadequateandqualifiedtechnicalsupportingstaffforprogramme-specificlaboratories

| Name of the Technical Staff | Designation | Pay-scale | Exclusive/ Shared work | Date of joining | Qualification at Joining Now | Other Technical Skills gained | Responsibility |
|---|---|---|---|---|---|---|---|
| Mr.R.Ramanathan | Professional Assistant I | 12000 | Exclusive | 17/09/2007 | Diploma B.E | Nil | Thermal Lab |
| Mr.K.Boothalingam pillai | Motor Mechanic | 7500 | Exclusive | 03/10/2007 | ITI | Nil | Automobile Lab |
| Mr.M.Sathishkumar | Motor Mechanic | 7500 | Exclusive | 03/10/2007 | ITI | Nil | Two and Three Wheeler Lab |
| Mr.M.Mahaprabhu | Technical Assistant | 9000 | Shared | 15/07/2013 | Diploma | Nil | Thermal Lab |
| Mr.S.Gowthaman | Technical Assistant | 9000 | Exclusive | 15/07/2013 | Diploma | Nil | Cad Lab |
| Mr.T.Venkatesh | Technical Assistant | 6000 | Shared | 15/07/2013 | ITI | Nil | Strength of Materials Lab |
| Mr.S.Sivakumar | Technical Assistant | 6000 | Shared | 15/07/2013 | ITI | Nil | Manufacturing Technology Lab |
| Mr.ATamilvendhan | Technical Assistant | 6000 | Shared | 15/07/2013 | ITI | Nil | Manufacturing Technology Lab |
| Miss. K.Narayani | Clerical Assistant | 7000 | Shared | 10/04/2010 | M.A | Nil | Mechanical Department |

## 6.4.2Incentives, skill-upgrade, and professional advancement (5)

**Institute Marks: 5.00**

| S.NO | Total No Of Technical Manpower | No of Technical manpower upgraded the qualification | No of Technical manpower upgraded in Incentive | No of Technical manpower upgraded in Skill | No of Technical manpower upgraded the professional advancement |
|---|---|---|---|---|---|
| 1 | 9 | 2 | 9 | Nil | Nil |

(Instruction: Assessment based on the information provided in the preceding table.)

| S. No. | Name of the teaching staff | Skill up grade |
|---|---|---|
| 1 | Mr. R.Ramanathan Professional Assistant III | B.E.(Mech.Engg./Part Time)-Completed-2009-2012 |
| 2. | Mr. R.Ramanathan Professional Assistant I | M.E. (Thermal Engg./Part Time) pursuing2013-2016 |
| 3 | Miss. K.Narayani Clerical Assistant | B.A., M.B.A(Finance)Pursuing 2013- 2015 |