| RGPV (Diploma Wing ) Bhopal | SEMESTER TEACHING LEARNING & ASSESSMENT PLAN | FORMAT- 6 |
|---|---|---|

| NAME OF PROGRAMME | THREE YEARS DIPLOMA | SCHEME | OBE | IMPLEMENTING YEAR | 2020-21 |
|---|---|---|---|---|---|

| BRANCH CODE | A03 | NAME OF BRANCH | AUTOMOBILE ENGINEERING | SEMESTER | THIRD |
|---|---|---|---|---|---|

| S. No | COURSE DETAILS | | | | | T-L PLAN | | ASSESSMENT PLAN | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | COURSE CODE | COURSE NAME | PAPER CODE | No. of COs | No. of LOs | Total T-L Hrs. | T-L Hrs. /Week | Internal Assessment | | External Assessment (University Exam) | | | | | | Grand Total of Marks |
| | | | | | | | | | | Theory Paper | | | Practical Exam * | | | |
| | | | | | | | | No. of LOs | Total Marks | No. of LOs | Total Marks | Duration | No. of LOs | Total Marks | Duration | |
| 1 | 301 | AUTO ENGINE-I | | 05 | 15 | 120 | 08 | 08 | 75 | 07 | 75 | 03 HRs. | - | - | - | 150 |
| 2 | 302 | AUTO CHASSIS-I | | 05 | 15 | 120 | 08 | 08 | 85 | 07 | 65 | 03 HRs. | - | - | - | 150 |
| 3 | 303 | AUTO WORKSHOP PRACTICE | - | 04 | 14 | 90 | 06 | 06 | 60 | - | - | - | 08 | 90 | 06 Hrs.** | 150 |
| 4 | 304 | BASICS OF MECHANICAL ENGG.-I | | 04 | 12 | 105 | 07 | 04 | 20 | 08 | 80 | 03 HRs. | - | - | - | 100 |
| 5 | 305 | PROFESSIONAL DEVELOPMENT-III | - | 03 | 06 | 60 | 04 | 06 | 75 | - | - | - | - | - | - | 75 |
| TOTAL | | | | 21 | 62 | 495 | 33 | 32 | 315 | 22 | 220 | - | 08 | 90 | 06 Hrs. | 625 |
| No. of Theory Papers | | | | | | | | | | | | 03 | No. of Practical Exams | | | 01 |

**Exam for LOs (Psycho + Affect.) ** per batch of 20 students*

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 1 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components about given chassis/ chassis frame/ vehicle drive.** |
| **LO Description** | **Student will be able to explain theory/construction/components/working of given chassis/ chassis frame/ vehicle drive.** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Chassis frame, its construction and types, different chassis layouts with reference to power plant locations and drives. Front wheel, rear wheel and four wheel drives, their construction, working and major components | Traditional Lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 09 | 04 | • Automobile Engg. Vol:1 by Singh Kirpal<br>• Automobile Engg. by Jain K K&Asthana.<br>• Automotive Mechanics By willium Crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | Two theory questions related to the learned content will be asked in the university question paper | 15 | Question paper<br>Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 1 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS-I** |
| **CO Description** | **Student will be able to explain theory, construction and components about given chassis/ chassis frame/ vehicle drive** |
| **LO Description** | **Student will be able to explain the difference, merits and limitations of given chasses/ chassis frames/ vehicle drives** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Comparison of different types of chasses, chassis frames and vehicle drives, regarding difference between them, their merits and limitations. Comparison between ladder frame and unibody frame, difference between 2WD,4WD, 6WD | Traditional lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 05 | 03 | • Automobile Engg. Vol:1 by Singh Kirpal<br>• Automobile Engg. by Jain K K&Asthana.<br>• Automotive Mechanics By willium Crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Paper pen test | One theory question related to the learned content will be asked in the test paper | 10 | Test paper, Check list | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 1 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components about given chassis/ chassis frame/ vehicle drive** |
| **LO Description** | **Student will be able to identify various components of given chassis/ chassis frame/ vehicle drive** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Identification of various major components of chassis/ chassis frame/ front wheel drive/ rear wheel drive/ four wheel drive | Traditional Lab Demonstration | Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher. | 03 | 03 | • Automobile Engg. Vol:1 by Singh Kirpal<br>• Automobile Engg. by Jain K K&Asthana.<br>• Automotive Mechanics By williamcrouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to identify five components related to chassis/ chassis frame/ drives | 10 | working models/ disassembled chassis/ chassis frame, different components and sub-assemblies, Rating scale | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**The assessment will be done on basis of following performance indicators:-**

1- Correctness of identification of first component 2- Correctness of identification of second components 3- Correctness of identification of third component

4- Correctness of identification of fourth component 5- Correctness of identification of fifth component.

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 2 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components of the clutch / gearbox/ torque convertor / transmission** |
| **LO Description** | Student will be able to **explain** theory/construction/components/working of the clutch / gearbox/ torque convertor / transmission |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Clutch, its requirement, its functions, theory, construction and working principle of Single-plate clutch, Diaphragm spring clutch, Multi -plate clutch, Centrifugal clutches, Electromagnetic clutch.<br>Need, theory, construction and working of Fluid coupling.<br>Requirements of Gear boxes, theory, construction & working of Sliding mesh, Constant mesh & synchromesh gear box. Transfer case assembly. Introduction to Torque converter, Hydrostatic transmission fluid coupling and CVT. | Traditional Lecture Method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 12 | 06 | • Automobile Engg. Vol:1 by Singh Kirpal<br>• Automobile Engg. by Jain K K & Asthana.<br>• Automotive Mechanics By william crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| | Paper pen test | Three theory questions related to the learned content will be asked in the university question paper | 15 | Question paper, Check list | Internal |
| **INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)** | | | | | |
| **NIL** | | | | | |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 2 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components of the clutch / gearbox/ torque convertor / transmission** |
| **LO Description** | Student will be able to **explain** the difference, merits and limitations of the given clutches / gearboxes/ torque convertor & transmission |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Comparison of the different clutches, different gearboxes, fluid flywheel and torque convertor, manual transmission and automatic transmission on basis of difference, merits and limitations. | Traditional Lecture Method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 07 | 03 | • Automobile Engg. Vol:1 by Singh Kirpal<br>• Automobile Engg. by Jain K K & Asthana.<br>• Automotive Mechanics By william crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | One theory questions related to the learned content will be asked in the university question paper | 10 | Question paper, Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

| NIL |
| --- |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 2 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **To explain theory, construction and components of the clutch / gearbox/ torque convertor / transmission** |
| **LO Description** | To **identify** various components of the given clutch / gearbox |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Identification of different major components of single plate clutch, multi-plate clutch, constant mesh/sliding mesh and synchromesh gear box. | Lab demonstration | Teacher will explain the contents to students in Auto Workshop. He will introduce each major component to students regarding its identification, function and use. Students will practice to identify different components | 03 | 03 | models of clutch/ gearboxes, disassembled clutches and gearboxes, major components of clutches and gearboxes | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Laboratory Test by Observation | Examiner will ask the student to identify five major components in a group or arrangement of variety of components | 10 | models of clutch/ gearboxes, disassembled clutches and gearboxes, major components of clutches and gearboxes, rating scale | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators:-**

1. Correctness of first identified component

2. Correctness of second identified component
3. Correctness of third identified component
4. Correctness of fourth identified component
5. Correctness of fifth identified component

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 3 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components of the universal joint/ propeller shaft/differential/ rear axle** |
| **LO Description** | Student will be able to **explain** theory/construction/components/working of the universal joint/ propeller shaft/differential/ rear axle |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Need, theory, construction, working and components of various types of universal joint, propeller shaft, differential, and various types of rear axle. | Traditional Lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 06 | 04 | • Automobile Engg. Vol:1 by Singh Kirpal<br>• Automobile Engg. by Jain K K & Asthana.<br>• Automotive Mechanics By william crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory Exam | Two theory questions related to the learned content will be asked in the university question paper | 10 | Question paper<br>Check list | External |

| INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY) |
| --- |
| NIL |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 3 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components of the universal joint/ propeller shaft/differential/ rear axle** |
| **LO Description** | Student will be able to **explain** the difference, merits and limitations of the given universal joints / rear axles |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Comparison of the different types of universal joints, and rear axles regarding their difference, merits and limitations | Traditional Lecture Method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 05 | 03 | • Automobile Engg. Vol:1 by Singh Kirpal<br>• Automobile Engg. by Jain K K & Asthana.<br>• Automotive Mechanics By William crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | One theory question related to the learned content will be asked in the university question paper | 05 | Question paper, Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 3 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components of the clutch / gearbox/ torque convertor / transmission** |
| **LO Description** | Student will be able to **identify** various components of the differential/ rear axle |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Identification of different major components of differential and rear axle | Lab demonstration | Teacher will explain the contents to students in Auto Workshop. He will introduce each major component to students regarding its identification, function and use. Students will practice to identify different components | 02 | 02 | models of differential and rear axle, major components of differential and rear axle | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Laboratory Test by Observation | Examiner will ask the student to identify five major components in a group or arrangement of variety of components | 10 | models of differential and rear axle, major components of differential and rear axle, rating scale | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators:-**

1. Correctness of first identified component
2. Correctness of second identified component

3. Correctness of third identified component
4. Correctness of fourth identified component
5. Correctness of fifth identified component

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 4 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components of the wheels / tires** |
| **LO Description** | Student will be able to **explain** theory/construction/components/working of given wheel / tire |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Function of wheel and tyres , Types of wheels ie Spoked wheel, disc wheel & alloy wheel. construction of wheel assembly. Wheel balancing. Construction & material of solid, tubed & tubeless tyres. Types of tyre wear and their causes. Hot & cold retreading. Tyre rotation | Traditional Lecture Method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 06 | 02 | • Automobile Engg. Vol:1 by Singh Kirpal<br>• Automobile Engg. by Jain K K & Asthana.<br>• Automotive Mechanics By william crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | One theory question related to the learned content will be asked in the university question paper | 10 | Question paper<br>Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 4 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components of the wheels / tires** |
| **LO Description** | Student will be able to **explain** the difference, merits and limitations of given wheels / tires |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Difference between tube tyre and tube less tyre. Merit and limitation of cross ply and radial ply tyre. Merit and limitation of different types of wheel. | Traditional Lecture Method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 04 | 02 | • Automobile Engg. Vol:1 by Singh Kirpal<br>• Automobile Engg. by Jain K K & Asthana.<br>• Automotive Mechanics By william crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | One theory question related to the learned content will be asked in the university question paper | 05 | Question paper<br>Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 4 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components of the wheels / tires** |
| **LO Description** | Student will be able to **identify** various components of given wheel / tire |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Study and identification of various components of wheels and tyres, aspect ratio and tyre specifications, study of dynamic wheel balancing Study of tyre rotation of a given vehicle. | Lab demonstration | Teacher will teach content in lab through demonstrating wheels and tyres. Lateron students will practice under guidance of teacher. Through quiz and assignments teacher will identify weak areas and will provide remedial and tutorial | 03 | 01 | Different types of wheels, rims, tyres, related charts and posters | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to identify three components related to tyre/ wheel and wheel specification and aspect ratio of given wheel | 05 | Different types of wheels, rims, tyres | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 5 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components of vehicle body** |
| **LO Description** | **Student will be able to explain theory, construction, components and of given type of vehicle body** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Types of vehicle & vehicle body. Body constructional details, Testing of vehicle frames, unitized frame body construction. Car body construction and functioning, function of body pressing, body trim, sound deadening. Corrosion in car bodies, anti corrosion methods, paints and painting process. Concept of monocoque body. | Traditional Lecture Method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 08 | 02 | • Automobile Engg. Vol:1 by Singh Kirpal<br>• Automobile Engg. by Jain K K & Asthana.<br>• Automotive Mechanics By william crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Paper pen test | Three questions related to the content will be asked in the test | 15 | Test paper and rating scale | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 5 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components of vehicle body** |
| **LO Description** | **Student will be able to explain the merits and limitations of given types of vehicle bodies** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Merits and limitations of different types of vehicle frames, unitized frame body construction, car body construction, monocoque body | Traditional Lecture Method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 03 | 02 | • Automobile Engg. Vol:1 by Singh Kirpal<br>• Automobile Engg. by Jain K K & Asthana.<br>• Automotive Mechanics By william crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | One question to assess the learning of content will be framed in exam paper | 10 | Exam paper rating list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 2 | 5 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO CHASSIS – I** |
| **CO Description** | **Student will be able to explain theory, construction and components of vehicle body** |
| **LO Description** | **Student will be able to identify main components of given vehicle body** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Study and identification of components of different types of vehicle frames, unitized frame body construction, car body construction | Traditional Lecture Method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 02 | 02 | Vehicle frames, vehicle bodies, major components of vehicle frames and bodies | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Laboratory Test by Observation | Examiner will ask the student to identify five major components in the given vehicle frame or body | 10 | Vehicle frames, vehicle bodies, major components of vehicle frames and bodies | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 1 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about given two / four stroke petrol engine** |
| **LO Description** | **Student will be able to explain theory/construction/components/working of two or four stroke petrol engine with help of a labeled line diagram** |

**SCHEME OF STUDY**

| S. No | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Introduction to IC Engines, its theory, construction , components, working, classification, Engine nomenclature, Port and Valve timing diagram, firing order, scavenging process, Engine specification – two wheeler engines and car engines | Traditional Lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 08 | 04 | • Automobile Engg. Vol:2 by Singh Kirpal<br>• Automobile Engg. by Jain K K&Asthana<br>• Internal combustion engine fundamentals by Heywood, John B<br>• https://www.youtube.com/watch?v=hV3LImCslpo | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory Exam | Two theory questions related to the learned content will be asked in the university question paper | 12 | Question paper Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 1 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about given two / four stroke petrol engine** |
| **LO Description** | **Student will be able to explain the difference, merits and limitations of two and four stroke engines** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Comparison of two and four stroke petrol engines regarding their theory, construction, working, components, merits, limitations and use. | Traditional lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 05 | 03 | • Automobile Engg. Vol:2 by Singh Kirpal<br>• Automobile Engg. by R.B.Gupta | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Paper pen test | One theory question related to the learned content will be asked in the test paper | 08 | Test paper, Check list | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 1 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about given two / four stroke petrol engine** |
| **LO Description** | **Student will be able to identify various components of two stroke/ four stroke petrol engines** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Construction features and functions of various components of two stroke/ four stroke petrol engines. Identification of different components. | Lab demonstration | Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher. | 03 | 04 | • working models, disassembled engines, different components and sub-assemblies | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to identify five engine components | 10 | working models/ disassembled engines/ different components and sub-assemblies, Rating scale | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**The assessment will be done on basis of following performance indicators:-**

1- Correctness of identification of one component 2- Correctness of identification of second components 3- Correctness of identification of third component

4- Correctness of identification of fourth component 5- Correctness of identification of fifth component.

| RGPV (Diploma Wing) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 1 | 4 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about given two / four stroke petrol engine** |
| **LO Description** | **Student will be able to locate the position of various components in relation to other components in the given petrol engine system** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Location/ relative position of various components in two-stroke/ four-stroke petrol engine assembly | Lab demonstration | Teacher will demonstrate the contents to the students and provide observation tables. Students will complete given observation tables based on their observations. | 03 | 04 | • working models of two-stroke/ four-stroke petrol engines | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Laboratory test by observation | Examiner will ask the students to locate the relative position of five different components in relation to other components in the given petrol engine during practical examination | 10 | Working model of two-stroke / four-stroke petrol engines<br>Rating scale | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**The assessment will be done on basis of following performance indicators:-**

1- Correctness of locating the position of first component2- Correctness of locating the position of second component 3- Correctness of locating the position of third component 4- Correctness of locating the position of fourth component 5- Correctness of locating the position of fifth component.

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 2 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I** |
| **CO Description** | **Student will be able to explain combustion process, reasons and remedies for detonation in petrol engines** |
| **LO Description** | **Student will be able to explain combustion process in petrol engines with help of line diagram** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Combustion in SI engine; stages of combustion, flame propagation, rate of pressure rise, delay period, related line diagram, Combustion chambers for petrol engines & its different types | Traditional Lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 04 | 03 | • Internal Combustion Engines by Ganesan.V.<br>• Internal Combustion Engines Analysis and Practice by Obert E.F. | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Paper pen test | Two theory questions related to the learned content will be asked in the test paper | 10 | Question paper<br>Check list | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 2 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain combustion process, reasons and remedies for detonation in petrol engines** |
| **LO Description** | **Student will be able to explain reasons and remedies for the detonation in petrol engines** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Abnormal combustion in petrol engine, Pre-ignition, Various reasons for detonation, effect of engine variables on knocking, important properties of petrol, IS Code for petrol, Octane number, Fuel additives, remedies for the detonation | Traditional Lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 06 | 03 | • Internal Combustion Engines by Ganesan.V.<br>• Internal Combustion Engines Analysis and Practice by Obert E.F.<br>• https://www.youtube.com/watch?v=4ZysyokEU60 | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | Two theory questions related to the learned content will be asked in the university question paper | 10 | Question paper<br>Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 3 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about cooling system used in the given petrol engines** |
| **LO Description** | **Student will be able to explain theory/construction/components / working of given cooling systems for IC engines with the help of a labeled line diagram** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Need of cooling system, Types of cooling system, study of Air, Water / Liquid cooling systems regarding their theory, construction, working and components | Traditional Lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 05 | 03 | • Automobile Engg. by R.B.Gupta<br>• Automobile Engg. byRamalingam, K.K.<br>• Automotive mechanics by W.H.Crouse<br>• https://www.youtube.com/watch?v=V7inC4lOpGs&t=33s | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | Two theory questions related to the learned content will be asked in the university question paper | 13 | Question paper, Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 3 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about cooling system used in the given petrol engines** |
| **LO Description** | **Student will be able to explain the merits and limitations of given cooling system for IC Engines** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Differences, merits and limitations of air, water and liquid cooling system for the I C engine | Traditional Lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 3 | 2 | • Automobile Engg. by R.B.Gupta<br>• Automobile Engg. byRamalingam, K.K.<br>• Automotive mechanics by W.H.Crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | One theory question related to the learned content will be asked in the university question paper | 08 | Question paper, Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 3 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about cooling system used in the given petrol engines** |
| **LO Description** | **Student will be able to identify the different components of given cooling system** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Construction, working and identification of: Thermostat valve, water expansion tank, temperature indicators, pressure cap, water pump, Fan and fan belt, Electrically driven fan circuit, Radiator: Construction and type of radiator core | Lab demonstration method | Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher. | 03 | 03 | working models/ disassembled engines/ different components and sub-assemblies, Rating scale | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to identify five cooling system components | 09 | working models/ disassembled engines/ different components and sub-assemblies, Rating scale | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**The assessment will be done on basis of following performance indicators:-**

1- Correctness of identification of first component 2- Correctness of identification of second component 3- Correctness of identification of third component

4- Correctness of identification of fourth component 5- Correctness of identification of fifth component.

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 4 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about lubricating systems used in the given petrol engine** |
| **LO Description** | Student will be able to **explain** theory, construction, components and working of given lubricating systems for IC engines with the help of a labeled line diagram |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Need and functions of Lubrication system, their types, theory, construction, working and components of various types of lubrication systems Lubricants, their important properties, their types, lubricant additives | Traditional Lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 06 | 03 | • Automobile Engg. by R.B.Gupta<br>• Automobile Engg. byRamalingam, K.K.<br>• Automotive mechanics by W.H.Crouse<br>• https://www.youtube.com/watch?v=mmmcj53TNic | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | Two theory questions related to the learned content will be asked in the university question paper | 12 | Question paper<br>Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 4 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about lubricating systems used in the given petrol engine** |
| **LO Description** | **Student will be able to explain the merits and limitations of given lubricating system for IC Engines** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Differences, merits and limitations of Pressure lubrication system, Splash, Dry &, wet sump lubrication systems | Traditional Lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 4 | 2 | • Automobile Engg. by R.B.Gupta<br>• Automobile Engg. By Ramalingam, K.K.<br>• Automotive mechanics by W.H.Crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | One theory question related to the learned content will be asked in the university question paper | 08 | Question paper Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 4 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about lubricating systems used in the given petrol engine** |
| **LO Description** | **Student will be able to identify the different components of given lubricating system** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Construction, functions and identification of components: Oil filter, strainer, Oil pump and its drive, Pressure regulator, Oil pressure gauge, storage tank, pressure relief valve, oil pipe line | Lab demonstration method | Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher. | 04 | 03 | models, different components and sub-assemblies | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Laboratory test by observation | Examiner will ask the students to identify five different components in the given petrol engine lubrication system during practical examination | 10 | models of lubricating systems, components and sub-assemblies, rating scale | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**The assessment will be done on basis of following performance indicators:-**

1- Correctness of identification of first component 2- Correctness of identification of second component 3- Correctness of identification of third component

4- Correctness of identification of fourth component 5- Correctness of identification of fifth component.

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 5 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about fuel supply system of the given petrol engine** |
| **LO Description** | **Student will be able to explain theory, construction, components and working of given fuel pump or carburetor or MPFI for Petrol Engines with the help of a labeled line diagram** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Fuel feed layout, theory, construction, Working and components of mechanical and electric fuel pumps, construction, Working and components of simple carburetor, two wheeler carburetor, constant velocity carburetors or CV, and downdraft carburetors , petrol injection, construction, Working and components of MPFI | Traditional Lecture method | Teacher will organize lecture inside the class based on his/her session plan. Discuss the topics with students, provide quiz, assignment etc. | 07 | 04 | • Automobile Engg. by R.B.Gupta<br>• Automobile Engg. By Ramalingam, K.K.<br>• Automotive mechanics by W.H.Crouse | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Theory exam | Two theory questions related to the learned content will be asked in the university question paper | 12 | Question paper Check list | External |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 5 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **To explain theory, construction and components about fuel supply system of the given petrol engine** |
| **LO Description** | **To explain the merits and limitations of given fuel pumps or carburetor or MPFI for Petrol Engines** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Merits and limitations of mechanical and electrical fuel feed pumps, two wheeler carburetor, constant velocity carburetors or CV, and downdraft carburetors MPFI | Traditional Lecture method | Teacher will explain different concepts and descriptions related to contents. He will give assignments and organize quizzes to ascertain their learning. Students will prepare assignments and attempt quizzes. Teacher will identify their weaknesses and provide necessary remedial and tutorials | 06 | 03 | • Automobile Engg. by R.B.Gupta<br>• Automotive mechanics by W.H.Crouse<br>• https://www.tvsmotor.com/blog/explained-carburetion-vs-fuel-injection/<br>• https://www.enggstudy.com/multi-point-fuel-injection-system-mpfi/ | If necessary teacher will suggest more video link, learning resources which will help the students to solve quiz, prepare assignments etc. |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Paper pen test | Two theory questions based on learned content will be asked to examine the ability of the student | 08 | Test paper, rating list | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**NIL**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 1 | 5 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **AUTO ENGINES – I (PETROL ENGINES)** |
| **CO Description** | **Student will be able to explain theory, construction and components about fuel supply system of the given petrol engine** |
| **LO Description** | **Student will be able to identify the main components of given carburetor/ fuel pump/MPFI** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Identification and location of various components of various types of carburetors/ fuel pumps/MPFI | Lab demonstration method | Teacher will demonstrate the contents to the students. Students will practice under the guidance of teacher. | 05 | 04 | • working models, different components and sub-assemblies | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| 1 | Laboratory test by observation | Examiner will ask the students to identify five different components in the given petrol engine lubrication system during practical examination | 10 | models of carburetors, fuel pumps, MPFI, their components and sub-assemblies, rating scale | Internal |

**INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 1 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to appropriately use various measuring tools for measuring given repair/maintenance related parameters** |
| **LO Description** | Student will be able to **identify** the asked measuring tools within the group of tools |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Introduction to Auto Workshop, functions of Auto workshop, tools, types of tools, measuring tools, their functions and uses, their identification | Lab demonstration | Teacher will explain the contents to students in Auto Workshop. He will introduce each measuring tool to students regarding its function and use. Students will practice to identify different tools | 04 | 02 | Sets of different types of measuring tools used in Automobile workshop | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory test by Observation | Examiner will ask the student to identify five measuring tools in a group of variety of measuring and repair tools | 05 | Group of measuring and repair tools, Rating scale | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

Performance Indicators:-

1. Correctness of first identified measuring tool
2. Correctness of second identified measuring tool

3. Correctness of third identified measuring tool
4. Correctness of fourth identified measuring tool
5. Correctness of fifth identified measuring tool

Exam Plan:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 1 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to appropriately use various measuring tools for measuring given repair/maintenance related parameters** |
| **LO Description** | Student will be able to **select** a measuring tool for measuring the given parameter, from the group of tools |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Different automobile related parameters which need to be measured. Specific measuring tools to measure different parameters. | Lab demonstration | Teacher will explain the contents to students in Auto Workshop. He will demonstrate the use of tools for measuring different parameters. Students will practice and learn to relate tools with parameters | 02 | 01 | Sets of different types of measuring tools used in Automobile workshop | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to identify five measuring tools to measure five different parameters related to automobiles | 05 | Group of measuring and repair tools, Rating scale | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators:-**

1. Correctness of first measuring tool
2. Correctness of second measuring tool

3. Correctness of third measuring tool
4. Correctness of fourth measuring tool
5. Correctness of fifth measuring tool

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 1 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to appropriately use various measuring tools for measuring given repair/maintenance related parameters** |
| **LO Description** | Student will be able to **measure** the given parameters by appropriately using the related measuring tools |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Procedures of measuring the different parameters by using different tools. Precautions to be taken to avoid errors in measurement | Lab demonstration | Teacher will explain the contents through demonstration to students. Later on students will practice to measure different parameters using different measuring tools under guidance of teacher | 06 | 04 | Sets of different types of standard measuring tools used in Automobile workshop | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to measure five different parameters in front of him and will assess correctness of measurement | 20 | Group of measuring tools, Rating scale | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

1.Study and use of linear measurement workshop tools, electrical measuring instruments, pressure measuring instruments, Sheet gauge and wire gauge ,battery tester etc

**2. List of important parameters to measured:-**

1. Measurement of valve tappet clearance.
2. Measurement of piston liner clearance.
3. Measurement of piston ring clearance.
4. Measurement of spark plug gap
5. Measurement of distributor contact point gap.
6. Measurement of brake liner wear and friction plate liner wear.
7. Measurement of bearing sleeve wear
8. Measurement of play in different joints
9. Driving practice on motor vehicle
10. Wheel type air pressure measurement.
11. Battery electrolyte- checks up of level and specific gravity.
12. Cell voltage checkup.

**3. Performance Indicators:-**

1. Correctness of first measurement
2. Correctness of second measurement
3. Correctness of third measurement
4. Correctness of fourth measurement
5. Correctness of fifth measurement

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 2 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to appropriately use various repair tools for given repair/maintenance related task** |
| **LO Description** | Student will be able to **identify** the asked repair tools within the group of tools |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Repair tools, various types of repair tools, their functions and uses, their identification | Lab demonstration | Teacher will explain the contents to students in Auto Workshop. He will introduce each repair tool to students regarding its function and use. Students will practice to identify different repair tools | 05 | 03 | Sets of different types of standard repair tools used in Automobile workshop | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to identify five repair tools in a group of variety of measuring and repair tools | 10 | Group of measuring and repair tools, Rating scale | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators**:-

1. Correctness of first repair tool
2. Correctness of second repair tool
3. Correctness of third repair tool
4. Correctness of fourth repair tool

5. Correctness of fifth repair tool

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 2 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to appropriately use various repair tools for given repair/maintenance related task** |
| **LO Description** | Student will be able to **handle** and use the given repair tools appropriately |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Handling and use of different repair tools | Lab demonstration | Teacher will demonstrate the handling and use of different repair tools to students in Auto Workshop. Students will practice to handle different tools under guidance of the teacher | 03 | 02 | Sets of different types of standard repair tools used in Automobile workshop | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to handle and use five given repair tools | 15 | Group of repair tools, Rating scale | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators:-**

1. Correctness of handling and use of first repair tool
2. Correctness of handling and use of second repair tool
3. Correctness of handling and use of third repair tool
4. Correctness of handling and use of fourth repair tool
5. Correctness of handling and use of fifth repair tool

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 2 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to appropriately use various repair tools for given repair/maintenance related task** |
| **LO Description** | Student will be able to **perform** given repair related task by selecting and using appropriate repair tool |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Procedures of selecting and using appropriate repair tools for different repair related tasks. | Lab demonstration | Teacher will explain the contents through demonstration to students. Later on students will practice to perform different repair related tasks by selecting and using appropriate repair tool under teacher's guidance | 05 | 04 | Sets of different types of standard repair tools used in Automobile workshop | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to measure five different parameters in front of him and will assess correctness of measurement | 20 | Group of measuring and repair tools, Rating scale | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators:-(10 marks)**

1. Correctness of selection of repair tool for the given task (2marks)
2. Correctness of use of repair tool for the given task (6marks)
3. Correctness of completion of the given repair related task (2marks)

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 2 | 4 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to appropriately use various repair tools for given repair/maintenance related task** |
| **LO Description** | Student will be able to **follow** safety and housekeeping rules while using repair tools |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Safety and housekeeping, their importance in Auto Workshop, safety and housekeeping rules and tips to be followed while handling and using the repair tools | Lab demonstration | Teacher will explain the safety and housekeeping rules and tips through demonstration to students. Later on students will practice to ensure safety and housekeeping while handling and using the repair tools, under guidance of teacher | 03 | 02 | Charts/ posters/ handouts/ videos about safety and housekeeping while using the repair tools | Sets of different types of standard repair tools (along with their carrying boxes) used in Automobile workshop |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will give a small task of use of a repair tool and observe the safety and housekeeping rules/tips followed by him during the task | 05 | Group of measuring tools, Rating scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators:-(10 marks)**

1. Awareness about safety and housekeeping while working (2marks)
2. Extent of following safety rules/tips (4marks)
3. Extent of following housekeeping rules/tips (4marks)

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 3 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to appropriately use various machines, equipments, supports and devices for given repair/maintenance related task** |
| **LO Description** | Student will be able to **identify** the asked machines/equipments/ devices used in automobile workshop |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Study and identification of various machines, equipments, supports, devices used in automobile service and repairs | Lab demonstration | Teacher will explain the contents to students in Auto Workshop. He will introduce each item to students regarding its function and use. Students will practice to identify different machines, equipments, supports and devices | 05 | 03 | Various machines, equipments, supports, devices used in automobile service and repairs | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to identify five machines/equipments/devices /supports | 10 | Various machines, equipments, supports, devices used in automobile service and repairs, Rating scale | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators**:-

1. Correctness of first machine/equipment/device/support
2. Correctness of second machine/equipment/device/support

3. Correctness of third machine/equipment/device/support
4. Correctness of fourth machine/equipment/device/support
5. Correctness of fifth machine/equipment/device/support

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 3 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to appropriately use various machines, equipments, supports and devices for given repair/maintenance related task** |
| **LO Description** | Student will be able to **select** appropriate machine/ equipment/ device and set/calibrate it to perform the given task |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Study of various machines, equipments, supports, devices regarding uses and jobs performed on them | Lab demonstration | Teacher will explain the contents to students in Auto Workshop. He will introduce each item to students regarding its function and use. Students will practice to select different machines, equipments, supports and devices to perform the given task | 05 | 03 | Various machines, equipments, supports, devices used in automobile service and repairs | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to select five machines/ equipments/ devices /supports to perform the given five tasks related to automobile repairs and service | 15 | Various machines, equipments, supports, devices used in automobile service and repairs, Rating scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators**:-

1. Correctness of first machine/equipment/device/support

2. Correctness of second machine/equipment/device/support
3. Correctness of third machine/equipment/device/support
4. Correctness of fourth machine/equipment/device/support
5. Correctness of fifth machine/equipment/device/support

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 3 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to appropriately use various machines, equipments, supports and devices for given repair/maintenance related task** |
| **LO Description** | Student will be able to **operate** a suitable machine or equipment or device for performing the given task |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Study and practice of operation of important machines, equipments, supports, devices for performing common repair related tasks | Lab demonstration | Teacher will explain the contents to students in Auto Workshop. He will demonstrate operation on each item to students. Students will practice to operate important items under guidance of teacher | 05 | 03 | Various machines, equipments, supports, devices used in automobile service and repairs | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask the student to operate the given machine/ equipment/ device /support to perform the given short task to automobile repairs and service | 20 | Various machines, equipments, supports, devices used in automobile service and repairs, Rating scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators**:-

1. Correctness of handling the machine/equipment/device/support
2. Correctness of starting/ shutting the machine/equipment/device/support
3. Correctness of setting/ calibrating the machine/equipment/device/support

4. Correctness of operating the machine/equipment/device/support
5. Quality of task performed through machine/equipment/device/support

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 3 | 4 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to appropriately use various machines, equipments, supports and devices for given repair/maintenance related task** |
| **LO Description** | Student will be able to **follow** safety rules while using machines/equipments/devices |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Safety and housekeeping practice of during operation of important machines, equipments, supports, devices for performing common repair related tasks | Lab demonstration | Teacher will explain the contents to students in Auto Workshop. He will demonstrate safety and housekeeping practice on each item to students. Students will practice the same during operating the important items under guidance of teacher | 03 | 02 | Charts/ posters on safety and housekeeping Various important machines, equipments, supports, devices used in automobile service and repairs | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will give a small task of use of a machine/ equipment/ device/ support and observe the safety and housekeeping rules/ tips followed by him during the task | 05 | Safety devices, Various machines, equipments, supports, devices used in automobile service and repairs, Rating scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators:-(10 marks)**

1. Awareness about safety and housekeeping while working (2marks)

2. Extent of following safety rules/tips (4marks)
3. Extent of following housekeeping rules/tips (4marks)

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 4 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to control the fire hazard in the automobile workshop and spot safety issues in the workshop** |
| **LO Description** | Student will be able to **identify** the type and class of fires in the given problem situation |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Fire hazard, its reasons and consequences, different types and classes of fire, examples | Lab demonstration | Teacher will explain the contents to students in Auto Workshop with the help of examples. Students will practice to learn about types and classes of fire in different cases under guidance of teacher | 03 | 01 | Charts/ posters/ handout about fire hazards and their control | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will provide three cases of fire hazard to student and will ask him to identify the type/ class of fire in the cases | 07 | Different prepared cases of fire hazard in auto workshop | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators**:-

1. Correctness of identified fire class/type in first case (2 marks)
2. Correctness of identified fire class/type in second case (2 marks)
3. Correctness of identified fire class/type in third case (2 marks)

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 4 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to control the fire hazard in the automobile workshop and spot safety issues in the workshop** |
| **LO Description** | Student will be able to **identify** the type of fire extinguisher needed to control the fire in given problem situation |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Control of fire hazard, different types of fire extinguishers, their specifications, construction, operation and use | Lab demonstration | Teacher will explain the contents to students in Auto Workshop with the help of examples. Students will practice to learn about different types of fire extinguishers under guidance of teacher | 04 | 02 | Different Fire extinguishers Charts/ posters/ handout | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will provide two cases of fire hazard to student and will ask him to identify the type/ class of fire extinguisher in the cases | 08 | Different prepared cases on fire hazards, Different types of fire extinguishers | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators**:-

1. Correctness of identified fire extinguisher class/type in first case (4marks)
2. Correctness of identified fire extinguisher class/type in second case (4 marks)

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 3 | 4 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **Auto Workshop Practice** |
| **CO Description** | **Student will be able to control the fire hazard in the automobile workshop and spot safety issues in the workshop** |
| **LO Description** | Student will be able to **Spot** the prevailing safety issues in the workshop |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Accidents in auto workshop, their reasons and prevention, safety practices, safety issues in auto workshop | Lab demonstration | Teacher will explain the contents to students in Auto Workshop with the help of examples. Students will practice to learn content under guidance of teacher | 03 | 02 | Workshop safety related charts/ posters/ handout | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Laboratory Test by Observation | Examiner will ask student to spot five safety issues prevailing in the auto workshop | 05 | Many Safety issues created in the auto workshop | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Performance Indicators**:-

1. Correctness of identified first safety issue (1 mark)
2. Correctness of identified second safety issue (1 mark)
3. Correctness of identified third safety issue (1 mark)
4. Correctness of identified fourth safety issue (1 mark)
5. Correctness of identified fifth safety issue (1 mark)

**Exam Plan**:- Exam may be conducted in batches according to following plan:-

| I1-E1 | D1 | D2 | D3 |
|---|---|---|---|
| Shift I | B1-C1, | B1-C2, | B1-C3, |
| Shift II | B2-C1 | B2-C2 | B2-C3 |
| Shift III | B3-C1 | B3-C2 | B3-C3 |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 1 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering-I** |
| **CO Description** | **Student will be able to calculate / stress / strain /deformation / bending moment /deflection in a given problem situation** |
| **LO Description** | **Student will be able to calculate tensile stress / tensile strain /shear stress / deformation due to point loading in given simple machine element** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Strength of materials, point loading, behavior of metals under tensile/compressive / shear loading, tensile, compressive and shear stresses/ strains/deformations, modulus of elasticity and rigidity, Simple numerical problems based on use of formula | Traditional Lecture method | Teacher will explain different concepts and formulas related to contents, demonstrate methods of solving different problems. Students will practice to solve problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials | 05 | 03 | Book:- Strength of materials by R. S .Khurmi Or its equivalent | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Theory Exam | A numerical question to assess the ability to calculate the unknown variable by using the relevant formula which could be solved by the student in approx. 08 min, will be asked in university question paper | 05 | Numerical Question | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

NIL

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 1 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering-I** |
| **CO Description** | **Student will be able to calculate / stress/ strain/deformation / bending moment /deflection in a given problem situation** |
| **LO Description** | **Student will be able to calculate section modulus/ torsion & shear stresses /angle of twist/ torque/ power transmitted for the given case of simple cylindrical shaft** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Torques, twisting of simple cylindrical solid shaft due to torque. Torsional & shear stresses, polar moment of inertia of circular section, general torsional equation and its use, angle of twist, simple numerical problems based on use of formula | Traditional Lecture method | Teacher will explain different concepts and formulas related to contents, demonstrate methods of solving different problems. Students will practice to solve problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials | 04 | 04 | Book:- Strength of materials by R. S .Khurmi<br>Or<br>Its equivalent | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Theory exam | a simple numerical question to assess the ability of student to calculate the unknown variable by using the relevant formula, which can be solved by the student in approx. 12 min, will be asked in university question paper | 10 | Numerical Question | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

NIL

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 1 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering (BME) - I** |
| **CO Description** | **Student will be able to calculate / stress/ strain/ deformation / bending moment /deflection in a given problem situation** |
| **LO Description** | **Student will be able to calculate the maximum bending moment / shear force/ bending stresses in a given simply supported beam or cantilever beam with vertical point loads by drawing bending moment diagrams** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Bending moment (BM) and its effects, examples, Bending of beams, neutral axis & layer, determination of BM and shear forces at different sections of simply supported Beam and cantilever beams due to point loads, point of contra-flexure, calculation of bending stresses, equation of bending, section modulus, simple numerical problems based on use of formula | Traditional Lecture method | Teacher will explain different concepts and formulas related to contents, demonstrate methods of solving different problems. Students will practice to solve problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials | 06 | 04 | Book:- Strength of materials by R. S .Khurmi<br>Or<br>Its equivalent | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Theory exam | Two simple numerical questions, first to check ability to determine max. BM and its location in the given problem of beam by drawing BM diagrams, Second to check ability to calculate the unknown variable using the bending equation, will be asked in university question paper | 15 | Numerical Questions | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

NIL

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 2 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering (BME) - I** |
| **CO Description** | **Student will be able to calculate work done, heat transferred and air standard efficiency in a given problem of thermodynamic system** |
| **LO Description** | **Student will be able to calculate heat supplied / work done/ change in internal energy in a given problem of a standard thermodynamic process** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Meaning of Thermodynamics, Thermodynamic system, state, change in state, process, standard thermodynamic processes i.e. Const. Pressure, Const. Volume, Isothermal and Adiabatic. Heat Supplied & rejected, Work done, Internal energy, Enthalpy, simple numerical problems based on use of formula | Traditional Lecture method | Teacher will explain different concepts and formulas related to contents, demonstrate methods of solving different problems. Students will practice to solve problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials | 06 | 04 | Book:- Engineering Thermodynamics by R. S. Khurmi<br><br>Or<br><br>its equivalent | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Theory exam | Examiner will frame two numerical questions to assess the ability to calculate the Heat Supplied /work done/ change in internal energy by using the relevant formula which could be solved by the student in approx. 7-8 min for each | 10 | Numerical Questions | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

| |
|---|
| NIL |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 2 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering-I** |
| **CO Description** | **Student will be able to calculate work done, heat transferred and air standard efficiency in a given problem of thermodynamic system** |
| **LO Description** | **Student will be able to calculate the Air Standard Efficiency of Otto / Diesel thermodynamic cycles** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Thermodynamic cycle, benefit and use of thermodynamic cycle, related terminology, examples, Theoretical and actual cycles, Air standard cycles, Otto and Diesel Cycles, Heat Supplied, Heat Rejected, Work done, and efficiency of Air Standard Otto and Diesel Cycles, simple numerical problems based on use of formula | Traditional Lecture method | Teacher will explain different concepts and formulas related to contents, demonstrate methods of solving different problems. Students will practice to solve problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials | 05 | 03 | Book:- Engineering Thermodynamics by R. S. Khurmi<br><br>Or<br><br>its equivalent | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Theory exam | Examiner will frame one numerical question to assess the ability to calculate the air standard efficiency of Otto or Diesel thermodynamic cycle which can be solved by the student in approx. 15 min. | 10 | Numerical Question | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

NIL

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 2 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering-I** |
| **CO Description** | **Student will be able to calculate work done, heat transferred and air standard efficiency in a given problem of thermodynamic system** |
| **LO Description** | **Student will be able to calculate IP /BP/ Mech. Efficiency from the given engine related data** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Engine power, units, Indicated power, Brake Power, Frictional Power, Mean Effective Pressure, mechanical efficiency, formulae for calculating IP, BP, FP and M. efficiency, simple numerical problems based on use of formula | Traditional Lecture method | Teacher will explain different concepts and formulas related to contents, demonstrate methods of solving different problems. Students will practice to solve problems under guidance of the teacher. Teacher will assess their ability and provide necessary remedial and tutorials | 04 | 03 | Book:- Engineering Thermodynamics by R. S. Khurmi Or its equivalent | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Theory exam | Examiner will frame one numerical question to assess the ability of the student to calculate IP /BP/ Mech. Efficiency which can be solved by the student in approx. 15 min | 10 | Numerical Question | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

NIL

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 3 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering-I** |
| **CO Description** | **Student will be able to select appropriate material for the given automobile element** |
| **LO Description** | Student will be able to **explain** the important properties and specific uses of the given important metallic alloys/non-metallic materials used in automobiles |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Importance of engineering materials, role of materials in engineering systems, material requirements of important automobile components, materials used in automobiles, important properties and specific uses of cast iron alloys, different types of steels, aluminum alloys, magnesium alloys, composite materials, reinforced plastics , polymers and rubber used in automobiles | Traditional Lecture method | Teacher will explain different concepts related to contents with the help of examples, will give assignments. teacher will assess their ability and provide necessary remedial and tutorials | 10 | 04 | Handout, standard books on material selection for engineering application, nternet based learning material | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Theory exam | A theory question will be framed to assess the ability to explain the important properties of the given engineering material which could be solved by the student in approx. 12 min | 10 | Question paper, rating scale | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

NIL

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 3 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering-I** |
| **CO Description** | **Student will be able to select appropriate material for the given automobile element** |
| **LO Description** | **Student will be able apply general procedure of selection of material in the given case** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | General procedure of selection of appropriate engineering material for the component of any engineering system, major factors to be considered, discussion on examples and causes related to automobile engineering | Traditional Lecture method | Teacher will explain different concepts related to contents with the help of examples and cases, will give assignments. teacher will assess students' ability and provide necessary remedial and tutorials | 04 | 03 | Handout, standard books on material selection for engineering application, internet based learning material | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Paper pen test | A theory question will be framed to assess the ability to apply general procedure of selection of engineering material in the given case, which could be solved by the student in approx. 12 min | 05 | Test paper, rating scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

NIL

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 3 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering-I** |
| **CO Description** | **Student will be able to select appropriate material for the given automobile element** |
| **LO Description** | Student will be able to **select** appropriate material for the given function/ working condition of an engineering /automobile element |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Selection of appropriate engineering material for the component of any engineering system on basis of given function/working conditions. Discussion on examples and causes related to automobile engineering | Traditional Lecture method | Teacher will explain different concepts related to contents with the help of examples and cases, will give assignments. teacher will assess students' ability and provide necessary remedial and tutorials | 03 | 02 | Handout, standard books on material selection for engineering application, internet based learning material | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Paper pen test | A theory question will be framed to assess the ability to select engineering material in the given case, which could be solved by the student in approx. 08 min | 05 | Test paper, rating scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

NIL

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 4 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering-I** |
| **CO Description** | **Student will be able to explain the manufacturing process needed to repair the given simple machine / automobile element** |
| **LO Description** | Student will be able to **explain** the asked manufacturing processes along with their engineering applications |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Study of theory, procedure, engineering applications, major tools and major equipments for manufacturing processes i.e. casting, hot and cold working, gas and arc welding, turning, facing, drilling, milling, grinding, introduction to CNC machining | Traditional Lecture method | Teacher will explain different concepts related to contents with the help of examples, will give assignments. teacher will assess their ability and provide necessary remedial and tutorials | 08 | 04 | Handout, standard books on manufacturing processes, internet based learning material | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Theory exam | A theory question will be framed to assess the ability to explain the asked manufacturing process which could be solved by the student in approx. 12 min | 10 | Question paper, rating scale | External |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

NIL

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 4 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering-I** |
| **CO Description** | **Student will be able to explain the manufacturing process needed to repair the given simple machine / automobile element** |
| **LO Description** | Student will be able to **compare** two similar mfg. processes on basis of their difference, merits and limitations |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching –Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Comparison of gas and arc welding, hot and cold working, casting and machining, lathe machining and CNC machining on basis of difference, merits and limitations | Traditional Lecture method | Teacher will explain different concepts related to contents with the help of examples, will give assignments. teacher will assess their ability and provide necessary remedial and tutorials | 05 | 03 | Handout, standard books on manufacturing processes, internet based learning material | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Paper pen test | A theory question will be framed to assess the ability to compare the given pair of mfg. processes which could be solved by the student in approx. 10 min | 06 | Test paper, rating scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

NIL

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | 0 | 3 | 3 | 0 | 4 | 4 | 3 | |

| | |
|---|---|
| **COURSE NAME** | **Basics of Mechanical Engineering-I** |
| **CO Description** | **Student will be able to explain the manufacturing process needed to repair the given simple machine / automobile element** |
| **LO Description** | **Student will be able to select appropriate mfg processes to manufacturer the given automobile elements, with justification** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Commonly adopted manufacturing processes for different major automobile components | Traditional Lecture method | Teacher will explain different concepts related to contents with the help of examples, will give assignments. teacher will assess their ability and provide necessary remedial and tutorials | 05 | 03 | Handout, standard books on manufacturing processes, internet based learning material | NIL |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1.** | Paper pen test | A theory question will be framed to assess the ability to match the columns where first column will be list of 20 components and second column will be list of manufacturing processes, which could be solved by the student in approx. 12 min | 04 | Test paper, rating scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

NIL

| RGPV (DIPLOMA WING) BHOPAL | OBE CURRICULUM FOR THE COURSE | FORMAT-3 | Sheet No. 1/3 |
|---|---|---|---|

| Branch | ALL BRANCHES | Semester | III |
|---|---|---|---|

| Course Code | | Course Name | PROFESSIONAL DEVELOPMENT-III |
|---|---|---|---|

| | | | |
|---|---|---|---|
| **Course Outcome 1** | **Student will be able to perform as the team leader of small team for solving a team problem in the given situation** | Teach Hrs | Marks |
| **Learning Outcome 1** | Student will be able to demonstrate his/her understanding of leadership required in a team work performance | 10 | 10 |
| **Contents** | Team leaders, importance of team leader, role of team leaders, important qualities of good team leaders, behaviors of good team leaders | | |
| **Method of Assessment** | Paper pen test | | |
| **Learning Outcome 2** | Student will be able to play role of the leader of a team for solving a team problem in the given situation | 10 | 15 |
| **Contents** | Team leaders, importance of team leader, role of team leaders, important qualities of good team leaders, behaviors of good team leaders | | |
| **Method of Assessment** | Student's role play | | |
| **Course Outcome 2** | **Student will be able to apply professional ethics in a given problem situation** | | |
| **Learning Outcome 1** | Student will be able to **demonstrate** his/her understanding of professional ethics | 10 | 10 |
| **Contents** | Professional ethics, its need and importance, seven ethics common to all professionals, general code of ethics for engineers, ethical issues for engineers, common problems related to professional ethics, ethical issues, identification of ethical issues in cases for engineers. | | |

| | | | |
|---|---|---|---|
| **Method of Assessment** | Paper pen test | | |
| **Learning Outcome2** | Student will be able to **apply** appropriate professional ethics in a given problem situation | 10 | 10 |
| **Contents** | Procedure of solving the problems related professional ethics, Identification of ethical issue, identification of the ethical stand, searching various possible solutions for the problem keeping ethical stand in focus, selection of appropriate solution. | | |
| **Method of Assessment** | Paper pen test | | |
| **Course Outcome 3** | **Student will be able to plan self-learning to complete the given task** | Teach Hrs | Marks |
| **Learning Outcome 1** | Student will be able to identify the self-learning needs for completing the given task | 10 | 10 |
| **Contents** | Lifelong learning, its examples, self-directed learning, its examples, important steps in lifelong learning, identification of learning needs | | |
| **Method of Assessment** | Assessment through student activity | | |
| **Learning Outcome 2** | Student will be able to plan self directed learning for completing the given task | 10 | 10 |
| **Contents** | Need for planning, need for planning self directed learning, planning self directed learning, self directed learning plan, examples. | | |
| **Method of Assessment** | Assessment through student activity | | |

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | M | 0 | 2 | 3 | 0 | 5 | 1 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **Professional Development-III** |
| **CO Description** | **Student will be able to perform as the team leader of small team for solving a team problem in the given situation** |
| **LO Description** | **Student will be able to demonstrate his/her understanding of leadership required in a team work performance** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching-Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Team leaders, importance of team leader, role of team leaders, important qualities of good team leaders, behaviors of good team leaders | Traditional lecture method + Case Study | Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial. | 05 | 05 | Handout, video film* | *Teacher will suggest a suitable online video to be viewed by students |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1** | Paper pen test | A test will be designed and administered by the teacher to assess the understanding of student. Assessment will be done through Rating Scale. | 10 | Test paper and Rating Scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**Important qualities of team leader:-**
**will be able to**

1. to take initiatives
2. take responsibility on behalf of group
3. to visualize the team event and plan things for the event
4. to take interest to carry out related activities

5. to take interest in solving team related problems

**The test questions :-**

1. Explain the importance of team leadership
2. Explain important qualities of good team-leaders
3. Identify the team leader's behavior in the following list of team persons' behavior
4. Identify the team leader in the following case of team event
5. Suggest the team leader's would be course of action in the following team problem situation

**Performance indicators**

1. Quality of response the Q. 1
2. Quality of response to Q. 2
3. Number of correct behaviors identified in Q. 3(Max. 3 correct behaviors out of 10)
4. Correct team leader identified or not, in Q. 4
5. Correct team leader course of action suggested or not, in Q. 5

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | M | 0 | 2 | 3 | 0 | 5 | 1 | 2 | |

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|---|---|
| **COURSE NAME** | **Professional Development-III** |
| **CO Description** | **Student will be able to perform as the leader of small team for solving a team problem in the given situation** |
| **LO Description** | **Student will be able to play role of the leader of a team for solving a team problem in the given situation** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching-Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Team leaders, importance of team leader, role of team leaders, important qualities of good team leaders, behaviors of good team leaders | Case Study method | Teacher will organize a students' team event in class/ department. Few students will be asked to play roles of team members and the leader to solve team problems under given situation. Other students will observe. Afterward, teacher will discussion with students. Teacher will organize similar events for practice. | 02 | 08 | video film* | *Teacher will suggest a suitable online video to be viewed by students |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1** | Student's role play | The teacher will organize small team events in batches in which individual students will be asked to play role of leader to solve a team problem, under given situation. Teacher will observe and assess the extent of leader's behavior performed by students on the basis of performance indicators | 15 | Rating Scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**The assessment will be done on basis of following performance indicators:-**

1. Extent to which student take initiatives
2. Extent to which student take responsibility on behalf of group
3. Extent to which student visualize the team event and plan things for the event
4. Extent to which student take interest to carryout team related activities

**5.** Extent to which student take interest in solving team related problems

| **RGPV (Diploma Wing ) Bhopal** | **SCHEME FOR LEARNING OUTCOME** | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. **4** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **3** | **0** | **5** | **2** | **1** | |

| | |
|---|---|
| **COURSE NAME** | **Professional Development-III** |
| **CO Description** | **Student will be able to apply professional ethics in a given problem situation** |
| **LO Description** | Student will be able to **demonstrate** his/her understanding of professional ethics |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Professional ethics, its need and importance, seven ethics common to all professionals, general code of ethics for engineers, ethical issues for engineers, common problems related to professional ethics, ethical issues, identification of ethical issues in cases for engineers. | Traditional lecture method + Case Study | Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial. | 05 | 05 | Handout, video film* | *Teacher will suggest a suitable online video to be viewed by students |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1** | Paper pen test | A test will be designed and administered by the teacher to assess the understanding of student. Assessment will be done through Rating Scale. | 10 | Test paper and Rating Scale | Internal |

## ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

**1. Ethics common to all professions**

- honesty
- trustworthiness
- loyalty
- respect for others
- adherence to the law
- doing good and avoiding harm to others
- Accountability.

**2. General code of ethics for engineers:-**

1. Respect for People's Dignity and Rights
2. Responsible Practice
3. Integrity in Relationships
4. Responsibility

**3. Common Ethical issues for engineers:-**

- Relationships with clients, consultants, competitors, and contractors
- Ensuring legal compliance by clients, client's contractors, and others
- Conflict of interest
- Bribery and kickbacks, which might include:
  Gifts, meals, services, entertainment and recreation opportunities
- Treatment of confidential or proprietary information

- Consideration of the employer's assets
- Outside employment/activities

**Test Performance Indicators:-**

Extent to which student will be able

1. To explain the professional ethics (2 marks)
2. To explain the need and importance of professional ethics (2 marks)
3. To explain seven ethics common to all professions (2 marks)
4. To identify the problem related to professional ethics in given list of problems (2 marks)
5. To identify the ethical issue for an engineer in a given case of professional ethics (2 marks)

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 3 | 0 | 5 | 2 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **Professional Development-III** |
| **CO Description** | **Student will be able to apply professional ethics in a given problem situation** |
| **LO Description** | Student will be able to **apply** appropriate professional ethics in a given problem situation |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching – Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Procedure of solving the problems related professional ethics, Identification of ethical issue, identification of the ethical stand, searching various possible solutions for the problem keeping ethical stand in focus, selection of appropriate solution. | Traditional lecture method + Case Study | Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial. | 05 | 05 | Handout, video film* | *Teacher will suggest a suitable online video to be viewed by students |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1** | Paper pen test | A case based test on problem of ethical issue for an engineer will be designed and administered by the teacher to assess the ability of students to solve the ethical problem; Assessment will be done through Rating Scale. | 10 | Test paper and Rating Scale | Internal |

## ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

**Steps in solving ethical problems:-**

1. Identify the ethical issue in the problem
2. Identify the ethical stand in the problem
3. Search for various possible solutions keeping focus on the ethical stand
4. Implement the best possible solution

**Performance indicators:-**

1. Correctness of identified ethical issue in the problem ( 3 marks)
2. Correctness of identified ethical stand ( 3 marks)
3. Quality of suggested possible solutions (2 marks)
4. Appropriateness of selected best possible solution (2 marks)

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | M | 0 | 2 | 3 | 0 | 5 | 3 | 1 | |

| | |
|---|---|
| **COURSE NAME** | **Professional Development-III** |
| **CO Description** | **Student will be able to plan self-learning to complete the given task** |
| **LO Description** | **Student will be able to identify the self-learning needs for completing the given task** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching-Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Lifelong learning, its examples, self-directed learning, its examples, important steps in lifelong learning, identification of learning needs | Traditional lecture method + Case Study | Teacher will explain about the contents along-with examples/cases, will give assignment for practice, will conduct tutorials and remedial. | 05 | 05 | Handout, video film* | *Teacher will suggest a suitable online video to be viewed by students |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1** | Assessment through student activity | A Self-assessment portfolio will be prepared by the student on the task assigned by the teacher. Assessment of portfolio will be done through Rating Scale. | 10 | Portfolio format and Rating Scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

1. **Lifelong learning**

All **learning** activities undertaken throughout life, with the aim of improving knowledge, skills and competences within a personal, civic, social and/or employment-related perspective. It is voluntary, self-initiated and self-directed learning.

Examples:-

1. We learn to use smart phones (informal learning)
2. We learn yoga by joining a one week yoga training programme organized by a private spiritual institute (formal learning).

2**. Self directed learning**

A process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.

**3. Essential steps of lifelong learning**

1. Identification of self learning need (what to learn)
2. Searching about how I can learn, search of learning resources and ways/means to use them for learning
3. Planning self-learning
4. Implementing the plan

**4. Suggested list of tasks for practice of identification of learning needs**

1. You have to repair your faulty house-hold electric iron
2. You have to daily operate the new washing machine purchased at your home
3. You have to format your PC
4. You have to attend online class using meet.google app
5. You have to share your ideas online with your distant friends. You have to arrange a webinar
6. You have to visit abroad and therefore you have to apply for passport
7. Your mother is a patient of high BP. You have to measure her BP daily two times at home with traditional BP measuring apparatus
8. Your bike is not getting started. You have to check its spark plug.
9. You have to complete bank paper formalities for bank loan to establish your small manufacturing unit
10. You have to prepare French-fries at home.

**5. Self-assessment portfolio**

A questionnaire in which questions are in first person and space is provided after each question to write the answer. It is prepared by the student.

**6. Self-assessment portfolio questions:-**

1. Can I complete this task ?
2. Is there special knowledge or skill required to complete the task ?

3. What knowledge or skill is required to complete this task ?
4. Do I have this knowledge or skill ?
5. From where I can learn this knowledge or skill. (Mention at least three sources. Sources may be people, institutions, books, websites?)
6. How I can manage to learn this knowledge or skill?

**7. Indicators of performance**

1. Able to identified that he/she can-not complete the given task due to lack of knowledge or skill
2. Able to identified the need for special knowledge or skill to complete the task
3. Correctness of identified knowledge or skill required to complete the task
4. Appropriateness of sources from which student can learn knowledge or skill
5. Extent of feasibility of student's way to acquire the required knowledge or skill

| RGPV (Diploma Wing ) Bhopal | SCHEME FOR LEARNING OUTCOME | Branch Code | | | Course Code | | | CO Code | LO Code | Format No. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | M | 0 | 2 | 3 | 0 | 5 | 3 | 2 | |

| | |
|---|---|
| **COURSE NAME** | **Professional Development-III** |
| **CO Description** | **Student will be able to plan self directed learning to complete the given task** |
| **LO Description** | **Student will be able to plan self directed learning for completing the given task** |

**SCHEME OF STUDY**

| S. No. | Learning Content | Teaching-Learning Method | Description of T-L Process | Teach Hrs. | Pract. /Tut Hrs. | LRs Required | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | Need for planning, need for planning self directed learning, planning self directed learning, self directed learning plan, examples. | Traditional lecture method + Case Study | Teacher will explain about the contents along-with examples/cases, will give assignment of preparing self-directed learning plan for practice, will conduct tutorials and remedial. | 05 | 05 | Handout, video film* | *Teacher will suggest a suitable online video to be viewed by students |

**SCHEME OF ASSESSMENT**

| S. No. | Method of Assessment | Description of Assessment | Maximum Marks | Resources Required | External / Internal |
|---|---|---|---|---|---|
| **1** | Assessment through student activity | A self directed learning plan will be prepared by the student on the task assigned by the teacher. Assessment of the plan will be done through Rating Scale. | 10 | Plan format and Rating Scale | Internal |

**ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)**

**1. Self directed learning**

A process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.

**3. Essential steps of lifelong learning**

5. Identification of self learning need (what to learn)

6. Searching about how I can learn, search of learning resources and ways/means to use them for learning
7. Planning self directed learning
8. Implementing the plan

**4. Contents of the plan**

1. Description of knowledge or skill to be self-learned
2. Description of selected source of learning the knowledge or skill ie people, books, institutions, websites etc.
3. Description of method of self-directed learning viz formal learning or informal learning
4. Description of additional resources / learning resources required
5. Expected time required to learn along with justification

**5. Indicators of performance**

1. Quality of description of knowledge or skill to be self-learned (3 marks)
2. Appropriateness of selected source of knowledge or skill learning (3 marks)
3. Appropriateness of method of self-learning (1 mark)
4. Appropriateness of additional resources / learning resources required (1 mark)
5. Appropriateness of time required to learn (1 mark)